PUBLIC REVIEW DRAFT

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

MARSH CREEK REGIONAL TRAIL PROJECT
BRENTWOOD TO ROUND VALLEY REGIONAL PRESERVE

BRENTWOOD, CONTRA COSTA COUNTY, CALIFORNIA

LSA

July 2021

This page intentionally left blank

PUBLIC REVIEW DRAFT

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

MARSH CREEK REGIONAL TRAIL PROJECT
BRENTWOOD TO ROUND VALLEY REGIONAL PRESERVE

BRENTWOOD, CONTRA COSTA COUNTY, CALIFORNIA

Submitted to:

East Bay Regional Park District
2950 Peralta Oaks Court
Oakland, California 94605

Prepared by:

LSA
157 Park Place
Pt. Richmond, California 94801
510.236.6810

Project No. QEN1801

LSA

July 2021

This page intentionally left blank

TABLE OF CONTENTS

APPENDICES

FIGURES AND TABLES

FIGURES

TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

A-3	Heavy Agricultural District
A-4	Agricultural Preserve District
AAQs	Ambient Air Quality Standards
AB 52	Assembly Bill 52
ABAG	Association of Bay Area Governments
AL	Agricultural Lands
ARDTP	Archaeological Research Design and Treatment Plan
BAAQMD	Bay Area Air Quality Management District
BMPs	Best Management Practices
CAL FIRE	California Department of Forestry and Fire Protection
CAP	Climate Action Plan
CCCFCWCD	Contra Costa County Flood Control and Water Conservation District
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	methane
Clean Air Plan	BAAQMD's 2017 Clean Air Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Corps	United States Army Corps of Engineers
CRHR	California Register of Historic Resources
CWA	Clean Water Act
dB	decibel
dBA	A-weighted sound level

District	East Bay Regional Park District
District Master Plan	East Bay Regional Park District 2013 Master Plan
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
ECCFPD	East Contra Costa Fire Protection District
EFZ	Earthquake Fault Zones
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
FMMP	California Department of Conservation Farmland Mapping and Monitoring Program
FHWA	Federal Highway Administration
GHG	greenhouse gases
GSAs	Groundwater Sustainability Agencies
GSPs	Groundwater Sustainability Plans
GWP	Global Warming Potential
HCP/NCCP	Habitat Conservation Plan/Natural Community Conservation Plan
HFCs	Hydrofluorocarbons
IPaC	Information for Planning and Consultation
IS/MND	Initial Study/Mitigated Negative Declaration
L_{dn}	day-night average level
L_{eq}	Equivalent continuous sound level
L_{max}	maximum instantaneous sound level
MCSP	Marsh Creek State Park
MLD	most likely descendant
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NAHC	Native American Heritage Commission
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
NWS	National Weather Service

O_3	ozone
P	Park
Pb	lead
PD-64	Planned Development
PF	Public Facility
PFCs	Perfluorocarbons
PM	particulate matter
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
POTWs	Publicly-owned Treatment Works
PR	Parks and Recreation
PRC	California Public Resources Code
PS	Public/Semi-Public
QSD	Qualified SWPPP Developer
RoadMod	Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, Version 9.0.0
ROG	reactive organic gases
RWQCB	California Regional Water Quality Control Board (San Francisco Bay Region)
SF_6	sulfur hexafluoride
SGMA	California Sustainable Groundwater Management Act
SMARA	State Mining Reclamation Act of 1975
SO_2	sulfur dioxide
SRA	State Responsibility Area
SSA	Streambed Alteration Agreement
State Parks	California Department of Parks and Recreation
State Water Board	California State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
USEPA	United States Environmental Protection Agency
VMT	Vehicle Mile Traveled
WS	Watershed

This page intentionally left blank

1.0 PROJECT INFORMATION

1. Project Title:

Marsh Creek Regional Trail Project – Brentwood to Round Valley Regional Preserve

2. Lead Agency Name and Address:

East Bay Regional Park District
2950 Peralta Oaks Court
Oakland, CA 94605

3. Contact Person and Phone Number:

Sean Dougan, Trails Development Program Manager
East Bay Regional Park District
Phone/Email: 510-544-2611; sdougan@ebparks.org

4. Project Location:

The proposed trail alignment would begin at the intersection of Vineyards Parkway and Marsh Creek Road in the City of Brentwood, and would connect to the East Bay Regional Park District's (District) Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County, California (Figure 1).

5. Project Sponsor's Name and Address:

East Bay Regional Park District
2950 Peralta Oaks Court
Oakland, CA 94605

6. General Plan Designation:

Brentwood: Park (P) and Public Facility (PF); Unincorporated Contra Costa County: Parks and Recreation (PR), Public/Semi-Public (PS), Watershed (WS), and Agricultural Lands (AL)

7. Zoning:

Brentwood: Planned Development (PD-64); Unincorporated Contra Costa County: Heavy Agricultural District (A-3); Agricultural Preserve District (A-4)

8. Description of Project :

The District proposes to construct an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyards Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. Portions of the proposed trail would be located on

lands owned by Contra Costa County, the City of Brentwood, Contra Costa County Flood Control and Water Conservation District (CCCFCWCD), and the California Department of Parks and Recreation (State Parks).

Project Background. In March 2019, the District began the process of preparing a Feasibility and Conceptual Engineering Study (Study) for a 3-mile extension of the Marsh Creek Regional Trail from Vineyards Parkway in Brentwood to Round Valley Regional Preserve trailhead on Marsh Creek Road. As part of the Study, three workshops were held to solicit public input on preliminary alignment, proposed alternatives, and options for providing a safe crossing for trail users at Marsh Creek Road.

As part of the Study, a series of alternative alignments were developed and evaluated, including a trail along Marsh Creek Road, a trail along the existing Ranch Road, and the Summit Route, through the Marsh Creek State Park (MCSP). Figure 2 shows the preliminary alignment options. Based on the alternatives screening, review by project stakeholders and input from the public, a preferred alignment, generally paralleling Marsh Creek Road, was selected. This alignment was further refined at key locations to address environmental, engineering, and use considerations, including:

- Utilizing existing roads (including Old Marsh Creek Road) and adjacent areas in the vicinity of the John Marsh House to minimize or avoid potential cultural resources conflicts;
- Routing the alignment along Marsh Creek Road north of the dam to address slope accessibility issues and to minimize intrusion into the dam embankment;
- Utilizing the existing berm south of the dam to provide a desirable user experience near, but not within, Marsh Creek Road;
- Alignment that is set back from Marsh Creek Road but close enough to offer site visibility and management efficiency;
- Marsh Creek Bridge pedestrian crossing is set back from road for an improved user experience and sited to avoid hydraulic impacts to the new Marsh Creek Road vehicle bridge;
- Marsh Creek Road undercrossing is sited to take advantage of existing topography and road visibility. An undercrossing was preferred rather than an overcrossing for the following reasons:
    - Opportunity for unobstructed wildlife crossing consistent with the East Contra Costa County Habitat Conservation Plan;
    - Preferred for equestrian use as indicated during public outreach;
    - Potential significant visual impacts of overcrossing and ramps needed for accessibility;
    - Constructability and costs associated with bridge and ramp needs; and
    - Traffic engineering recommendations regarding potential use and warrants for an overpass.

LSA

FIGURE 1

0 0.5 1 2
MILES

N

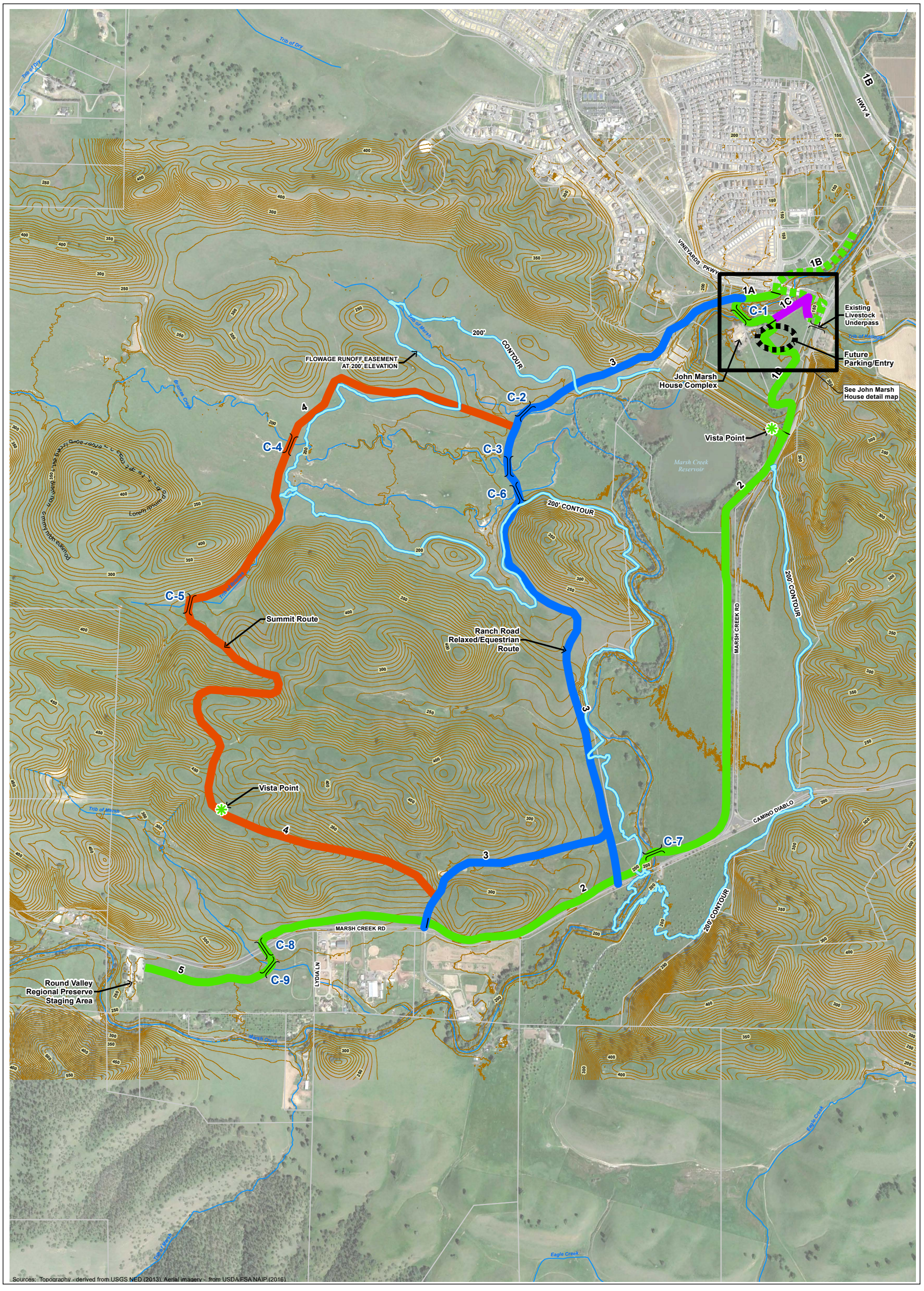
Marsh Creek Regional Trail Project - Brentwood to Round Valley Regional Preserve

Regional Location

SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES; 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_1.ai (4/10/2020)

This page intentionally left blank



LSA

FIGURE 2

N

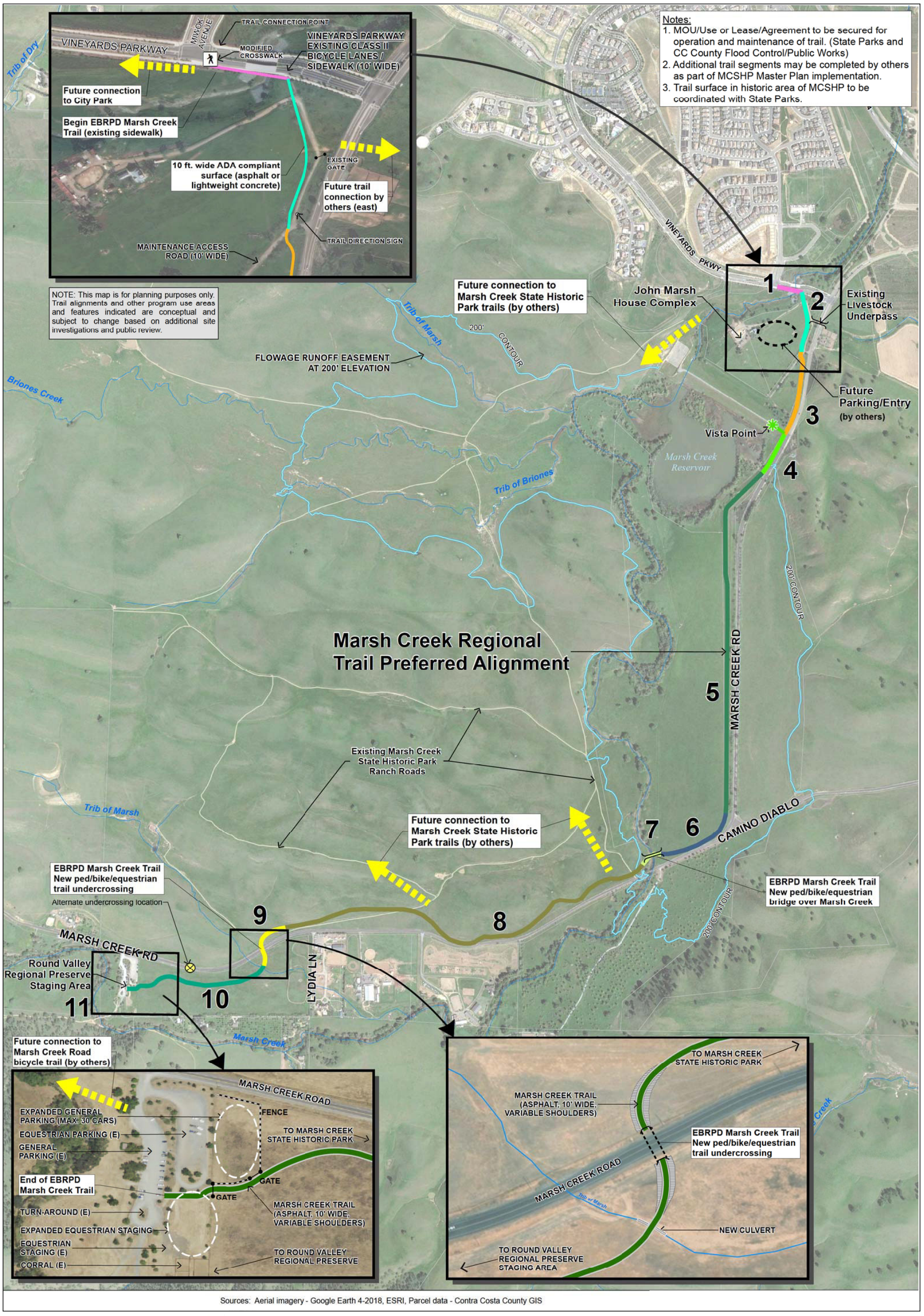
0 2000 4000

FEET

Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Preliminary Alignment Options

SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_2.ai (6/4/2020)



LSA

FIGURE 3

N

0 2000 4000

FEET

Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Proposed Trail Segments

SOURCES: EBRPD; QUESTA ENGINEERING ; 2M ASSOCIATES, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_3.ai (6/5/2020)

Project Components. The preferred alignment would utilize City of Brentwood right of way along Vineyards Parkway, cross State Park lands within or along existing roads, and follow the incline of Marsh Creek Road to the Marsh Creek Dam (dam) and into the CCCFCWCD lands. The trail would then be located along an existing berm and along Marsh Creek Road with a new Marsh Creek bridge north of the road. The alignment would continue west along Marsh Creek Road with an undercrossing of the road and continuation of the trail south of Marsh Creek Road, terminating at the Round Valley trailhead.

The proposed trail would generally consist of a paved 10-foot-wide trail surface with minimum 2-foot wide gravel shoulders. Earthwork would be required to create a firm and stable surface that complies with accessibility regulations. The proposed project would also include installation of surface improvements, ramp and culvert structures, a prefabricated pedestrian/bicycle bridge, undercrossing, fencing and gates, shade structures, signage, restoration planting, parking area improvements and signage/access improvements at the existing Round Valley Trailhead. Table 1.A and Figure 3 summarize the project components and the associated land ownership of each trail segment. Figure 4 shows typical trail cross sections.

Table 1.A: Proposed Project Components

Segment	Owner/Parcel	Linear Feet	Type
1A	City of Brentwood	N/A	Signal modification to the intersection of Vineyards Parkway and Miwok Drive to facilitate bicycle, pedestrian, and equestrian crossing of the road.
1B	City of Brentwood	300	Sidewalk and safety rail improvements at the existing Vineyards Parkway Bridge.
2	State Parks	900	Construction of 10-foot-wide asphalt trail surface with minimum 2-foot-wide shoulders within MCSP, gates, fencing, signage and striping.
3	CCCFCWCD/ Contra Costa County	1,000	Installation of earthwork and fill, a 10-foot-wide asphalt trail surface with minimum 2-foot-wide shoulders, concrete ramps, railing, retaining walls (< 3 feet high), gates, fencing, signage and striping on the west side of Marsh Creek Road. (see Figures 5A and 5B)
4	CCCFCWCD	600	Construction of a new 14-foot paved trail connection (maximum 8 percent slope), retaining wall and associated earthwork to connect to the Marsh Creek Dam crest north and south of the dam, gates, fencing, signage and striping, and overlook improvements (including 500 square feet of pavement, benches, shade structure, and interpretative signage).
5	CCCFCWCD	5,000	Earthwork and surface improvements for a trail with 2-foot-wide shoulders on a berm on the west side of Marsh Creek Road (north-south), gates, fencing, signage and striping to the intersection of Marsh Creek Road and Camino Diablo.
6	CCCFCWCD	1,300	Construction of paved trail with minimum 2-foot-wide shoulders along Marsh Creek Road (east-west), gates, fencing, signage and striping.
7	CCCFCWCD	200	Installation of a pre-fabricated pedestrian/bicycle bridge across Marsh Creek, abutments and footings, and landscape restoration planting (see Figure 6).
8	State Parks	5,100	Construction of paved trail with shoulders along Marsh Creek Road (east-west), gates, fencing, signage and striping.
9	State Parks/ Contra Costa County	900	Installation of undercrossing of Marsh Creek Road and trail section, including approach ramps, concrete abutment, drainage improvements, lighting, fencing and gates (see Figure 7). Material excavated to construct the underpass would be placed for the roadway embankment fill along trail section leading to dam.

Table 1.A: Proposed Project Components

Segment	Owner/Parcel	Linear Feet	Type
10	State Parks	2,000	Construction of paved trail with shoulders along Marsh Creek Road (east-west), gates, fencing, signage, and striping, and a culvert crossing of unnamed seasonal swale.
11	State Parks (East Bay Regional Park District management)	N/A	Improvements to the existing Round Valley Trailhead, including delineation of parking spaces, ingress/egress, trailer parking, provision of 20-30 additional parking spaces, fencing, signage, gates, interpretive signage and shade structure, totaling approximately 20,000 square feet (see Figure 8).

Source: Questa Engineering (2020).

The initial segment (Segments 1A and 1B), beginning in the City of Brentwood, would consist of signal, pavement, and safety improvements to existing Vineyards Parkway to provide accommodations for pedestrians, cyclists, and equestrians within City right of way. Proposed improvements would include signal modifications at the intersection of Vineyards Parkway and Miwok Avenue for safer pedestrian and bicycle crossing, wayfinding signage and pavement striping, railing modifications to the existing bridge across Marsh Creek, and buffer/delineation of the pathway alignment. Modifications to existing landscaping and a transition to the trail segment within the MCSP Primary Historic Zone would also be completed.

Within the MCSP Primary Historic Zone (Segment 2), minimization of ground disturbance is critical to reduce potential impacts to existing cultural resources. As such, the proposed trail would be located within the fenced area that contains portions of the former Old Marsh Creek Road, as well as the Historic House entry road. This trail segment would be constructed with a design profile to minimize ground penetration and to distribute weight across the trail. Portions of the trail would consist of re-paving sections of the former Old Marsh Creek Road. A separation of at least 7 feet would be provided between the Historic House gravel entry road and the proposed trail. At the entrance to the MCSP, entry road modifications would be constructed to guide bicyclists using Marsh Creek Road to the trail entry. These modifications could include pavement modifications, signage, striping, and buffer/landscape planting to separate trail users from the vehicular path of travel.

Trail construction within Segments 3 through 7 would include lands primarily owned and managed by CCCFCWCD, including portions of the trail immediately adjacent to the Marsh Creek Road right of way, as well as lands that contain the Marsh Creek Dam, associated levees/berms, and lands utilized for flood retention. From the MCSP Primary Historic Zone, the trail would continue south along Old Marsh Creek Road, then ramp up along the edge of the dam face or along Marsh Creek Road to the dam crest. The design would need to avoid any cut into the embankment or levee. At the dam crest, a small overlook with shade structure, and bench would be provided.

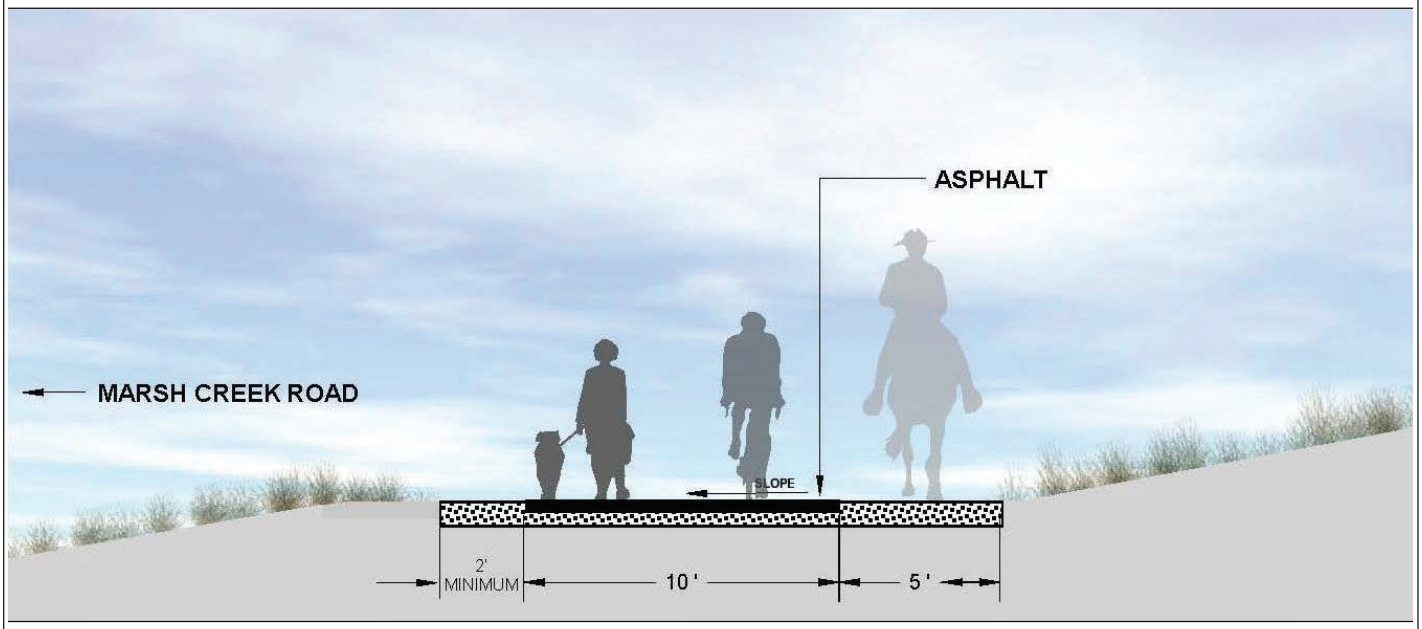


FIGURE 3a
Typical Trail Section - Segments 2, 4, 6, 8, and 10

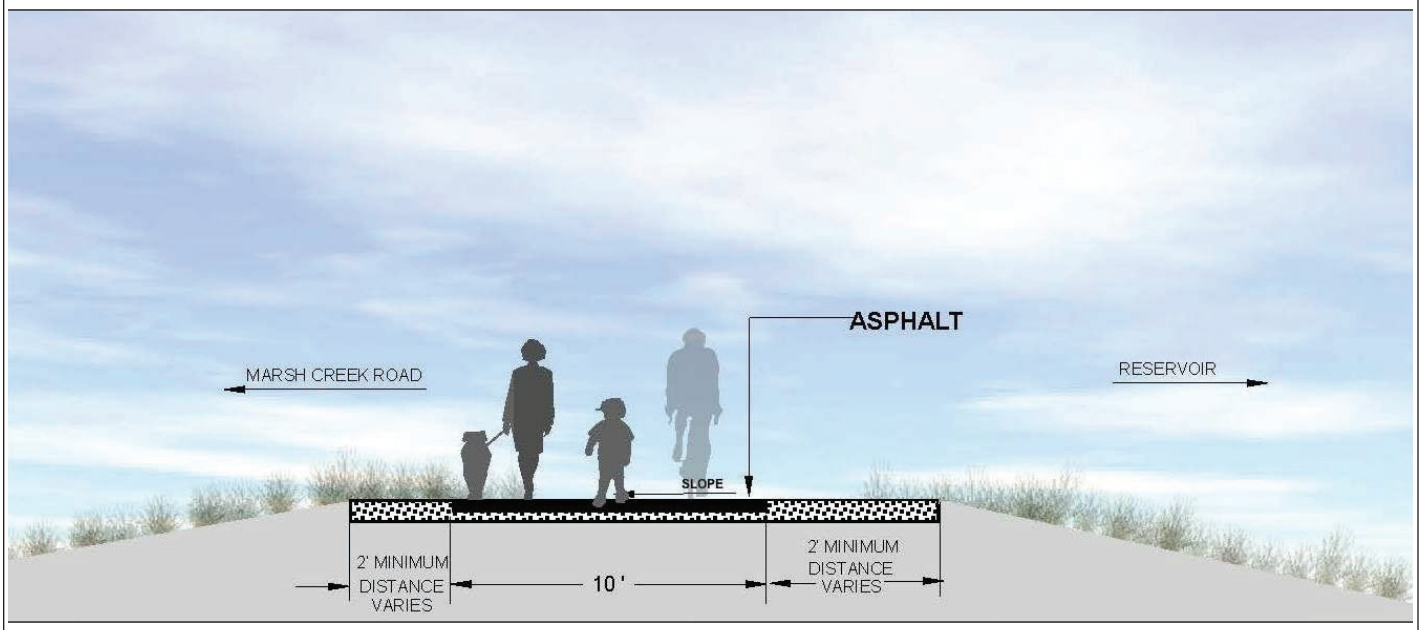


FIGURE 3b
Typical Trail Section - Segment 5

LSA

FIGURE 4

NOT TO SCALE

Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Typical Trail Sections

SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_4.ai (4/10/2020)

LSA

0 80 160
FEET

N

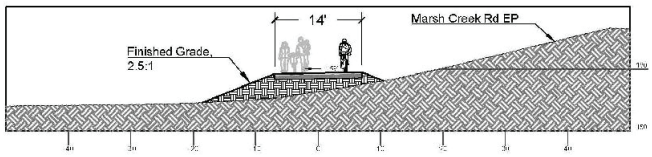
FIGURE 5A

Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Segment 3 Plan View

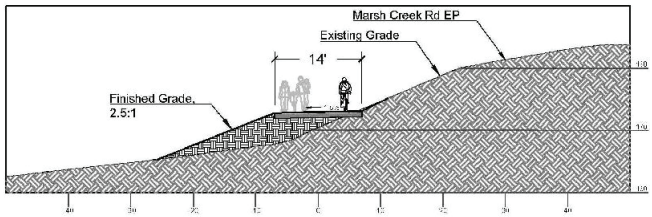
SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_5A.ai (6/4/2020)

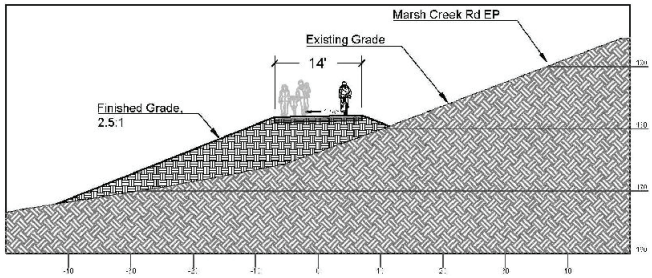
TRAIL SECTION 5
STA: 9+00



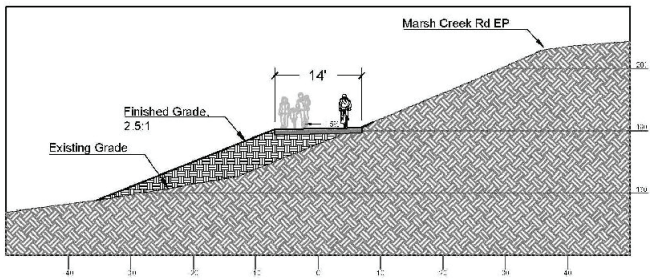
TRAIL SECTION 4
STA: 6+00



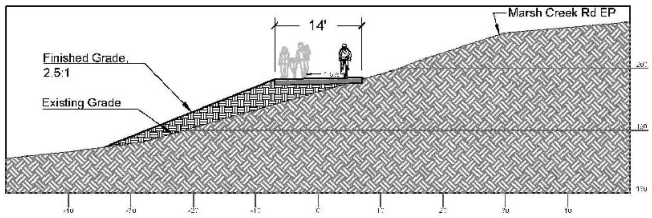
TRAIL SECTION 3
STA: 4+00



TRAIL SECTION 2
STA: 2+10



TRAIL SECTION 1
STA: 1+00



LSA

FIGURE 5B

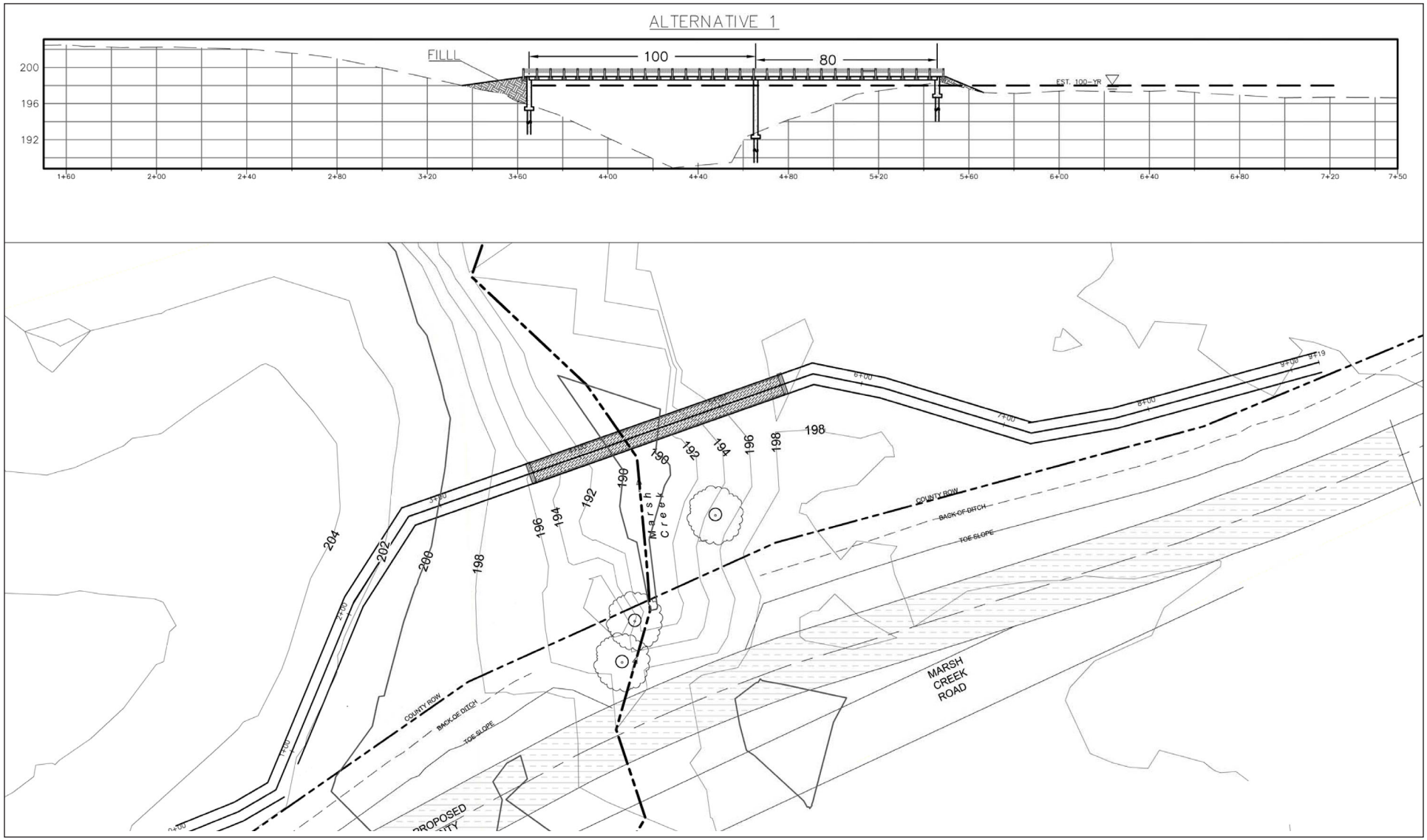
NOT TO SCALE

Marsh Creek Regional Trail Project - Brentwood to Round Valley Regional Preserve

Segment 3 Trail Sections

SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_5B.ai (4/10/2020)



LSA

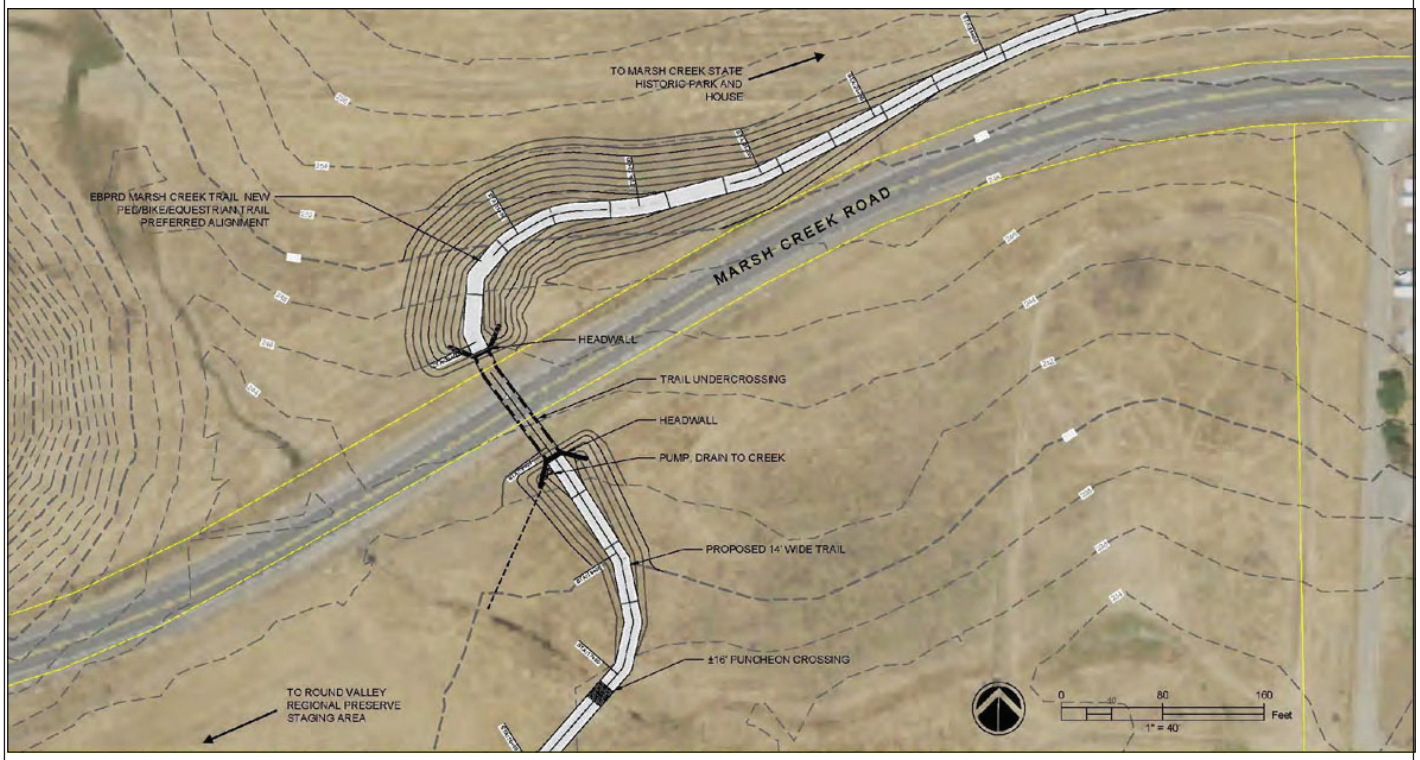
FIGURE 6

NOT TO SCALE

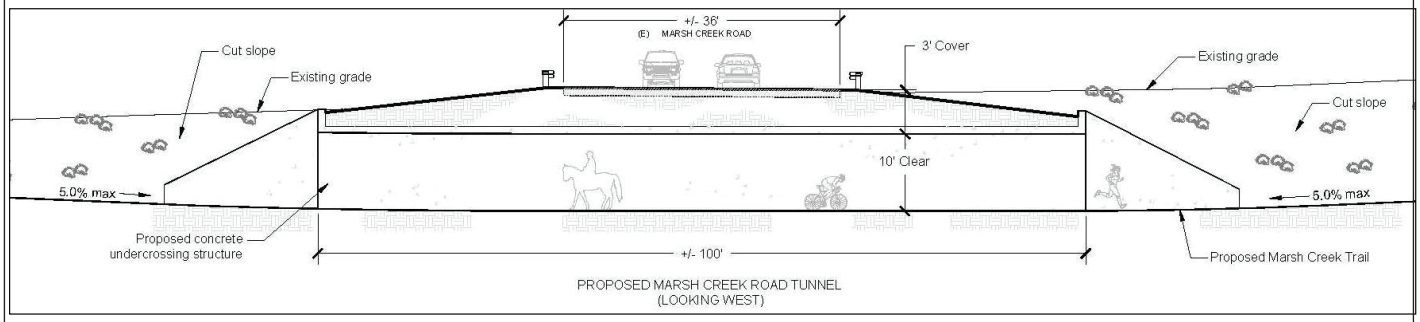
Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Proposed Marsh Creek Bridge

SOURCE: EBRPD, QUESTA ENGINEERING; MARCH 2019.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_6.ai (4/10/2020)



Proposed Marsh Creek Road Undercrossing - Plan View



Proposed Marsh Creek Road Undercrossing - Profile View

LSA

FIGURE 7

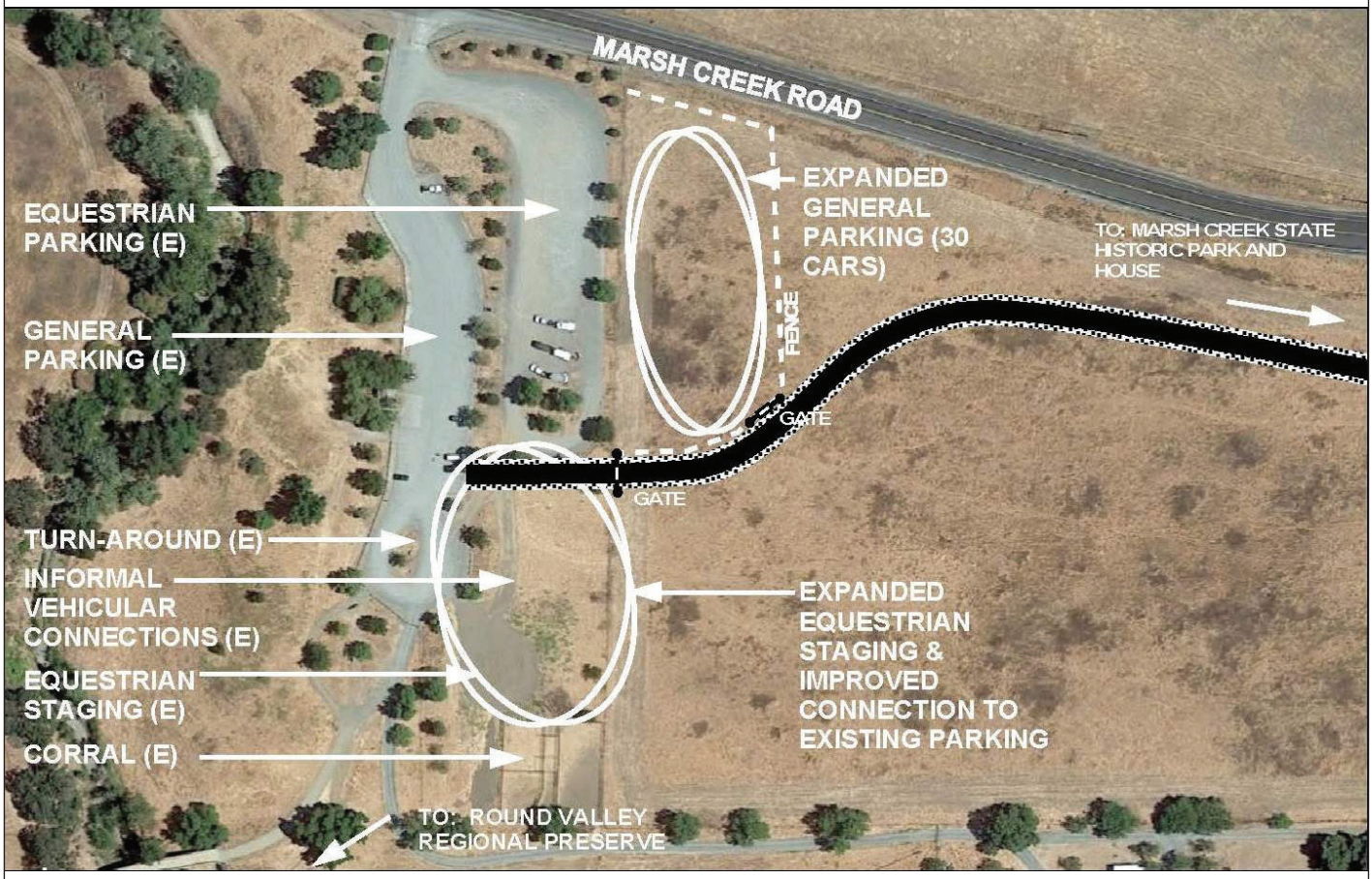
0 80 160
FEET

N

Marsh Creek Regional Trail Project - Brentwood to Round Valley Regional Preserve
Proposed Marsh Creek Road Undercrossing

SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_7.ai (4/10/2020)



LSA

FIGURE 8

0 100 200
FEET

N

Marsh Creek Regional Trail Project - Brentwood to Round Valley Regional Preserve

Proposed Trailhead Improvements

SOURCES: EBRPD; QUESTA ENGINEERING; 2M ASSOCIATES; 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_8.ai (4/10/2020)

South of the dam, the trail would transition with a ramp and retaining wall to the existing berm on the west side of Marsh Creek Road. The trail would be constructed on this berm for the remainder of the north/south portion of the trail. Near the intersection of Marsh Creek Road and Camino Diablo, the trail would transition to grade via a short causeway or series of culverts that would not obstruct seasonal stormwater flows to the flood control basin on the east side of the road. From the Camino Diablo/Marsh Creek Road intersection, the trail would continue east/west with a new separate 100-foot clear span bicycle/pedestrian bridge across Marsh Creek north of the vehicle bridge (being implemented by the County).

The trail would continue from the boundary with CCCFCWCD lands to the trail terminus at the Round Valley staging area (Segments 8-11). This portion of the trail would largely consist of an at-grade trail on the existing trail surface. An undercrossing tunnel of County-owned Marsh Creek Road would be constructed approximately 1,800 feet east of the Round Valley staging area entrance. The undercrossing would be a minimum of 10 feet wide with a 10-foot clear width and would also support a grade-separated wildlife crossing of Marsh Creek Road. The undercrossing would include approach ramps and fencing to guide wildlife to the crossing location. Other project improvements along this portion of the trail alignment would include a culvert or puncheon crossing of an intermittent tributary of Marsh Creek, and fencing and minor staging area improvements such as wayfinding signage.

Fencing would consist of 5-foot-high, five-strand barbed wire set 10 feet off the trail edges to accommodate cattle grazing. The bottom strand could consist of smooth wire, set at 18 inches above the ground for wildlife undercrossing. New gates would be installed where existing dirt roads cross the proposed trail alignment. In addition, cattle crossing road bars would also be installed in some locations.

Optional Components. Several options have been proposed for some of the trail components described above. To provide flexibility for the District in determining the final design, this environmental checklist evaluates the potential environmental impacts of these project options, in addition to the proposed alignment. The optional components evaluated include:

- **Segment 3 Option** – With this option, the proposed trail alignment would extend along the dam embankment with a switchback on the upper third of the dam face (Figure 9).

- **Segment 7 Option** – With this option, the proposed bridge over Marsh Creek would be located upstream of the proposed location, as shown on Figure 2. Figure 10 shows both the proposed alignment (labelled as Alternative 1) and the alternative alignment option (labelled as Alternative 2).

- **Segment 9 Option** – With this option, the proposed undercrossing would be constructed approximately 1,000 feet to the west of the proposed undercrossing. Construction methodology and profile would be the same as the proposed undercrossing. Both undercrossing locations are shown on Figure 2.

- **Segment 9 Option** – With this option, a trail overcrossing would be constructed rather than an undercrossing. The bottom cord of the bridge over the road would be at least 16 feet above grade. Long ramps, approximately 320 feet on each side of the roadway would be required to provide a 5 percent grade. A conceptual rendering of the potential overcrossing is shown in Figure 11.

Environmental Protection and Restoration. In culturally sensitive areas, the paved trail would be elevated on a geotechnically stabilized foundation to minimize subsurface disturbance and to distribute pavement load.

The prefabricated bridge would span across the low flow channel, with one pier to be constructed within the projected floodplain (see Figure 7). Project work would also include restoration and enhancement of up to 1,000 square feet of seasonal wetlands and waters of the United States (waters of the U.S.) that may be temporarily impacted by bridge installation. Enhancement plantings would consist of species native to the Marsh Creek site, and the restoration area would be maintained and managed as part of the trail project.

All work would be conducted in accordance with the applicable permit conditions established in the East Contra Costa Habitat Conservation Plan, including design of the Marsh Creek Road underpass, to facilitate wildlife passage.

Construction. Project construction would occur over one construction season (approximately 8 months from April 1 through November 30). Bridge and trail work along Marsh Creek would follow nesting bird and wet weather/creek flow restrictions on both ends of that timeline. Construction staging would occur at the existing Round Valley staging area, within a flat area adjacent to the existing parking area. Construction staging would also occur at both ends of the proposed underpass, along both sides of the proposed bridge over Marsh Creek, and along the existing dirt road on both sides of the dam embankment and at the toe of the dam near Marsh Creek Road. A small vacant area on Vineyard Drive may also be used for minor work on the bridge, installation of signs, striping, etc.

Anticipated Area of Disturbance. The proposed project would entail 11,500 lineal feet (approximately 2.2 miles) of new paved trail construction. Using a typical 25-foot-wide temporary disturbance corridor for trail construction, with an 80-foot-wide disturbance zone for the dam incline portion of Segment 3, the total disturbed area for project construction, including the tunnel, trail bridge and Round Valley staging area expansion would be approximately 9.5 acres. In addition, one main 0.5-acre construction staging area would be located at Round Valley Preserve, with three smaller 0.25-acre staging areas located at both ends of the proposed underpass, on both sides of the proposed trail bridge and near the entrance road to the John Marsh Historic House for construction of the dam incline portion of Segment 3. Permanent disturbance associated with the paved trail and shoulders, staging area improvements and overlook would be approximately 5.7 acres.

LSA

FIGURE 9

0 40 80 160
FEET

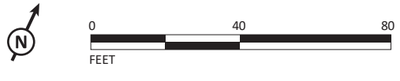
SOURCES: EBRPD; QUESTA ENGINEERING, 2020

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_9.ai (6/3/2020)

Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Segment 3 Alternative Alignment

LSA

FIGURE 10

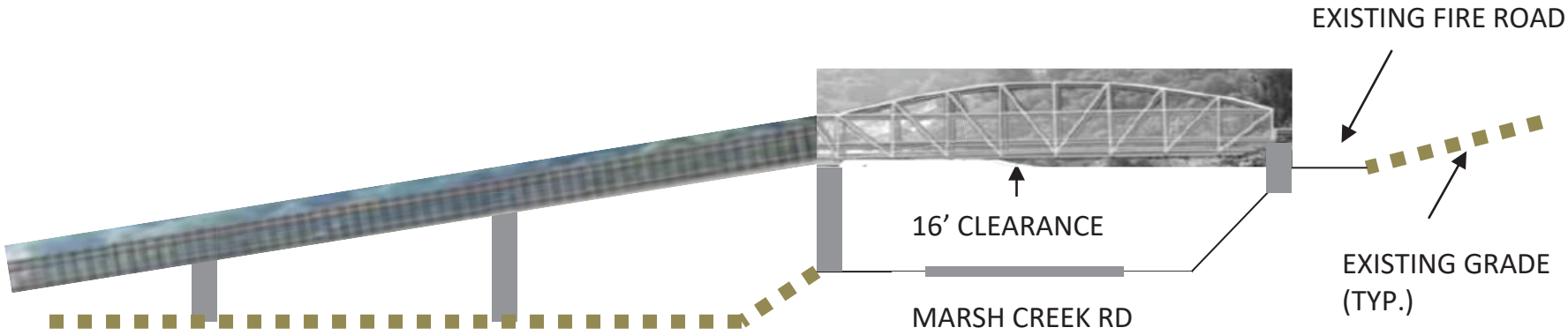


Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve

Segment 7 Bridge Alignment Alternatives

SOURCE: EBRPD, QUESTA ENGINEERING, MARCH 2019.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_10.ai (6/3/2020)



OVERPASS CONCEPT

LSA

FIGURE 11

NOT TO SCALE

Marsh Creek Regional Trail Project -
Brentwood to Round Valley Regional Preserve
Proposed Overcrossing Concept

SOURCE: EBRPD, QUESTA ENGINEERING, 2020.

P:\QEN1801 Marsh Creek Trail\Graphics\Figure_11.ai (6/4/2020)

This page intentionally left blank

Excavation for the proposed undercrossing would result in the excavation of approximately 11,100 cubic yards of cut, while the wedge fill placed along the Marsh Creek Road embankment for the dam incline (Segment 3) would be approximately 5,600 cubic yards of cut. In addition, approximately 200 cubic yards of imported engineered fill would be used for installing the proposed trail bridge, including ramps and abutments at Marsh Creek. Grading for the trail surface itself is anticipated to be balanced within the project with typical cut and fill depths of between one to two feet, except in the vicinity of the John Marsh Historic House, where cut would be minimized or avoided in order to protect sensitive cultural resources.

East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan. The proposed project lies within the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) Inventory Area.[1] The HCP/NCCP protects and enhances ecological diversity and function within eastern Contra Costa County, and provides measures to avoid, minimize, and mitigate impacts on covered species and their habitats, while allowing for expansion of urban infrastructure. Activities covered under the HCP/NCCP are considered to have received Incidental Take authorization from the USFWS and CDFW. As required under the HCP/NCCP, species-specific planning surveys would need to be conducted for all covered species and other special-status species potentially affected by the proposed project. Compensatory mitigation for impacts to listed species and their habitats (as well as other HCP/NCCP-covered species) may be required through payment of the appropriate fees required under the HCP/NCCP.

9. Surrounding Land Uses and Setting:

As described above, the proposed trail alignment would extend from the intersection of Vineyards Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. Portions of the proposed trail would be located on lands owned by the CCCFCWCD, and State Parks.

MCSP comprises 3,600 acres of hills and valleys southwest of the City of Brentwood. The eastern boundary of MCSP fronts on Walnut Boulevard, while the Briones Valley Road passes through the State Park on the west. The MCSP contains the 16.4-acre John Marsh ranch complex, which includes the stone house that was completed in 1856. Currently, the land is grazed. A corral area exists across from the main entrance along Marsh Creek Road and is accessed by cattle via an underground culvert near the entry gate. MCSP is not currently open to the public, except for occasional guided tours of the John Marsh House and adjacent areas. No public use facilities exist on the property. The lands of MCSP are located to the north, west, and east of the proposed trail alignment, as shown on Figure 1.

The CCCFCWCD owns a parcel located in the center of MCSP that contains the Marsh Creek Reservoir and Dam and much of the riparian corridor surrounding Marsh Creek out to Marsh Creek Road. This facility is maintained by CCCFCWCD for flood control purposes. CCCFCWCD also holds a "flowage" easement of "area of inundation" over a portion of MCSP to the west of the

[1] Jones and Stokes. 2006. *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan, Vols. 1 & 2*. October.

reservoir. As shown on Figure 1, the proposed trail alignment would extend through the CCCFCWCD lands along Marsh Creek Road.

The proposed trail would terminate at the Round Valley Regional Preserve staging area on Marsh Creek Road. The existing staging area contains parking for vehicles and horse trailers, vault toilet facilities, and a trailhead providing access to the larger Round Valley Regional Preserve to the south. The 2,191-acre Preserve contains a variety of habitat types, including oak woodland/savannah, riparian woodlands, non-native grassland, and shrubland. The Preserve is open for hiking, horseback riding and bicycling (with some restrictions). One group campsite is also available.

Residential development associated with the Vineyards at Marsh Creek neighborhood is located to the north of the trail alignment. The Los Medanos College New Brentwood Center is currently under construction on a 17-acre site, just north of the trail terminus, west of the intersection of the State Route 4 Bypass and Marsh Creek Road. The New Brentwood Center would consist of a new education center to serve a maximum of 5,000 full- and part-time students.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

- California Department of Parks and Recreation
- Costa County Flood Control and Water Conservation District
- City of Brentwood
- U. S. Army Corps of Engineers (Corps)
- Regional Water Quality Control Board (RWQCB)
- California Department of Fish and Wildlife (CDFW)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource 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.?

In August 2020, the District provided formal notification to those California Native American tribes that are traditionally and culturally affiliated with the geographic area within which the proposed project is located pursuant to the consultation requirements of AB 52. Ms. Mariah Mayberry of the Wilton Rancheria responded via email on August 14, requesting consultation with the District. To date, consultation with the tribe is still ongoing.

2.0 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 in Chapter 3.0.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☒ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

2.1 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

07/09/2021

Signature

Date

This page intentionally left blank

3.0 CEQA ENVIRONMENTAL CHECKLIST

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☒	☐
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 a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a. Would the project have a substantial effect on a scenic vista? ***(Less-Than-Significant Impact)***

A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. According to the Contra Costa County General Plan (2000), scenic resources in the County include scenic ridges, hillsides, rock outcroppings, and the San Francisco Bay/Delta estuary system. The largest and most prominent ridges form the backdrop for much of the developed portions of the County. Views of these major ridgelines help to reinforce the rural feeling of the County's rapidly growing communities and provide an important balance to current and planned development. The other major scenic resource of Contra Costa County is the extensive water and delta system of San Francisco, San Pablo, and Suisun Bays. This waterway system provides a pleasant contrast to the landforms of the area. As required by the General Plan, these major scenic resources should be considered when evaluating nearby development proposals and treated as aesthetic opportunities, which should be incorporated into the design of any new development.

The nearest designated scenic features to the project site are the Clifton Court Forebay, located over 7 miles southeast of the site, and several designated Scenic Ridgelines, located north of Marsh Creek Road and northwest of Los Vaqueros Reservoir. Views of the project site from the Clifton Court Forebay is obscured by topography in the form of numerous hills and ridgelines, as well as intervening development. However, the project area includes rolling hills and views to designated scenic ridgelines that contribute to the scenic quality of eastern Contra Costa County.

Above-grade improvements associated with the proposed project would include a ramp and retaining wall, a prefabricated pedestrian/bicycle bridge over Marsh Creek, fencing and gates, shade

structures, signage, and parking area improvements and signage/access improvements at the existing Round Valley Trailhead. The proposed project would also include a potential overcrossing of Marsh Creek Road, which would be at least 16 feet above grade and include ramps, approximately 320 feet long on each side of the roadway. The ramp and retaining wall would be constructed to connect the trail to the existing berm on the west side of Marsh Creek Road.

The project area consists primarily of undeveloped, open space lands with rolling hills. In some locations, scenic views are available in all directions; while in other areas, views are obscured by existing topography. The proposed project would result in construction of an elevated pedestrian/ bicycle bridge over Marsh Creek, a potential overcrossing of Marsh Creek Road, and a ramp/ retaining wall along Marsh Creek Road. Although these features would be above-grade and visible to motorists on Marsh Creek Road, residents at the north end of the trail alignment, and other uses adjacent to the trail alignment, these structures would not significantly impede scenic vistas.

The Contra Costa County General Plan encourages recreational uses in resource areas, such as the Round Valley Regional Preserve, and provision of multi-use trails to facilitate recreation use. Project elements would not include tall structures that might obscure views of the surrounding open space environment. The proposed trail would increase public access to the area, affording trail users scenic views from the proposed trail alignment. The proposed project would not result in substantial adverse effects on scenic vistas; this impact would be less than significant.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(Less-Than-Significant Impact)***

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. A highway may be designated as "scenic" based on the expanse of the natural landscape that can be seen by travelers, the scenic quality of that landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. A Scenic Corridor is described as the land generally adjacent to and visible from such a highway and is usually limited by topography and/or jurisdictional boundaries. In addition to State Highways, County roads are also eligible for scenic designation.

Route 24 from the Alameda County line to the Interstate 680 interchange, and Interstate 680 south of that interchange to the Alameda County line, are existing State-designated scenic routes with the California State Scenic Highway program. Route 4 from Hercules to the intersection with Railroad Avenue is proposed for State designation, as is the proposed State Route 4 Bypass to the Delta. State Route 4 is located just north of the northern terminus of the proposed trail alignment.

The Transportation and Circulation Element of the Contra Costa County General Plan includes a scenic routes plan that identifies a countywide scenic route system and ensures that new projects approved along a scenic route are reviewed to maintain their scenic potential. According to the Contra Costa County General Plan, a scenic route is a road, street or freeway, which traverses a scenic corridor of relatively high visual or cultural value. A scenic route consists of both the scenic

corridor and the public right-of-way. As shown in Figure 5-4 in the Transportation and Circulation Element, Marsh Creek Road is a designated scenic route. The majority of the proposed trail alignment would run along Marsh Creek Road and would be located within the scenic corridor associated with this scenic route.

Implementation of the project would not substantially damage scenic resources within scenic highway corridors. Where necessary, trees would be trimmed rather than removed in order to provide the required horizontal and vertical clearance for the trail corridor. Vegetation would be cleared and removed as needed. As described above, the majority of improvements would be at-grade and above-grade improvements would not impair scenic views. No substantial damage to scenic resources within a State scenic highway would occur as a result of implementation of the proposed project. Therefore, Impacts related to scenic resources 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 a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ***(Less-Than-Significant Impact)***

The proposed project would result in the construction of an extension of the Marsh Creek Regional Trail, along Marsh Creek Road, providing public access to the Round Valley Regional Preserve. Publicly accessible vantage points near the project site consist of turnouts and parking areas along Marsh Creek Road and Vineyard Parkway, the Round Valley Regional Preserve Staging Area and the MCSP Historic Zone. Views of the rolling hills and ridgelines of eastern Contra Costa County are available at the project site.

Construction activities and equipment could be visible from residential areas at the northern terminus of the trail alignment, resulting in temporary visual impacts during the approximately 8-month construction phase of the project. Equipment required for trail construction would be removed following completion of the trail.

The proposed project would entail 11,500 lineal feet (approximately 2.2 miles) of new paved trail construction. In addition, construction of the proposed trail undercrossing would result in the excavation of approximately 11,100 cubic yards of soil excavation. The wedge fill placed along the Marsh Creek Road embankment for the dam incline (Segment 3) would be approximately 5,600 cubic yards and would also require installation of a retaining wall. In addition, approximately 200 cubic yards of imported engineered fill would be used for installing the proposed trail bridge, including ramps and abutments at Marsh Creek.

Development of the proposed project would result in the expansion of the Round Valley Regional Preserve staging area, including delineation of parking spaces, ingress/egress, trailer parking, provision of 20 to 30 additional parking spaces, fencing, signage, gates, interpretive signage, and shade structure. Nearby views of the staging area would be screened by landscaping, consistent with the District's Master Plan Policy PRPT24, which indicates that the District will design facilities so that the color, scale, style and materials blend with the natural environment. Staging and parking areas are commonly provided in District parks to allow access to and use of regional recreation

facilities. Visitors accessing and utilizing the facilities within the expanded staging area would not experience adverse effects to the visual quality of their immediate surroundings.

The proposed pedestrian crossing of Marsh Creek would not substantially alter the character of the creek, given that these are typical facilities found within recreational areas, even those managed as open space preserves. In addition, the proposed pedestrian bridge would be located in proximity to the new vehicular bridge being constructed by the County. Therefore, the proposed trail bridge would be consistent with the other infrastructure along the roadway, and would not be highly visible except from within the immediate surroundings.

The proposed undercrossing of Marsh Creek Road would be barely discernible for motorists on Marsh Creek Road. However, the overcrossing option would result in the construction of a bridge approximately 16 feet above the road, with long ramps, approximately 320 feet on each side of the roadway, requiring vegetation removal. The proposed overcrossing would create a new visually dominant feature within the project area and would be highly noticeable to motorists, particularly those who are familiar with the existing roadway, although exposure would be brief. Ultimately, however, motorists are not expected to have an adverse perception of the changes due to the short duration of views. The general size and orientation of the overcrossing would be consistent with other pedestrian roadway overcrossings in more urbanized areas of the County, and would not block existing views or substantially deteriorate visual quality.

Although the proposed project would introduce new built elements into a currently largely undeveloped area, the project has been designed to preserve scenic views of the surrounding hillsides to the extent feasible. The trail alignment would be located largely along the existing roadway, thereby preserving the visual quality of the most important visual feature of the project site – the undeveloped open space associated with the MCSP and CCCFCWCD lands. Therefore, impacts to visual character of the project site 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? ***(Less-Than-Significant Impact)***

Surrounding land uses consist primarily of undeveloped open space, residential uses associated with Marsh Creek development, and public facilities associated with Marsh Creek Reservoir. Light sources in the project vicinity include lights associated with nearby residences, existing streetlights on Marsh Creek Road and Vineyard Parkway and vehicle headlights/taillights. Daytime sources of glare include reflections off light-colored surfaces and windows.

Lighting would be installed within the proposed undercrossing to provide safety and security for trail users, but would not create a new source of substantial light in the project area. No other permanent sources of lighting or glare would be installed as part of the proposed project. Temporary construction-related sources of light (if any) would be removed upon completion of construction.

During daylight hours, hikers and other recreationists could experience some glare due to light reflecting off vehicles parked within the Round Valley staging area; however, the glare would be limited and would not substantially impact the visual experience of trail users. Any minimal glare would be attenuated by the distance from the cars and would be limited to certain times of day

during certain times of year. Furthermore, glare from vehicles within the staging area would be blocked because of the hilly topography of the neighborhood and intervening vegetation and trees that along the perimeter of the staging area. No other sources of glare would be generated by the proposed trail.

Therefore, the proposed project would not affect day or nighttime views in the area. This impact would be less than significant.

3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. 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))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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 or conversion of forest land to non-forest use?	☐	☐	☐	☒

*a. 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? **(No Impact)***

The proposed trail would cross through two local jurisdictions and multiple parcels of land. The project site is designated Park in the City of Brentwood General Plan and Parks and Recreation, Public/Semi-Public, and Agricultural Lands in the Contra Costa County General Plan. Portions of the proposed trail would be located on lands owned by CCCFCWCD, and State Parks. Easements would be acquired from these various property owners for construction and operation of the trail. Most of Marsh Creek State Park area was historically used for grazing and other agricultural purposes.

Lands along the trail alignment are classified as "Grazing Land" and "Farmland of Local Importance" by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP).[2] Grazing Land is land on which the existing vegetation is suited to the grazing of livestock, and is not protected farmland. Farmland of Local Importance includes the lands within the Tassajara area, extending eastward to the County boundary and bordered on the north by the Black Hills, the Deer, Lone Tree, and Briones Valleys, the Antioch area, and the Delta. These lands are typically used for livestock grazing. The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use. Implementation of the proposed project would have no impact relating to this topic, and no mitigation is required.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No Impact)***

The California Land Conservation Act of 1965, also referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or open space use. The California Department of Conservation maps the project site as "Non-enrolled land" or land not enrolled in a Williamson Act contract. No portion of the proposed trail would cross a parcel under a Williamson Act contract.[3] A portion of the project site is zoned for agriculture; however, the proposed project would not prevent the land from continuing to be used for agricultural purposes. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. Implementation of the proposed project would have no impact relating to this topic, and no mitigation is required.

c. 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))? ***(No Impact)***

The project site is not currently used for timberland production, nor is it zoned for forest land or timberland. No forest lands or timberland are located on the project site. Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland. Implementation of the proposed project would have no impact relating to this topic, and no mitigation is required.

---

2 California Department of Conservation. 2018. Division of Land Resource Protection, *Contra Costa County Important Farmland 2016.* Website: www.conservation.ca.gov/dlrp/fmmp/Pages/ContraCosta.aspx (accessed May 21, 2020).

3 Contra Costa County Department of Conservation and Development. 2017. *2016 Agricultural Preserves Map.* Available online at: www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract?bidId= (accessed May 21, 2020).

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? ***(No Impact)***

Implementation of the proposed project would not result in the loss of any forest land or convert forest land to non-forest use. Refer to Response 4.2.2 (c) above. The proposed project would have no impact relating to this topic, and no mitigation is required.

e. 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 or conversion of forest land to non-forest use? ***(No Impact)***

Implementation of the proposed project would not result in any other changes to the existing environment that would convert farmland to a non-agricultural use or convert forest land to non-forest use. Refer to Responses 4.2.2 (a) and 4.2.2 (b) above. The proposed project would have no impact relating to this topic, and no mitigation is required.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
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?	☐	☒	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

The proposed project is located in the City of Brentwood and in unincorporated Contra Costa County, and is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In Brentwood and Contra Costa County, and the rest of the air basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal $PM_{2.5}$ 24-hour standard.

*a. Would the project conflict with or obstruct implementation of the applicable air quality plan? **(Less-Than-Significant Impact)***

The applicable air quality plan is the BAAQMD's 2017 Clean Air Plan (Clean Air Plan),[4] which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas (GHG) emissions to protect the climate.

[4] Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Consistency with the Clean Air Plan can be determined if the project: (1) supports the goals of the Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Clean Air Plan Goals. The primary goals of the Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce GHG emissions and protect climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed below, with implementation of Mitigation Measure AIR-1, the proposed project would result in less-than-significant construction- and operation-period emissions. Therefore, the project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-GHG Pollutants Measures.

Stationary Source Control Measures. The stationary source measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD Permit and Inspection programs. Since the project would not include any stationary sources, the Stationary Source Control Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. The BAAQMD identifies transportation measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The proposed project includes an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project involves construction of a multi-use paved trail primarily along Marsh Creek Road. Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. The project would provide for an extension of an existing trail, therefore, it is not expected to increase traffic or vehicle trips. As such, the proposed project would not hinder BAAQMD initiatives to reduce vehicle trips and vehicle miles traveled.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of

the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the Energy Control Measures of the Clean Air Plan are not applicable to the project.

Building Control Measures. The BAAQMD has the authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate the buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. The proposed project would not include any new buildings. Therefore, the Building Control Measures of the Clean Air Plan are not applicable to the project.

Agriculture Control Measures. The agriculture measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the project.

Natural and Working Lands Control Measures. The natural and working lands measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the project.

Waste Management Control Measures. The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The water measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the project.

Super-GHG Control Measures. The Super-GHG measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the project.

Clean Air Plan Implementation. As discussed above, the proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan.

In addition, as discussed below, construction of the project would not result in the generation of criteria air pollutants that would exceed BAAQMD thresholds of significance. Operational emissions associated with the project would be minimal and would not exceed BAAQMD established significance thresholds. Therefore, the project would not conflict with or obstruct implementation of applicable air quality plans. This impact would be less than significant.

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? ***(Less Than Significant with Mitigation Incorporated)***

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: CO, ozone (O_3), NO_2, SO_2, Pb, and suspended particulate matter (PM). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. As identified above, the BAAQMD is under State non-attainment status for ozone, PM_{10}, and $PM_{2.5}$ standards. The air basin is also classified as non-attainment for both the federal ozone 8-hour standard and the federal $PM_{2.5}$ 24-hour standard.

Air quality standards for the proposed project are regulated by the BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines. According to the BAAQMD CEQA Air Quality Guidelines, to meet air quality standards for operational-related criteria air pollutant and air precursor impacts, the project must not:

- Contribute to CO concentrations exceeding the State ambient air quality standards;
- Generate average daily construction emissions of reactive organic gases (ROG), nitrogen oxides (NO_x) or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
- Generate average operational emissions of ROG, NO_x or $PM_{2.5}$ of greater than 10 tons per year or 54 pounds per day or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.

The following sections describe the proposed project's construction- and operation-related air quality impacts and CO impacts.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (e.g., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly emitted particulate matter ($PM_{2.5}$ and PM_{10}), and toxic air contaminants (TACs) such as diesel exhaust particulate matter.

Site preparation and project construction would involve grading, hauling, and other activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction

activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, ROGs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, Version 9.0.0 (RoadMod) as recommended by the BAAQMD for linear projects. As described in Section 1.0, Project Information, project construction would occur over one construction season (approximately 8 months from April 1 through November 30). The proposed project would entail 11,500 lineal feet (approximately 2.2 miles) of new paved trail construction. The total disturbed area for project construction would be approximately 9.5 acres and permanent disturbance would be approximately 5.7 acres. To be conservative, this analysis assumes 9.5 acres of disturbance. In addition, the proposed project would result in the excavation of approximately 11,100 cubic yards of cut, while the wedge fill placed along the Marsh Creek Road embankment for the dam incline (Segment 3) would be approximately 5,600 cubic yards. In addition, approximately 200 cubic yards of imported engineered fill would be used for installing the proposed trail bridge. Grading for the trail surface itself is anticipated to be balanced within the project.

RoadMod results are estimated in terms of maximum daily emissions and total emissions. Total emissions were averaged over the eight-month construction period to determine average daily emissions for comparison to the BAAQMD average daily emissions threshold. Construction-related emissions for the project are shown in Table 3.A. Detailed calculations are provided in Appendix A.

Table 3.A: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust PM_{10}	Fugitive Dust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Average Daily Emissions	2.8	29.8	1.3	18.9	1.3	3.9
BAAQMD Average Daily Emission Thresholds	54.0	54.0	54.0	BMP	82.0	BMP
Exceed Threshold?	**No**	**No**	**No**	**NA**	**No**	**NA**

Source: LSA (June 2020).
Notes: BMP = Best Management Practices

As shown in Table 3.A, construction emissions associated with the project would be less than significant for ROG, NO_x, and $PM_{2.5}$ and PM_{10} exhaust emissions. The BAAQMD also requires the implementation of BAAQMD Basic Construction Mitigation Measures to reduce construction fugitive dust impacts to a less-than-significant level.

Mitigation Measure AIR-1: In order to meet the Bay Area Air Quality Management District (BAAQMD) fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- 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 the California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the East Bay Regional Park District regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.

Construction emissions associated with the project would be less than significant with implementation of Mitigation Measure AIR-1. Therefore, construction of the proposed project would not result

in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standards (AAQS).

Operational Emissions. Long-term air emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. As discussed above, the proposed project includes an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project involves construction of a multi-use paved trail and associated improvements primarily along Marsh Creek Road.

Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. The project is not expected to result in the addition of vehicle trips to the surrounding roadways as the project is the extension of an existing trail. Therefore, the project would not result in an increase in the generation of vehicle trips that would increase mobile source emissions. The proposed project would result in low levels of off-site emissions due to energy generation associated with lighting along the project segment. However, these emissions would be minimal and would not exceed the pollutant thresholds established by the BAAQMD. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of PM_{10} or any criteria pollutant for which the project region is non-attainment under an applicable federal or State AAQS and impacts would be less than significant.

Localized CO Impacts. Emissions and ambient concentrations of CO have decreased dramatically in the Bay Area with the introduction of the catalytic converter in 1975. No exceedances of the State or federal CO standards have been recorded at Bay Area monitoring stations since 1991. The BAAQMD 2017 CEQA Guidelines include recommended methodologies for quantifying concentrations of localized CO levels for proposed transportation projects. A screening level analysis using guidance from the BAAQMD CEQA Guidelines was performed to determine the impacts of the project. The screening methodology provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to BAAQMD CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans;

- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and

- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the Contra Costa County Transportation Authority for designated roads or highways, a regional transportation plan, or other agency plans. The project sites are not located in an area where vertical or horizontal mixing of air is substantially limited. The project would not increase traffic volumes at intersections to more than 44,000 vehicles per hour and intersection level of service associated with the project would not decline with the project. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards. Impacts would be less than significant.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? ***(Less Than Significant with Mitigation Incorporated)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

The closest sensitive receptors include the residential development associated with the Vineyards at Marsh Creek neighborhood located to the north of the trail alignment. In addition, the Los Medanos College New Brentwood Center is currently under construction, just north of the trail terminus, west of the intersection of the State Route 4 Bypass and Marsh Creek Road. Construction of the proposed project may expose these surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors would be required to implement BAAQMD Basic Construction Mitigation Measures, as required by Mitigation Measure AIR-1 above. With implementation of Mitigation Measure AIR-1, project construction emissions would be below BAAQMD significance thresholds. Additionally, due to the linear nature of the project, construction activities at any one receptor location would occur for a limited duration. Once the project is constructed, the project would not be a source of substantial emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation, and potential impacts would be considered less than significant.

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

During construction, the various diesel powered vehicles and equipment in use on the site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is therefore considered to be less than significant. In addition, once the project is operational, it would not be a source of odors. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and potential impacts would be considered less than significant.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
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 native wildlife nursery sites?	☐	☒	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
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?	☐	☐	☒	☐

To identify biological resources on the project site, LSA conducted a search of the CDFW, California Natural Diversity Database (CNDDB),[5] California Native Plant Society Inventory (CNPS) of Rare and Endangered Plants,[6] and U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) on-line database.[7] The results of the database review are compiled into a list of special-status plants and animals that could occur in the project vicinity.

Aerial photography of the Marsh Creek corridor was reviewed to identify habitat features that may be suitable for special-status species (e.g., chaparral for Alameda whipsnake [*Masticophis lateralis*

[5] California Department of Fish and Wildlife. 2019. California Natural Diversity Database, commercial version dated July 2019. Biogeographic Data Branch, California Department of Fish and Wildlife, Sacramento.

[6] California Native Plant Society. 2019. Inventory of rare and endangered plants in California (online edition, v8-02). California Native Plant Society, Sacramento. Website: www.cnps.org/inventory. July 26.

[7] United States Fish and Wildlife Service. 2019. Information for Planning and Consultation (IPaC). July 26.

euryxanthus], ponds suitable for California red-legged frog [*Rana draytonii*] or California tiger salamander [*Ambystoma californiense*] breeding, wetlands suitable for fairy shrimp) and/or under regulatory jurisdiction (e.g., streams, drainages, ponds). The 2012 Marsh Creek State Park General Plan/Program Environmental Impact Report (EIR) was reviewed to gather information on biological resources in the project vicinity, and previous biological resources constraints maps prepared for the project site were also reviewed.[8]

As outlined in the project description, the project site lies within the East Contra Costa County HCP/NCCP Inventory Area.[9] The HCP/NCCP protects and enhances ecological diversity and function within eastern Contra Costa County, and provides measures to avoid, minimize, and mitigate impacts on covered species and their habitats, while allowing for expansion of urban infrastructure. The HCP/NCCP was reviewed and appropriate mitigation measures to address impacts to covered species have been incorporated herein. Activities covered under the HCP/NCCP are considered to have received Incidental Take authorization from the USFWS and CDFW. The proposed project would be covered by the HCP/NCCP; therefore, measures from HCP/NCCP would be used to mitigate impacts to covered species. The HCP Appendix D distribution maps of the covered species was also reviewed as part of this analysis. Analysis and mitigation measures for special-status species not covered under the HCP/NCCP are also provided herein.

A reconnaissance field survey was conducted on July 24, 2019, to verify the habitat features identified during the aerial photography review, to collect additional information on these features, and to map other biological resources present.

Vegetation. Vegetation and land cover types in the project site consist of non-native (ruderal) annual grassland, blue oak savannah, Great Valley cottonwood riparian forest, ponds/seasonal wetlands, creeks/drainages, and developed lands. The proposed trail alignment includes primarily ruderal non-native grassland and developed gravel access roads. The trail alignment crosses over Marsh Creek and the intermittent tributary of Marsh Creek, but no riparian trees would be impacted at these proposed crossings, since riparian trees would be avoided at Marsh Creek and riparian trees are not present at the tributary crossing. These land cover types are described further below.

> ***Ruderal Non-Native Annual Grassland.*** The majority of the project site supports non-native annual grassland, which includes a combination of Wild Oats Grassland [*Avena* (*barbata, fatua*) Semi-Natural Herbaceous Stands] and Annual Brome Grasslands [*Bromus* (*diandrus*, *hordeaceus*) - *Brachypodium distachyon* Semi-Natural Herbaceous Stands]), both of which have been colonized by the invasive weed species, yellow starthistle (*Centaurea solstitialis*). Plant species observed in the annual grassland are almost exclusively non-native grasses and forbs, including yellow starthistle, wild oat (*Avena* sp.), ripgut brome (*Bromus diandrus*), foxtail chess (*B. madritensis*), hare barley (*Hordeum murinum* subsp. *leporinum*), Italian thistle (*Carduus pycnocephalus*), Italian ryegrass (*Festuca perennis*), shortpod mustard (*Hirschfeldia incana*), wild radish (*Raphanus sativa*), bristly ox-tongue (*Helminthotheca echioides*), tarweed (*Holocarpha*

[8] Brentwood, City of, and California State Parks. 2012. *Marsh Creek State Park General Plan/Program Environmental Impact Report*. California Department of Parks and Recreation. January.

[9] Jones & Stokes. 2006. *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan*. October.

sp.), turkey-mullein (*Croton setiger*), and field bindweed (*Convolvulus arvensis*). The proposed trail would permanently impact approximately 5.4 acres and temporarily impact approximately 9.9 acres of ruderal non-native grassland habitat. The development of two proposed parking expansion areas at the Round Valley Regional Preserve parking lot would affect approximately 0.5 acre of ruderal non-native grassland habitat, while another approximate 0.5 acre of ruderal non-native grassland habitat would be impacted by development of the proposed staging area near this same parking lot. In addition to the main staging area near the parking lot, six other staging areas would temporarily impact another approximate 3 acres of ruderal non-native grassland habitat.

Alkali Grassland. Alkali grassland is typically a plant community consisting of relatively few, low-growing plant species. Plant species observed in the alkali grasslands during the field survey consist of saltgrass (*Distichlis spicata*), alkali heath (*Frankenia salina*), alkali-mallow (*Malvella leprosa*), and iodine bush (*Allenrolfea occidentalis*). Several species of saltbush and orache (*Atriplex* spp*., Extriplex* spp.), including special-status species occur within this habitat type. San Joaquin spearscale (*Extriplex joaquinana*) and crownscale (*Atriplex coronata* var. *coronata*), both special-status plants, have been observed at the project site in the past. [10,11] The proposed trail alignment has been designed to avoid alkali grassland.

Salt Grass Flats. Salt grass flats (*Distichlis spicata* Herbaceous Alliance) was observed along the drainages and creek channels and within the seasonal wetlands. The proposed trail alignment has been designed to avoid the salt grass flats.

Blue Oak Savannah. Blue oak savannah consists of grasslands containing scattered blue oak (*Quercus douglasii*) and other associated trees that typically are characterized by an open canopy with a tree canopy cover of 5 to 10 percent. On the project site, the blue oak savannah is characterized by scattered mature blue oaks and valley oaks (*Quercus lobata*), located near the trail alignment. The proposed trail alignment, however, would avoid impacts to the oak savannah trees.

Great Valley Cottonwood Riparian Forest. Great Valley cottonwood riparian forest occurs along the banks of Marsh Creek. This cover type is characterized by a dense, broad-leafed, winter deciduous riparian forest dominated by Fremont cottonwood (*Populus fremontii*). Plant species growing along Marsh Creek include Fremont cottonwood, valley oak, western sycamore (*Platanus racemosa*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), California black walnut (*Juglans californica* var. *hindsii*), Himalayan blackberry (*Rubus armeniacus*), California sagebrush (*Artemisia californica*), mugwort (*A. douglasiana*), mule fat (*Baccharis salicifolia*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), umbrella sedge (*Cyperus eragrostis*), and rush (*Juncus* spp.). Great Valley cottonwood riparian forest is considered a sensitive natural community by CDFW. The proposed trail alignment, however, would avoid impacts to the cottonwood riparian forest.

10 LSA Associates, Inc. 1993. *Biological Resources, Cowell Ranch, Contra Costa County*. Prepared for the Cowell Ranch Project, Lafayette, California. November 1.

11 California Department of Fish and Wildlife. 2019, op. cit.

Ponds and Seasonal Wetlands. Several stock ponds and seasonal wetlands are situated near the proposed trail alignment. The stock ponds range from approximately 760 to 125,000 square feet in size and appear to range from 3 to 6 feet in depth. The seasonal wetlands occur in shallow natural depression areas in the grasslands, typically less than 3-feet deep. Many of these ponds and wetlands support alkaline substrates and alkaline vegetation. Plant species observed in these features include salt grass, alkali heath, alkali mallow, bristly ox-tongue, annual beard grass (*Polypogon monspeliensis*), swamp pricklegrass (*Crypsis schoenoides*), fascicled tarplant (*Deinandra fasciculatum*), common spikerush (*Eleocharis macrostachya*), Italian rye grass (*Festuca perennis*), rough cocklebur (*Xanthium strumarium*), bird's foot trefoil (*Lotus corniculatus*), salt heliotrope (*Heliotropium curassavicum*), common gumplant (*Grindelia camporum*), perennial pepperweed (*Lepdium latifolium*), and curly dock (*Rumex crispus*). The proposed trail alignment, however, would avoid impacts to the ponds and seasonal wetlands.

Creeks and Drainages. The proposed trail alignment would cross two creeks, Marsh Creek and an intermittent tributary of Marsh Creek. Marsh Creek is the largest creek in the project area and supports riparian woodland habitat. Trees and woody shrubs observed along Marsh Creek include Fremont cottonwood, willow (*Salix* spp.), western sycamore, blue elderberry, and tree tobacco (*Nicotiana glauca*). Other wetland vegetation observed in Marsh Creek include cattails (*Typha* sp.), fiddle dock (*Rumex pulcher*), perennial pepperweed, rough cocklebur, annual beard grass, salt grass, Italian thistle (*Carduus pycnocephalus*), and prickly wild lettuce (*Lactuca serriola*).

Tributaries to Marsh Creek, Briones Creek and tributaries to Briones Creek are narrower in width and provide less woody riparian vegetation than Marsh Creek. Briones Creek is an intermittent stream that flows into Marsh Creek at the Marsh Creek Reservoir. Vegetation in Briones Creek and these tributaries include alkaline plants and other wetland forbs and grasses, such as seaside barley (*Hordeum marinum*), salt grass, alkali heath, alkali mallow, swamp pricklegrass, annual beard grass, Italian rye grass, rough cocklebur, and common gumplant. Upland plants, such as yellow starthistle and iodine bush were observed at some of these small creek/tributary crossings.

The proposed trail alignment has been designed to avoid impacts to Marsh Creek and the intermittent tributary of Marsh Creek. A 180-foot long bridge would completely span the 60-foot wide ordinary high water mark of the Marsh Creek channel without placing abutments within the channel. Three piers/abutments associated with the bridge would permanently impact approximately 2,275 square feet (0.05 acre) of the upper banks of Marsh Creek. The bridge crossing would avoid impacts to any riparian trees along Marsh Creek. A 15-foot-long by 3-foot-wide (45 square feet), 24-inch or 36-inch wide bottomless culvert or puncheon would be installed where the trail alignment crosses over the intermittent tributary of Marsh Creek. This crossing would shade approximately 45 square feet of the tributary. Installation of the crossing would avoid impacts to the adjacent riparian habitat along the tributary where possible, but could temporarily impact up to 135 square feet of the adjacent herbaceous vegetation, such as non-native annual grasses and ruderal plant species. No riparian trees or woody vegetation are present at the location of the proposed tributary crossing.

Marsh Creek Reservoir. The Marsh Creek Reservoir is a large open water pond that is hydrologically connected to Marsh Creek. The reservoir supports riparian and wetland vegetation, such as cattail, willow, and blue oak, and valley oak. The outer fringes of the reservoir supports riparian woodland habitat and seasonal wetlands while the center of the reservoir supports open water habitat and emergent wetland vegetation, such as cattails. The proposed trail alignment, however, would avoid impacts to the Marsh Creek Reservoir.

Developed. Developed areas within or adjacent to the project site includes the existing roads and ranch buildings and structures. The proposed project would permanently impact approximately 1.8 acres and temporarily impact approximately 0.2 acre of developed areas, including existing gravel access roads.

Wildlife. Wildlife that inhabit the site include grassland, oak savannah, riparian woodland, and wetland species that have adapted to a rural environment. Wildlife observed within the grasslands during the 2019 reconnaissance-level survey consist of northern harrier (*Circus hudsonius*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), wild turkey (*Meleagris gallopavo*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), western meadowlark (*Sturnella neglecta*), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*) burrows, and coyote (*Canis latrans*). Wildlife observed in the oak savannah consist of mourning dove (*Zenaida macroura*), Eurasian collared dove (*Streptopelia decaocto*), California scrub jay (*Aphelocoma californica*), white-breasted nuthatch (*Sitta carolinensis*), northern mockingbird (*Mimus polyglottos*), western bluebird (*Sialia mexicana*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Spinus psaltria*). Wildlife observed in the riparian woodland consist of western fence lizard (*Sceloporus occidentalis*), red-shouldered hawk (*B. lineatus*), great horned owl (*Bubo virginianus*), California quail (*Callipepla californica*), Nuttall's woodpecker (*Dryobates nuttallii*), ash-throated flycatcher (*Myiarchus cinerascens*), and Audubon's cottontail (*Sylvilagus audubonii*). Wildlife observed in the wetlands/ponds and reservoir during the survey consist of American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), killdeer (*Charadrius vociferus*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*).

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? ***(Less Than Significant with Mitigation Incorporated)***

Based on the review of the HCP/NCCP and on the results of the database searches and conditions observed during the field survey, 90 special-status species (46 plants, 44 wildlife species) were evaluated as potentially occurring on or in the vicinity of the project site (Tables B-1 and B-2, provided in Appendix B). The CNDDB and CNPS Inventory listed additional special-status plants or wildlife as occurring within 5 miles of the project site or within the Byron Hot Springs and Brentwood USGS quadrangle searches, but these species were eliminated from consideration based on the lack of suitable habitat (e.g., chaparral, salt marsh, serpentine rock outcrops, etc.) in the

vicinity of the site.[12,13] Suitable habitat along the proposed trail alignment includes primarily ruderal non-native annual grasslands (Figure 3.4-1).

Special-Status Plants. A list of 46 special-status plant species that may occur in the vicinity of the project site was compiled. Of these 46 species, 17 were determined to have no potential to occur due to a total lack of suitable habitat within the site (e.g., serpentine, coastal habitats, rocky outcrops), or because they have not been found within the past 50 years and are therefore considered no longer present in Contra Costa County. Potentially suitable habitat is present for 29 special-status plant species. Most of these species are associated with the alkali seasonal wetlands or alkali grassland areas found in the project vicinity. Rare plants documented at the project site consist of the following three special-status plant species: the San Joaquin spearscale (*Extriplex joaquinana*), crownscale (*Atriplex coronata* var. *coronate*), and big tarplant (*Blepharizonia plumosa*) (see Table B-1 provided in Appendix B). The proposed trail alignment, however, will occur within ruderal non-native annual grasslands and existing developed areas and has been designed to avoid alkali seasonal wetlands and alkali grasslands where special-status plants are more likely to occur. The trail alignment would also avoid locations of any known occurrences of special-status plants.

The proposed project may impact some grassland special-status plant species, if present along the trail alignment. These species include some special-status plants that are covered species by the HCP/NCCP, and therefore, the HCP/NCCP provides incidental take coverage for covered plants and provides compensation for the loss of habitat. HCP/NCCP-covered special-status plant species that could occur within the trail alignment consist of big tarplant, round-leaved filaree (*California macrophylla*), Diablo helianthella (*Helianthella castanea*), showy madia (*Madia radiata*), and Adobe navarretia (*Navarretia nigelliformis* subsp. *radians*). Other non-covered special-status plant species that could occur are Congdon's tarplant (*Centromadia parryi* subsp. *congdonii*), Mt. Diablo buckwheat (*Eriogonum truncatum*), stinkbells (*Fritillaria agrestis*), and fragrant fritillary (*Fritillaria liliacea*). The HCP/NCCP provides mitigation measures for impacts to covered plant species, which reduce potential impacts to covered plants to less than significant levels. These HCP/NCCP measures, which include modifications for non-covered special-status plant species, are provided herein. With implementation of the following multi-part mitigation measure, significant impacts to covered and other special-status plants would be reduced to less than significant.[14]

Mitigation Measure BIO-1a: **Pre-Construction Surveys for Special-Status Plants.** Prior to the initiation of construction, protocol-level surveys shall be conducted to verify the absence of special-status plants. The surveys shall be conducted in accordance with the California Department of Fish and Wildlife *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.* Following the survey, the biologist shall provide a written summary describing the results of the planning surveys conducted as required for the HCP/NCCP -covered and no-take plant species. The methods used to

12 California Department of Fish and Wildlife. 2019, op. cit.

13 California Native Plant Society. 2019, op. cit.

14 California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. March 20.

survey the site for all covered and no-take plants shall be described, including the dates and times of all surveys conducted, and reference populations visited prior to conducting surveys. If special-status or covered plant species are found during the surveys, impacts to such plant species would be reduced with implementation of Mitigation Measures BIO-1b, 1c, and 1d, below.

Mitigation Measure BIO-1b: **Measures for Perennial Covered Plants and Other Perennial Special-Status Plants.** Where impacts to covered plant species cannot be avoided and plants would be removed by approved covered activities, the East Bay Regional Park District shall salvage or transplant the covered plants. Salvage measures shall include the evaluation of techniques for transplanting as well as germinating seed in garden or greenhouse and then transplanting to suitable habitat sites in the project area. As the project is located within the service area of the HCP/NCCP, payment of a development fee would address potential impacts to HCP/NCCP-covered special-status plant species, providing that credits for those plants are still available. If special-status plant species that are not covered in the HCP/NCCP are found within the proposed trail alignment, those plant populations shall be avoided to the extent practicable. If avoidance is not possible for non-covered plant special-status species, a Special-Status Plant Mitigation Plan shall be prepared, which shall include performance criteria and contingency measures to be implemented if these criteria are not achieved. If transplanting or other mitigation methods are not possible for the special-status species found, this plan shall include alternative measures, such as avoidance. The impacted perennial special-status plants that are not covered under the HCP/NCCP shall be mitigated by replacing plants, through salvaging or transplanting or other appropriate method, at a minimum 1:1 ratio.

Mitigation Measure BIO-1c: **Measures for Annual Covered Plants and Other Annual Special-Status Plants.** For annual covered and other special-status plants, mature seeds shall be collected from all individuals for which impacts cannot be avoided (or if the population is large, a representative sample of individuals). Field studies shall be conducted through an Adaptive Management Program that shall be used to determine the efficacy and best approach to dispersal of seed into suitable habitat. The Adaptive Management Program shall include monitoring protocols, sampling design, and indicators, among other items, as described in the HCP/NCCP. Where seeds are distributed to the field, they shall be located in the preserve or another nearby open space preserve in suitable habitat in order to establish new populations. If seed collection methods fail (e.g., due

to excessive seed predation by insects), alternative propagation techniques will be necessary. The impacted annual special-status plants that are not covered under the HCP/NCCP shall be mitigated by replacing, through seeding, plants at a minimum 1:1 ratio.

Mitigation Measure BIO-1d: **All Covered Plants.** The East Bay Regional Park District shall transplant new populations of covered plants such that they constitute separate populations and do not become part of an existing population of the species, as measured by the potential for genetic exchange among individuals through pollen or propagule (e.g., seed, fruit) dispersal. Transplanting or seeding "receptor" sites (i.e., habitat suitable for establishing a new population) will be carefully selected on the basis of physical, biological, and logistical considerations.

Special-Status Wildlife. Of the 44 special-status wildlife species evaluated for the project, 32 species could occur within or adjacent to the project site due to the presence of suitable habitat and the known range of the species (Table B-2 provided in Appendix B; this table also lists which species are covered in the HCP/NCCP): conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*B. longiantenna*), vernal pool fairy shrimp (*B. lynchi*), midvalley fairy shrimp (*B. mesovallensis*), vernal pool tadpole shrimp (*Lepidurus packardi*), Central California Coast steelhead (*Oncorhynchus mykiss*), California red-legged frog, California tiger salamander, Alameda striped racer (*Masticophis lateralis euryxanthus*), western pond turtle (*Emys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), redhead (*Aytha americana*), American white pelican (*Pelecanus erythrorhynchos*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), northern harrier, white-tailed kite (*Elanus leucurus*), bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), short-eared owl (*Asio flammeus*), western burrowing owl (*Athene cunicularia*), Vaux's swift (*Chaetura vauxi*), loggerhead shrike (*Lanius ludovicianus*), grasshopper sparrow (*Ammodramus savannarum*), tricolored blackbird (*Agelaius tricolor*), yellow warbler (*Dendroica petechia*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), San Joaquin kit fox (*Vulpes macrotis mutica*), ringtail (*Brassariscus astutus*), and American badger (*Taxidea taxus*).

All special-status animal species covered under the HCP/NCCP that may be affected by the project have impact avoidance, minimization, and mitigation measures that have already been determined through prior consultation with the USFWS and the CDFW under the HCP/NCCP. Those measures applicable to the project, as well as any other necessary avoidance or minimization efforts for non-HCP/NCCP-covered species are provided below.

Special-Status Vernal Pool Crustaceans. Seasonal wetlands north of the proposed trail alignment are known to support vernal pool fairy shrimp (*B. lynchi*), which is a covered species under the HCP/NCCP. Critical Habitat for Vernal Pool Fairy Shrimp Critical Habitat (Unit 19A) has been designated in the northern portion of the park. Although not found during previous surveys conducted in the project area, [15] other special-status vernal pool crustaceans

[15] LSA Associates, Inc. 1993, op. cit.

(conservancy fairy shrimp [*Branchinecta conservation*], longhorn fairy shrimp [*B. longiantenna*; covered species under the HCP/NCCP], midvalley fairy shrimp [*B. mesovallensis*; covered species under the HCP/NCCP], and vernal pool tadpole shrimp [*Lepidurus packardi*; covered species under the HCP/NCCP]) could occur in the seasonal wetlands in the project area.[16,17] The proposed trail alignment has been designed to avoid these seasonal wetland areas and associated hydrology; therefore, impacts to fairy shrimp and fairy shrimp habitat would be less than significant.

California Tiger Salamander. Several vernal pools and stock ponds within the project area could provide suitable California tiger salamander breeding habitat. However, the proposed project would not impact any known or potential breeding habitat for the California tiger salamander. The closest known breeding ponds are approximately 200 feet from the trail alignment on the opposite side of Marsh Creek Road and 500 feet from the site within the park. While suitable breeding habitat would not be impacted by the project, suitable upland habitat for refuge and dispersal would be impacted. If California tiger salamanders are present during construction within suitable grassland habitat or dispersing across the site, individual California tiger salamanders could be harmed. During operation of the trail, there is a negligible potential for a California tiger salamander to be crushed by a pedestrian, equestrian, cyclist, or construction vehicles/equipment. This species is covered in the HCP/NCCP and therefore, payment of development fees would mitigate incidental loss of individuals and associated upland habitat loss.

California Red-legged Frog. Several stock ponds within the project site are known to or could support California red-legged frogs. The trail alignment has been designed to avoid impacts to these ponds. Drainages that flow into these ponds have also been avoided, so that the existing hydrology associated with the ponds would not be impacted. The closest known breeding pond is approximately 1,650 feet from the trail alignment. Implementation of the proposed project would not impact the stock ponds on the project site; therefore, the proposed project would not impact any known or potential breeding habitat for California red-legged frog. The proposed project, however, will cross a segment of Marsh Creek and a small tributary, which may provide suitable non-breeding aquatic habitat for California red-legged frogs. Other segments of Marsh Creek both upstream and downstream of the crossing may provide plunge pools suitable for breeding, but no plunge pools were observed during the survey. This species, however, could migrate or disperse through the proposed trail alignment and be harmed if present at the time of construction. During operation of the trail, there is a negligible potential for a California red-legged frog to be crushed by a pedestrian, equestrian, cyclist, or construction vehicles/equipment. This species is covered in the HCP/NCCP and therefore, payment of development fees would mitigate incidental loss of individuals and associated habitat loss.

Alameda Striped Racer. The Alameda striped racer is known to occur in the general vicinity; however, no large patches of scrub habitat occur within or immediately adjacent to the project site. The project site is not mapped within the "core habitat" or "movement habitat" for the species listed in the HCP/NCCP, but an occurrence has been recorded less than a mile from the

16 LSA Associates, Inc. 1993, op. cit.

17 Brentwood, City of, and California State Parks. 2012, op. cit.

trail alignment.[18] Since suitable habitat is present in the vicinity of the project site, the Alameda striped racer could disperse through the site, especially along the Marsh Creek riparian corridor.

Because Alameda striped racers occur in low densities and spend most of their time in chaparral communities, it is unlikely any would be encountered during trail construction. This species is known to occur in riparian woodland habitat and therefore, could be present near where the proposed trail alignment would cross Marsh Creek. Potential direct effects on Alameda striped racer may result from crushing of individuals by construction equipment, vehicles, or crews while working within suitable habitat. Any Alameda racers that happened to be within the proposed trail alignment would likely flee project personnel before they were in danger. Due to the small size of the construction area relative to the surrounding open space, the temporary disturbance during construction would be a negligible impact. During operation of the trail, there is a negligible potential for a basking Alameda striped racer to be crushed by a pedestrian, equestrian, cyclist, or construction vehicles/equipment. This species is covered in the HCP/NCCP and therefore, payment of development fees would mitigate incidental loss of individuals and associated habitat loss.

Western Pond Turtle. Western pond turtle likely occurs within the aquatic habitats near the trail alignment, including the creek channels and larger ponds. This turtle is known to occur in the Marsh Creek Reservoir and the mouth of Marsh Creek.[19] Several plunge pools within Marsh Creek also provide suitable habitat for western pond turtles. However, no plunge pools were observed in Marsh Creek where the proposed trail alignment occurs and the Marsh Creek Reservoir is approximately 220 feet from the trail alignment. Implementation of the proposed project may impact western pond turtle. Clearing of vegetation and ground-disturbing activities have the potential to impact western pond turtle nests that may be present in the upland areas of the project site. Turtles may be crushed by construction equipment if they are on land moving to and from nesting sites, or the nests may be crushed by heavy equipment. During operation of the trail, there is a negligible potential for a basking western pond turtle to be crushed by a pedestrian, equestrian, cyclist, or construction vehicles/equipment. This species is covered in the HCP/NCCP and therefore, payment of development fees would mitigate incidental loss of individuals and associated habitat loss.

The HCP/NCCP does not require pre-construction surveys for California tiger salamander, California red-legged frog, Alameda striped racer, and western pond turtle because it assumes some take of these covered species. Payment of HCP/NCCP development fees will provide mitigation for potential impacts, but implementation of Mitigation Measure BIO-2 would further reduce potential impacts to California tiger salamander, California red-legged frog, Alameda striped racer, and western pond turtle to a less than significant level. Since the California tiger salamander, California red-legged frog, western pond turtle, and Alameda striped racer are covered species within the HCP/NCCP, the below multi-part mitigation measure includes relevant measures from the HCP/NCCP. Because these four species are covered in the

[18] Jones & Stokes. 2006, op. cit.

[19] California Department of Fish and Wildlife. 2019, op. cit.

HCP/NCCP, payment of the HCP/NCCP development fee would mitigate for incidental loss of individual animals and their associated habitat loss.

Mitigation Measure BIO-2: **California Tiger Salamander, California Red-Legged Frog, Alameda Striped Racer, and Western Pond Turtle.** Due to the potential for California tiger salamander, California red-legged frog, Alameda striped racer, and western pond turtle to occur in the project area, the following mitigation measure shall be implemented.

- Prior to the initiation of construction activities (including staging of equipment and clearing of vegetation) all personnel associated with project construction shall attend an Environmental Awareness Training. The training shall be prepared and conducted by a qualified biologist, to aid workers in recognizing special-status species and sensitive habitat that may occur in the project area. The specifics of this program shall include identification of the special-status species and habitats, a description of the regulatory status, and review of the measures required to reduce impacts to biological resources on the project site. At the end of the training, all workers shall sign an attendance sheet to document their participation in the program and understanding of the measures.

- A qualified biologist shall survey the work site for special-status wildlife species within 24 hours before the onset of activities. If special-status species are found in the construction area, they shall be afforded the opportunity to leave the construction area on their own. If relocation is necessary, the biologist shall contact CDFW and/or USFWS to determine if moving any of these species is appropriate. If CDFW and/or USFWS approves moving these species, the approved biologist shall be allowed sufficient time to move the species from the work site before work activities begin. Otherwise, the individual species shall be allowed to move out of the project area on their own. Only CDFW- and/or USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of special-status species.

- All mammal burrows shall be avoided to the maximum extent where possible.

- In the unlikely event a special-status species is inadvertently killed or injured or if a special-status species is observed to be injured, dead, or entrapped, the construction crew shall stop

work and notify the biologist who will then notify the District, USFWS and/or CDFW.

- Work activities shall be completed between April 1 and November 1, which roughly corresponds with the dry season when California tiger salamanders and California red-legged frogs are less likely to be moving and when Alameda striped racers are more active and less likely to be harmed (i.e., as opposed to during the wet months when the species is hibernating).

- Construction activities shall be restricted to the daytime hours, from 30 minutes after sunrise to 30 minutes before sunset.

- In order to avoid potential impacts to these species, grading activities shall not occur during or immediately following rain events.

- During construction of the trail, no pets or firearms shall be allowed at the project site, with the exception of authorized law enforcement personnel.

- All refueling, maintenance, and staging of equipment and vehicles shall occur at least 100 feet from any wetlands or waterbodies. Secondary containment shall be used during refueling.

- All vehicles and equipment shall be maintained in good working condition and free of leaks.

- Standard Best Management Practices (BMPs) shall be employed as necessary to avoid degradation of aquatic habitat by maintaining water quality and controlling erosion and sedimentation during construction.

- The District shall include in the contract specifications a requirement to use tightly woven fiber of natural materials (e.g., coir rolls or mats) or similar material for erosion control to ensure that special-status species do not get trapped. Plastic mono-filament netting (erosion control matting) or similar material shall be prohibited onsite.

- Construction personnel shall not feed or otherwise attract wildlife in the project area. All food-related trash and garbage shall be placed in animal-proof containers that shall be emptied or removed from the construction site on a regular basis.

- To reduce the potential for vehicle strikes, all construction related traffic shall not exceed 5 miles per hour on unpaved roads.

- Upon completion of trail construction, temporarily impacted areas shall be restored and stabilized to prevent erosion. A seed mix of native grass and forb species shall be applied to all of the grassland areas disturbed by the project. The seed shall be from sources that are regionally appropriate for the site.

- To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches with a greater than 1:1 (45 degree) slope of any depth shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks with a slope of 2:1. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.

Golden Eagle, Swainson's Hawk, White-tailed Kite, Northern Harrier, Loggerhead Shrike, Grasshopper Sparrow, and Tricolored Blackbird and other Nesting Birds. Golden eagle, Swainson's hawk, white-tailed kite, northern harrier, bald eagle, loggerhead shrike, grasshopper sparrow, tricolored blackbird, and yellow warbler could nest on and/or adjacent to the project site. Out of these bird species, golden eagle, Swainson's hawk, and tricolored blackbird are covered species under the HCP/NCCP. The only one of these species observed during the 2019 field survey was a northern harrier. Golden eagles are known to nest approximately 1 to 1.5 miles west and southwest of the project site, but these nests are located far enough away from the proposed trail alignment that these nests would not be impacted.[20] Golden eagle, Swainson's hawk, white-tailed kite, and loggerhead shrike could nest in the large shrubs or trees adjacent to the proposed trail alignment. Northern harriers and grasshopper sparrows could nest in the grasslands on or adjacent to the proposed trail alignment. Tricolored blackbirds could nest near the Marsh Creek Reservoir, where they have been observed in the past.[21]

Construction activities near active nests could disturb breeding birds by forcing young to fledge early or for adults to abandon the nest resulting in mortality of young. If construction or vegetation removal begins during the nesting bird season (February 1 to August 31), a pre-construction nesting bird survey would be conducted within and adjacent to the work area to avoid potential impacts to these and other nesting birds. The HCP/NCCP requires pre-construction surveys for Swainson's hawk, golden eagle, and tricolored blackbird as described in Mitigation Measures BIO-3a and 3b below.

The proposed project may impact nesting special-status or common nesting bird species protected by the Migratory Bird Treaty Act and/or California Fish and Game Code, if present

20 East Bay Regional Park District. 2021 Golden Eagle Nest Location Data.

21 California Department of Fish and Wildlife. 2019, op. cit.

during construction of the project. Ground-nesting birds may also be directly impacted by construction if active nests are present. Implementation of Mitigation Measure BIO-3c would reduce potential impacts to nesting special-status or common bird species to a less than significant level.

Mitigation Measure BIO-3a: **Golden Eagle.** To avoid or minimize direct impacts on golden eagle as a result of project construction, the East Bay Regional Park District (District) shall implement the following measures, which are adapted from the HCP/NCCP:

- Prior to implementation of the proposed project, a qualified biologist will conduct a pre-construction survey to establish whether nests of golden eagles are occupied. If nests are occupied, minimization requirements and construction monitoring will be required.
- Construction activities will be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the District will coordinate with the USFWS/CDFW to determine the appropriate buffer size.
- A qualified biologist will conduct construction monitoring to ensure that construction activities do not occur within the buffer zone established around an active nest.

Mitigation Measure BIO-3b: **Swainson's Hawk.** Prior to initiating project construction, the East Bay Regional Park District (District) shall conduct surveys for Swainson's hawk nest sites as described below. This measure is adapted from the HCP/NCCP.

- A biologist approved by the USFWS or CDFW shall inspect all large trees with binoculars to document whether Swainson's hawk nests occur on site. The survey will conducted according to the Swainson's Hawk Technical Advisor Committee's methodology (May 31, 2000) or updated methodologies as issued by USFWS or CDFW. If occupied nests are identified, the District will avoid and minimize impacts to these nests in compliance with the Migratory Bird Treaty Act and the Fish and Game Code (Section 3503). Avoidance and minimization measures will be incorporated into the project design and other portions of

the application package prior to submission for coverage under the Plan. Avoidance measures will include preserving the nest tree with a 1,000-foot buffer.

- Prior to any ground disturbance that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a pre-construction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required.

- During the Swainson's hawk nesting season (March 15–September 15), construction activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the District will coordinate with CDFW to determine the appropriate buffer size.

- If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the District for a waiver of this avoidance measure. Any waiver must also be approved by CDFW. While the nest is occupied, activities outside the buffer can take place.

- All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the District in accordance with the Habitat Conservation Plan/Natural Community Conservation Plan requirements.

Mitigation Measure BIO-3c: **Tricolored Blackbird and Other Nesting Birds.** If any construction activities (e.g., grubbing, grading, vegetation/tree removal) are scheduled during the bird nesting season (typically defined by the California Department of Fish and Wildlife as February 1 to August 31), a qualified biologist shall conduct a pre-construction survey for nesting birds no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, the biologist shall

delineate a buffer zone where no construction will occur until the biologist has determined that all young have successfully fledged. The size of the buffer(s) shall be determined by the project biologist and be based on the nesting species and its sensitivity to disturbance. Typical buffer zones are 50 feet for passerines and up to 300 feet for raptors. Nests shall be monitored regularly to determine if construction activities are affecting the nesting activities and when young birds have fledged.

Western Burrowing Owl. Western burrowing owls could nest or winter within the project site due to the presence of suitable small mammal burrows or burrow surrogates (e.g., culverts, debris piles). No evidence of burrowing owl use (e.g., prey remains, droppings, feathers) was observed during the 2019 reconnaissance survey. Ground squirrel burrows were observed along and throughout the trail alignment during the 2019 survey.

Construction of the trails could impact breeding or wintering western burrowing owls through general disturbance if a burrow is directly disturbed or if work is conducted near an occupied burrow. However, implementation of Mitigation Measure BIO-4, which requires pre-construction burrowing owl surveys, would reduce potential impacts to burrowing owls.[22] Therefore, with implementation of Mitigation Measure BIO-4, impacts to burrowing owls would be less than significant. This measure is adapted from the HCP/NCCP, and references the most recent 2012 CDFW Guidelines, which supersedes those published in 1995.

Mitigation Measure BIO-4: **Western Burrowing Owl.** The East Bay Regional Park District shall implement the following measures to reduce potential impacts to western burrowing owl:

- Prior to initiating construction activities, a biologist approved by the California Department of Fish and Wildlife (CDFW) shall conduct surveys for burrowing owl within 500 feet of the project site. This measure incorporates avoidance and minimization guidelines from CDFW 2012 Staff Report on Burrowing Owl Mitigation.

- Prior to any ground disturbance related to construction activities, a CDFW-approved biologist will conduct a pre-construction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines.

[22] California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7. Available online at: nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843 (accessed July 3, 2020).

- The biologist shall survey for burrowing owls and burrows on and within 500 feet of the development footprint. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1– August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1–January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.

- If burrowing owls are found during the breeding season (February 1–August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the nest is inactive. During the nonbreeding season (September 1–January 31), the project proponent shall avoid the owls and the burrows they are using. Avoidance will include the establishment of a buffer zone (described below).

- If occupied burrows for burrowing owls are not avoided, passive relocation may be implemented upon approval by CDFW. Owls should be excluded from burrows in the immediate impact zone and within an appropriate buffer zone as recommended by the biologist in coordination with CDFW by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

Special-Status Bats. Townsend's big-eared bat, pallid bat, and other bat species could roost in the buildings and/or large trees near the trail alignment, but no sign of roosting bats was observed in the buildings or trees during the 2019 reconnaissance survey. The buildings are situated approximately 600 feet from the trail alignment and therefore, the potential roost sites

in the buildings would not be impacted, but large trees adjacent to the trail alignment could provide suitable habitat for roosting bats. No suitable roosting habitat for Townsend's big-eared bat would be impacted since they occur in buildings, caves, and mines, but the proposed project may impact the tree-roosting bats, such as the pallid bat, other special-status and common roosting bat species, if present in the trees during construction of the project. Potential impacts to tree-roosting bats could be from both tree removal and noise disturbance during construction. Implementation of Mitigation Measure BIO-5 would reduce potential impacts to special-status bat species to less than significant.

Mitigation Measure BIO-5: **Special-Status Bats.** The East Bay Regional Park District shall implement the following measures to minimize impacts to bat species, some of which were adapted from Townsend's big-eared bat measures within the HCP/NCCP:

- A qualified biologist shall conduct a pre-construction survey for roosting pallid bats and other bat species at all suitable bat roosting habitat at the trees proposed for removal and adjacent to the trail alignment that would be subject to noise disturbance. The survey shall be conducted within 14 days prior to the beginning of construction.

- If active bat roosts are discovered or if evidence of recent occupation is established, then the biologist needs to determine if activities occurring near the roost are likely to disturb the roost, considering the type of roost (day, night, maternity, hibernation), types of construction activities, and sensitivity of the bat species. If the roost is located within an adjacent tree that can be avoided, a buffer to be determined by the biologist, based on the location and sensitivity of the roost, shall be established around the roost site and maintained until the roost site is no longer active. If an active maternity roost is found in a tree slated for removal, active maternity roosts shall not be removed until the young have left the roost and are foraging independently or until the roost is no longer active. If the roost is occupied by a special-status bat species and the roost needs to be removed, CDFW shall be contacted regarding removal of the roost. If the roost is not a maternity roost and is not occupied by a special-status bat species, the roost may be removed by excluding bats from the roost. Roosts may only be removed once the bats are no longer occupying the roost, at which time, a plan approved by CDFW may be implemented for removal of the roost. The plan shall describe appropriate methods for the removal of the roost. As part of CDFW's approval, a new roost site may be required to be created on the

project site. Active day roosts of tree-foliage bats may be removed upon permission of CDFW.

- If Townsend's big-eared bat is discovered or if evidence of recent prior occupation is established, construction shall be scheduled such that it minimizes impacts on this species. Hibernation sites with evidence of prior occupation shall be sealed before the hibernation season (November-March), and nursery sites shall be sealed before the nursery season (April-August). If the site is occupied, then construction activities shall occur either prior to or after the hibernation season for hibernacula and after August 15 for nursery colonies. Construction shall not take place as long as the roost site is occupied.

- If feasible, trees planned for pruning or removal as a part of the project, should be pruned or removed during the fall to avoid the maternity roosting period of resident bats (mid-April to August season). Western red bats are less likely to be present and roosting in the trees and shrubs on and adjacent to the project site during the spring and summer, but other bats may be roosting during this period. Because bats may be present at any time, a pre-construction survey by a qualified biologist shall be required as outlined above regardless of timing of tree removal and a suitable buffer zone established around the roost.

- Pruned limbs or cut trees must be left on the ground in place for at least 24 hours after cutting to allow any bats that may be roosting in the trees to leave the roosts prior to chipping the branches or removing the cut material from the site. Before any construction activities begin in the vicinity of the identified bat roosts on the project site, an approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the bats and their habitat, the specific measures that are being implemented to conserve the bat roosts for the current project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session. A qualified biologist will conduct the training session.

San Joaquin Kit Fox. The San Joaquin kit fox, although rare in the region could occur within the project site due to the presence of suitable grassland habitat. The last CNDDB record in the region is over 20 years old.[23] Potential fox dens were observed in the larger ground squirrel

[23] California Department of Fish and Wildlife. 2019, op. cit.

burrows on or adjacent to the trail alignment. Construction of the trail could directly impact potential dens within the trail alignment. Construction activities associated with the trail could also result in indirect impacts to San Joaquin kit fox through increased noise and disturbance during construction and could result in abandonment of dens in close proximity to the trail alignment.[24] This species is covered in the HCP/NCCP and therefore, payment of development fees would mitigate incidental loss of individuals and associated habitat loss. With implementation of Mitigation Measure BIO-6, impacts to San Joaquin kit fox would be less than significant.

Mitigation Measure BIO-6: **San Joaquin Kit Fox.** To avoid or minimize direct impacts on San Joaquin kit fox, the following measures shall be implemented, based on the HCP/NCCP and the U.S. Fish and Wildlife Service (USFWS) Standardized Recommendations for Protection of the San Joaquin Kit Fox prior to or during Ground Disturbance:

- Prior to any ground disturbance related to covered activities, a biologist approved by the USFWS/CDFW shall conduct a pre-construction survey in areas identified in the planning surveys as supporting suitable breeding or denning habitat for San Joaquin kit fox. The surveys will establish the presence or absence of San Joaquin kit foxes and/or suitable dens and evaluate use by kit foxes in accordance with USFWS survey guidelines. Pre-construction surveys will be conducted within 30 days of ground disturbance. On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 250-foot radius from the perimeter of the proposed footprint to identify San Joaquin kit foxes and/or suitable dens.

- If San Joaquin kit foxes and/or suitable dens are identified in the survey area, the following measures shall be implemented:

    - If a San Joaquin kit fox den is discovered in the proposed development footprint, the den will be monitored for three days by a USFWS/CDFW-approved biologist using a tracking medium or an infrared beam camera to determine if the den is currently being used.

    - Unoccupied dens will be destroyed immediately to prevent subsequent use.

    - If a natal or pupping den is found, USFWS and CDFW will be notified immediately. The den will not be destroyed until

[24] U.S. Fish and Wildlife Service. 1999. *San Joaquin Kit Fox Survey Protocol for the Northern Range*. Sacramento Fish and Wildlife Office. June.

the pups and adults have vacated and then only after further consultation with USFWS and CDFW.

- If kit fox activity is observed at the den during the initial monitoring period, the den will be monitored for an additional five consecutive days from the time of the first observation to allow any resident animals to move to another den while den use is actively discouraged. For dens other than natal or pupping dens, use of the den can be discouraged by partially plugging the entrance with soil such that any resident animal can easily escape. Once the den is determined to be unoccupied it may be excavated under the direction of the biologist. Alternatively, if the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities).

- If dens are identified in the survey area outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones should be circular, with a radius measured outward from the den entrance(s). No covered activities will occur within the exclusion zones. Exclusion zone radii for potential dens will be at least 50 feet and will be demarcated with four to five flagged stakes. Exclusion zone radii for known dens will be at least 100 feet and will be demarcated with staking and flagging that encircles each den or cluster of dens but does not prevent access to the den by kit fox.

American Badger. American badger is a California Species of Special Concern that is not covered by the HCP/NCCP. No badger burrows or burrows suitable for badgers were observed during the 2019 survey. American badgers, however, could forage and den on or adjacent to the trail alignment due to the presence of suitable grassland habitat and prey, such as California ground squirrels. Construction activities associated with the trail could result in direct impacts to American badger, if active dens are present along the trail alignment. Construction activities associated with the trail could also result in indirect impacts to American badger through increased noise and disturbance during construction and could result in abandonment of dens in close proximity to the trail alignment. With implementation of Mitigation Measure BIO-7, impacts to American badger would be less than significant.

Mitigation Measure BIO-7: **American Badger.** The East Bay Regional Park District shall implement the following measures to minimize impacts to American badger:

- A qualified biologist shall conduct a survey of the grassland habitat on and within 300 feet of the site to identify any American badger burrows on the site. The survey will be conducted no sooner than two weeks prior to the start of construction.
- Impacts to active badger dens will be avoided by establishing exclusion zones around all active dens, within which construction related activities shall be prohibited until denning is complete or the den is abandoned.
- A qualified biologist will monitor each den once per week in order to track its status and inform the District of when a den area has been cleared for construction.
- If the biologist determines that the burrow is not being used for breeding, then a one way door will be installed on the burrow (upon approval by the California Department of Fish and Wildlife) to passively exclude the badger from the burrow. Once the badger has been excluded the burrow will be collapsed.

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, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(Less Than Significant with Mitigation Incorporated)***

CDFW tracks the occurrences of natural plant communities that are of limited distribution Statewide or within a county or region and are often vulnerable to environmental effects of projects. A Manual of California Vegetation, Second Edition,[25] lists vegetation alliances with State rarity rankings of S1-S3 as considered "highly imperiled" and project impacts to "high-quality occurrences" of these alliances could be considered significant under CEQA. Most types of wetlands, including alkali wetlands, and riparian communities are also considered sensitive natural communities due to their limited distribution in California. The CNDDB does not identify any sensitive natural communities on the site[26] and no sensitive plant communities were observed during the field survey. However, riparian forest occurs along the banks of Marsh Creek.

The proposed project has been designed to avoid impacts to riparian habitat where possible and no riparian trees or woody vegetation would be impacted, but some riparian habitat, including

[25] Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation*. Second edition. California Native Plant Society Press, Sacramento.

[26] California Department of Fish and Wildlife. 2019, op. cit.

herbaceous vegetation, such as annual grasses and ruderal plants, could be impacted during construction of the proposed bridge crossing over Marsh Creek and the bottomless arch culvert or puncheon crossing to clear span the intermittent tributary of Marsh Creek. The bridge construction would avoid the existing riparian trees, but would permanently and temporarily impact approximately 2,275 and 3,000 square feet of riparian herbaceous understory vegetation along Marsh Creek, respectively. The ephemeral tributary has an approximate maximum width of 2 feet. If a 20-foot culvert is installed at the tributary crossing, the crossing would permanently impact 40 square feet and temporarily impact approximately 100 square feet of the surrounding herbaceous vegetation. If a puncheon crossing is installed at the tributary, the crossing would not permanently impact the tributary, but temporarily cause 100 square feet temporary impacts to the herbaceous vegetation, and shade approximately 20 square feet of the tributary channel. The bottomless arch culvert or puncheon crossing at the tributary to Marsh Creek would shade approximately 45 square feet of the tributary and could temporarily impact up to 135 square feet riparian herbaceous vegetation, consisting of annual grasses and ruderal plant species, along the tributary. Implementation of the Mitigation Measure BIO-8 would reduce impacts to riparian habitat to less than significant.

Mitigation Measure BIO-8: **Riparian Habitat.** Prior to any vegetation removal or other work within the riparian corridors along Marsh Creek and the tributary, the East Bay Regional Park District shall apply for a Streambed Alteration Agreement (SAA) from the California Department of Fish and Wildlife. The SAA will include measures to protect aquatic and wildlife resources during construction. All conditions of the SAA would be implemented. However, as the SAA has not yet been issued, at a minimum, the following measures shall be implemented:

- Disturbance or removal of vegetation will not exceed the minimum necessary to complete the trail improvement work.
- Protective fencing shall be placed along the drip line of riparian trees to prevent compaction of the root zone and to avoid damage to riparian vegetation by people or equipment.
- Branches and/or limbs overhanging the work areas that may be impacted will be properly pruned prior to mobilization of equipment under the supervision of a certified arborist.
- Riparian herbaceous vegetation permanently impacted by the proposed project shall be mitigated by planting riparian trees and/or shrubs along Marsh Creek and/or the tributary at a minimum 1:1 ratio (square footage of trees/shrubs planted: square footage of herbaceous vegetation removed and additional square footage of shading of Marsh Creek and the tributary). All replacement trees and shrubs shall be from nursery stock grown from seeds or cuttings collected in the

same genetic provenance as the project site. A Riparian Revegetation Plan shall be prepared with specific success criteria and contingency measures to be implemented if success criteria are not met. The plantings shall be monitored and maintained for five years or until the success criteria are met.

- Temporarily disturbed areas along the banks of Marsh Creek or the intermittent tributary of Marsh Creek shall be seeded with a riparian native seed mix. A Riparian Revegetation Plan shall be prepared with a specific seed mix and success criteria for the seeded areas and include contingency measures to be implemented if success criteria are not met. Seeded areas shall be monitored for five years or until the success criteria are met.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(Less Than Significant with Mitigation Incorporated)***

Several creeks, streams, drainages, seasonal wetlands, ponds, and other potential wetland features subject to regulation under Section 404 of the federal Clean Water Act and California Porter-Cologne Water Quality Control Act occur within the project site. The proposed trail alignment has been designed to largely avoid wetland areas; however, the proposed project would result in the construction of a pedestrian bridge over Marsh Creek, as well as, the installation of a culvert or puncheon crossing of an intermittent tributary of Marsh Creek. Construction of these crossings could adversely affect these features through directly filling, or indirectly through increased erosion or sedimentation. Due to the potential alterations to jurisdictional features, the District would be required to obtain required permits from regulatory agencies and implement the measures specified by the permits, as required by Mitigation Measure BIO-10. A formal jurisdictional wetland delineation would need to be conducted prior to the submittal of the permit applications. The delineation would also be conducted within the entire trail alignment to ensure that no additional potentially jurisdictional features, such as seasonal wetlands, would be impacted. No seasonal wetlands or wetland vegetation were observed along the trail alignment, but the reconnaissance survey was conducted during the dry season in July when seasonal wetlands may not be easily identifiable. Some seasonal wetlands may be present adjacent to the trail alignment and will need to be avoided during construction. With implementation of Mitigation Measure BIO-9, potential impacts to wetlands would be reduce to less than significant.

Mitigation Measure BIO-9: **State or Federally Protected Wetlands/Waters.** The East Bay Regional Park District (District) shall apply for and obtain permits from the Corps (Corps, Clean Water Act [CWA] Section 404 permit), Regional Water Quality Control Board (RWQCB, CWA Section 401 water quality certification), and California Department of Fish and Wildlife (CDFW, Fish and Game Code Section 1602 Streambed Alteration Agreement) prior to construction. Indirect impacts to the water quality of Marsh Creek or the intermittent tributary of Marsh Creek due to excess sedimentation shall be avoided through the

implementation of a Stormwater Pollution Prevention Plan in accordance with National Pollution Discharge Elimination System and RWQCB requirements (see Mitigation Measures GEO-3 and HYDRO-2). The District shall also implement Best Management Practices as recommended or required by the RWQCB to protect water quality. Additional measures will include the following:

- Any impacts to the creek or tributary, or seasonal wetlands, if present along the alignment, shall be mitigated by providing enhancements to the creek/tributary at a minimum 1:1 ratio. Enhancements shall encompass the same amount of square footage or linear feet of waters of the U.S. or waters of the State that are impacted by the project. If in-kind mitigation is not possible, mitigation can be completed out-of-kind at a minimum 1.5:1 ratio. These enhancements shall include planting of native riparian plants and/or removing of non-native invasive plants. A Wetland Mitigation and Monitoring Plan shall be prepared and implemented for the enhancements. This plan shall be subject to approval by the Corps, RWQCB, and/or CDFW prior to any disturbance of the creek/tributary. Additionally, all required permits and certifications shall be obtained from the Corps, RWQCB, and/or CDFW prior to any disturbance of the creek/tributary and all permit conditions shall be implemented.

- Temporary silt fencing shall be placed at the top of creek/tributary banks and along the perimeter of the seasonal wetlands, as feasible, to prevent entry of fill during construction.

- Temporary environmentally sensitive area fencing shall be installed where needed to prevent construction equipment and workers from entering the creek/tributary or wetlands.

- All work in and around streams and wetlands shall occur during the dry season when no or less water is present in the creek/tributary or wetland.

- Upon completion of construction, construction work areas within and adjacent to waters of the U.S./State shall be restored and stabilized to prevent erosion. A seed mix of native and naturalized grass and forb species shall be applied to all of the wetland/riparian grassland areas temporarily disturbed by the project. The seed shall be from sources that are regionally appropriate for the site.

- All stream channel portions and seasonal wetlands adjacent to, but outside of, the construction footprint shall be avoided during construction and no fill shall be allowed to enter these areas. Exclusion fencing (e.g., silt fence) shall be installed to mark the limits of the construction footprint. The biological monitor shall oversee the installation of the fencing and periodically monitor the work area to ensure avoidance of the stream channels.

- During project construction, no soil or other construction materials shall be stored in or allowed to enter the stream channels or seasonal wetlands. All stockpiled fill and other materials shall be kept at least 50 feet from the channel edges and seasonal wetlands.

- Construction activities shall be limited to periods of low rainfall. The project biologist shall consult the 72-hour weather forecasts from the National Weather Service (NWS) prior to the startup of any ground disturbing activities near streams or wetlands. Construction activities shall cease 24 hours prior to a 40 percent or greater forecast of rain from the NWS. Construction may continue 24 hours after the rain ceases provided that there is no precipitation in the 24-hour forecast. Contractor specifications shall include the following worker restrictions and guidelines, at a minimum:

    - Construction personnel and vehicles shall stay within designated work areas. Entry into adjacent lands or established exclusion zones shall be strictly prohibited.

    - All work areas shall be maintained in clean condition. All trash (e.g., food scraps, cans, bottles, containers, wrappers, cigarette butts, and other discarded items) shall be placed in closed containers and properly disposed off-site.

    - No pets or firearms shall be allowed on site.

    - All vehicles and equipment shall be refueled and/or lubricated in a designated area at least 100 feet from aquatic habitats.

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 native wildlife nursery sites? ***(Less Than Significant with Mitigation Incorporated)***

The project area consists of open space and provides habitat for local and regional wildlife movement. Implementation of the proposed project would not create any significant new permanent barriers to terrestrial or aquatic wildlife movement. The proposed trail corridor would be approximately 14 feet wide and wildlife that currently moves through the project site would continue to move through the site following trail construction. Fencing, consisting of 5-foot-high, five-strand barbed wire set 10 feet off the trail edges would be installed to accommodate cattle grazing. As outlined in Section 1.0, Project Information, the bottom strand would consist of smooth wire, set at 18 inches above the ground to allow for wildlife undercrossing and movement. Implementation of Mitigation Measure BIO-2 would ensure that temporary impacts to migrating special-status wildlife species, including California red-legged frogs and California tiger salamanders, would be less than significant.

The project would not impact any known wildlife nursery sites, such as heron rookeries or bat roosts. Any bat roosts, heron rookeries, or bird nests would be protected by implementing Mitigation Measures BIO-3 through BIO-5.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less Than Significant with Mitigation Incorporated)***

Numerous trees are growing on the project site, most of which are situated along Marsh Creek. The precise trail alignment would be sited to avoid existing trees to the extent possible. Within the trail corridor, the existing trees that may be impacted by the trail would be replaced at a 3:1 ratio. The following trees have the potential to be removed, trimmed, or damaged by trail implementation: eight, 24 to 30-inch diameter at breast height (dbh) California black walnut trees and one, 24-inch box/2-inch dbh coast live oak tree on Vineyards Parkway along Old Marsh Creek Road; ten, 14- to 20-inch dbh non-native Monterey cypress (*Hesperocyparis macrocarpa*) trees along the face of the Marsh Creek Reservoir dam; and one, 28-inch dbh coast live oak tree south of the dam. The majority of these existing trees are considered protected trees as defined by Contra Costa County's Protected Tree Ordinance (Contra Costa County Code [CCCC] Title 8, Chapter 816-6).[27] The proposed project has been designed to minimize impacts to ordinance-protected trees. However, impacts to protected trees may occur as a result of construction of the trail alignment. Implementation of Mitigation Measure BIO-10 would reduce impacts to protect trees to less than significant.

Mitigation Measure BIO-10: **Ordinance-Protected Trees.** If trees protected by the Contra Costa County's Protected Tree Ordinance would be impacted by proposed

[27] CCCC Title 8, Chapter 816-6 defines a protected tree as any native tree measuring 6.5 inches or greater diameter at breast height (DBH), any multi-stemmed tree with the sum of the circumferences measuring 13 inches or greater in diameter at DBH, or any significant grouping of trees, including groves of four or more trees.

trail construction, the East Bay Regional Park District (District) shall obtain a tree removal permit from Contra Costa County. Consistent with Contra Costa County's Protected Tree Ordinance, the District shall replace impacted trees at a minimum 1:1 ratio.

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? ***(Less-Than-Significant Impact)***

The project lies within the East Contra Costa County HCP/NCCP Inventory Area.[28] The HCP/NCCP protects and enhances ecological diversity and function within eastern Contra Costa County, and provides measures to avoid, minimize, and mitigate impacts to covered species and their habitats, while allowing for expansion of urban infrastructure. Activities covered under the HCP/NCCP are considered to have received Incidental Take authorization from the USFWS and CDFW. As described above, the proposed project would be covered under the HCP/NCCP.

As required under the HCP/NCCP, species-specific planning surveys would be conducted for all covered species and other special-status species potentially affected by the project. Compensatory mitigation for impacts to listed species and their habitats (as well as other HCP/NCCP-covered species), will be provided through payment of the appropriate fees required under the HCP/NCCP. The mitigation measures identified above are consistent with the provisions of the HCP/NCCP and would be implemented as part of the proposed project. Further, the District would comply with compensatory mitigation requirements of the HCP/NCCP, including the payment of development fees. Therefore, the proposed project would not conflict with the provisions of the HCP/NCCP and this impact would be less than significant.

[28] Jones and Stokes. 2006, op. cit.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? **(Less Than Significant with Mitigation Incorporated)***

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources [CRHR]), it generally must be 50 years or older. Under CEQA, historical resources can include precontact (e.g., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, historic districts, and areas of traditional cultural significance to tribal groups.

To identify historical resources on the project site, LSA completed the following tasks: (1) a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System;[29] and (2) an archaeological field review to identify previously recorded archaeological sites within or adjacent to the proposed trail alignment. The results of these tasks are summarized below.

There are five recorded cultural resources within or immediately adjacent to the preferred trail alignment. These resources are briefly summarized below and listed in Table 3-B. Specific locational information regarding archaeological cultural resources is not publicly accessible to prevent unauthorized collection and vandalism of significant resources; however, site location information has been provided to project engineers and decision-making staff to disclose the project's potential impacts to cultural resources.[30]

The circa 1855-56 John Marsh House is in the MCSP Historic Zone and is listed in the National Register of Historic Places (NRHP) and CRHR. This historical resource is completely avoided by the project, and the project would not impact built-environment historical resources.

[29] The NWIC is an affiliate of the State of California Office of Historic Preservation (OHP) and is the official State repository of cultural resources records and reports for Contra Costa County.

[30] The legal authority to restrict cultural resources information is in California Government Code Sections 6254.10 and 6254(r), and California Code of Regulations Section 15120(d).

Table 3.B: Cultural Resources Within Preferred Trail Alignment

Resource Identification	Resource Type	Description	CEQA Historical Resource (Yes/No?)
P-07-000037 (CA-CCO-18/548/H)	Precontact/Historic-Period site	Native American habitation site with human burials; Historic features and artifacts	Yes
P-07-000428 (CA-CCO-671H)	Historic site	Ranch remains	No
P-07-002991	Historic structure	Dam	No
P-07-003120	Precontact isolate	Chert artifact	No
P-07-004697	Precontact/Historic district	Los Vaqueros District	Yes

Source: Northwest Information Center, Sonoma State University, Rohnert Park, California (2019).

Resource P-07-000037 (CA-CCO-18/548/H). This resource consists of an extensive Native American occupation site characterized by midden, hundreds of human burials, and scattered artifacts. Although possibly best known for its Early Period—or Middle Archaic—assemblage, Middle Period and Late Period components have also been identified.

On August 8, 2012, the California State Historic Preservation Officer submitted a nomination for this resource to the Keeper of the NRHP, stating the following:

> "CA-CCO-548/H has yielded a prehistoric burial population of over 480 individuals, providing a rare opportunity to research into site structure, cultural chronology, and subsistence and settlement data.[31] In addition, the site offers researchers a rich opportunity to conduct studies on the regional and interregional exchange networks, and mortuary treatments and human osteological data that a site of this magnitude can provide. The prehistoric burial population represents the largest known interment of human remains for the Middle Archaic Period (7500-2500 BP) in California and will likely provide data that will expand and enrich our knowledge for this and subsequent time periods in the Central Valley and San Joaquin/Sacramento Delta regions."

The site was formally listed to the NRHP on September 25, 2012, under Criterion D for its ability to yield information important in prehistory. The site is also listed in the CRHR, and is a historical resource for purposes of CEQA.

Resource P-07-000428 (CA-CCO-671H). This resource consists of a circa 1940s fenced area with a cattle corral, chute, and pens that were originally recorded by Samuelson et al. in 1993. This resource likely does not meet any of the criteria for listing in the CRHR and does not qualify as a historical resource for purposes of CEQA. As noted by Samuelson, et al.:[32]

[31] Resource P-07-000037 is also referenced in the literature according to its State trinomials: CA-CCO-548/H and CA-CCO-18.

[32] Samuelson, Ann, et al. 1993. *Archaeological Survey and Testing Report, Cowell Ranch Project, Contra Costa County, California. Volume I: Background, Results, and Recommendations*. William Self Associates, Orinda, California.

> "Although additional archival research or oral history might shed light on its age and construction, it is doubtful that it would prove to be associated with persons important in history, or the work of a master. The information gathered during site recording comprises the available data at the site."

The field review identified this resource on the eastern terrace of Marsh Creek, near the proposed Segment 7 bridge crossing to the north of Marsh Creek Road. Remnant components of this resource still exist, as previously described in 1993 and 2008 documentation of the site. The cattle chute, however, is in a greater state of disrepair since last recorded in 2008, and the overall condition of the resource is poor.

Resource P-07-002991. This resource consists of Marsh Creek Dam, constructed in 1962. As recorded, this resource encompasses approximately 375 acres and consists of the Marsh Creek Dam and reservoir, south to Marsh Creek Road/Camino Diablo Road, and approximately 500 meters west and 250 meters east of Marsh Creek Road.

In 2007, JRP Historical Consulting evaluated Marsh Creek Dam for its eligibility for listing in the NRHP and CRHR.[33] That evaluation determined Marsh Creek Dam is not eligible for either the NRHP or CRHR due to a lack of historical significance. As noted in the evaluation, Marsh Creek Dam is not important for its association with flood control measures in regional, state, or national history. Research did not indicate a significant association with a historically significant engineer or master builder. The resource does not embody distinctive characteristics of a type, period, or method of construction, as it is of a common design and represents no particular engineering achievement within the context of late 20th-century dam construction. Finally, the dam has not yielded, and does not have the potential to yield, information important in history.

As the Marsh Creek Dam is not eligible for listing in either the NRHP or CRHR, it warrants no specific protections due to its historical significance from project construction within the regulatory context of CEQA.

The field review identified the location of Marsh Creek Dam and its associated elements, as recorded in 2007. No changes to the condition of this resource were observed since 2007.

Resource P-07-003120. This resource consists of an isolated precontact chert scraper tool. Isolated artifacts are typically not considered eligible for listing in CRHR, and this resource is not a historical resource for purposes of CEQA.

The field review did not identify this resource.

Resource P-07-004697. This resource consists of the Los Vaqueros/Upper Kellogg Creek Historic District. This historic district was identified during the environmental review for the Los Vaqueros Reservoir Project and encompasses 77 precontact and historic-period components.

[33] Beason, Mark A., and Jarma Jones. 2007. Department of Parks and Recreation form 523 record for P-07-002991. On file, Northwest Information Center, Sonoma State University, Rohnert Park, California.

The California Office of Historic Preservation assigned a status code of "2S2" to this resource, indicating that the district is eligible for listing in the NRHP and is listed in the CRHR. This resource is a historical resource for purposes of CEQA; however, the proposed trail does not intersect any contributing elements of this district.

The project would intersect historical resource P-07-000037, a precontact archaeological site. Construction of the trail at this location could result in a substantial adverse change in the significance of a historical resource.

P-07-000037 is an extensive precontact archaeological that is listed in the NRHP and CRHR due to its potential to yield information important in prehistory. Archaeological excavations have identified both surface and buried components at this site. These components consist of a Middle Holocene deposit ("Stratum II") that dates between 7060 and 5025 years before present and Late Holocene deposits ("Stratum III") that date between 3184 and 4570, and 1830 and 1645 years before present.[34] Archaeological deposits with intact Middle Holocene components are rare in central California, and the presence of intact stratified archaeological deposits at this location make P-07-000037 one of the most important repositories of archaeological data in the Bay Area/San Joaquin Delta region.

To minimize project ground-disturbing impacts to P-07-000037, the project would provide a design profile that would limit ground penetration and distribute weight across the trail within the MCSP Primary Historic Zone. Portions of the trail at this location would also consist of re-paving sections of the former Old Marsh Creek Road to minimize ground disturbance. While these project design features would help minimize disturbance within an archaeologically sensitive area, a potential substantial adverse change in the significance of P-07-000037 would result from trail construction. Specifically, these potential substantial adverse changes would result from ground disturbance—including shallow surface grading, compaction, staging, and work areas—as well as from increased user visitation that could result in unauthorized collection of artifacts and off-trail usage within the MCSP Primary Historic Zone.

The project would have a potentially significant impact on archaeological historical resource P-07-000037 unless mitigations described under Mitigation Measures CULT-1, CULT-2, and CULT-3 are incorporated. Implementation of these three mitigation measures would reduce potential impacts to P-07-000037 to a less-than-significant level. Implementation of these mitigation measures would result in the recovery of important information from the site, which qualifies this resource for listing in the CRHR and NRHP, and would help minimize post-construction impacts to the site from increased visitation within an archaeologically sensitive area.

[34] Dates are provided in calibrated radiocarbon years. Rosenthal, Jeffrey S., 2010. *Archaeological Investigations at CA-CCO-18/548 along Marsh Creek, Brentwood, California, 1946-2008.* Far Western Anthropological Research Group, Inc., Davis California.

Mitigation Measure CULT-1: Prior to any project construction work within the Marsh Creek State Park (MCSP) Primary Historic Zone, the East Bay Regional Park District (District) shall retain a qualified archaeologist that meets or exceeds the Secretary of the Interior's Professional Standards in Archeology. The archaeologist shall implement an archaeological excavation within the portion of the project corridor that intersects P-07-000037. An Archaeological Research Design and Treatment Plan (ARDTP), prepared by the District's archaeologist, shall guide the excavation and subsequent analysis of recovered artifacts.

The ARDTP shall at a minimum: (1) describe the research objectives of the investigation at P-07-000037; (2) describe the surface collection and archaeological excavation methods for the recovery of cultural materials within project's area of impact at P-07-000037; (3) describe the specific analyses to be conducted of recovered materials; and (4)identify the repository where cultural materials would be stored in perpetuity for future additional analysis.

The District, an archaeologist with the State of California Department of Parks and Recreation (State Parks) and a representative of a local Native American tribe shall review a draft of the Archaeological Research Design and Treatment Plan to provide constructive and collaborative feedback. After the District, the State Parks archaeologist, and the tribal member have reviewed and approved the ARDTP, the archaeological investigation shall be completed prior to any construction within the MCSP Primary Historic Zone. The District shall be responsible for fully funding the investigation, including the curation of recovered archaeological materials, as appropriate.

Mitigation Measure CULT-2: The East Bay Regional Park District shall retain a recognized member of a local Native American tribe to monitor the archaeological field investigation described under Mitigation Measure CULT-1.

Mitigation Measure CULT-3: Conspicuous signage or panels shall be installed along the trail, reminding users to stay on the path and that unauthorized collection of cultural materials is prohibited. The East Bay Regional Park District (District) and a State of California Department of Parks and Recreation archaeologist shall review the content of the signs and identify appropriate locations for their placement near of within the boundary of P-07-000037. The District shall fund the fabrication, installation, and permanent maintenance of all signs or panels required for this mitigation measure.

The project has the potential to unearth previously unidentified archaeological historical resources. Disturbance of such remains could result in a substantial adverse change in the significance of a historical resource.

Previous archaeological excavations have identified buried Holocene-age surfaces near Marsh Creek, and precontact archaeological deposits have been identified near the proposed trail alignment. The proposed trail would also intersect P-07-000428, a historic-period archaeological site where archaeological deposits could be disturbed during trail construction.

The project would have a potentially significant impact on buried archaeological historical resources unless mitigation described under Mitigation Measure CULT-4 is incorporated. Implementation of this mitigation measure would reduce potential impacts to unrecorded archaeological historical resources that may be unearthed during construction to less than significant. This mitigation measure would ensure that work would temporarily stop at the location of a significant archaeological discovery to allow for recordation of the deposit and recovery of important information from the site.

Mitigation Measure CULT-4: The East Bay Regional Park District (District) shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archeology and a recognized local Native American tribal representative to monitor ground disturbance associated with project segments 2 through 4 and 6 through 11. The monitoring archaeologist can adjust the frequency of monitoring for each segment based on in-field observations informing the potential to encounter archaeological deposits. Archaeological monitoring shall continue for each segment until the archaeologist determines that there is a low potential for impacts to intact subsurface archaeological deposits.

Should an archaeological deposit be encountered during subsurface construction, all ground-disturbing activities within 25 feet should be redirected and the on-site archaeologist should assess the deposit, consult with agencies as appropriate, and make recommendations for the treatment of the deposit. If found to be significant by the on-site archaeologist (i.e., eligible for listing in the California Register of Historical Resources, the District shall fund the implementation of appropriate mitigation measures. Mitigation measures may include, but would not be limited to, recording the archaeological deposit, data recovery and analysis, and public outreach. Upon completion of project monitoring, a report documenting methods and findings should be prepared and submitted to the District and the regional State of California Department of Parks and Recreation archaeologist for review. The final monitoring report should be submitted to the Northwest Information Center at Sonoma State University.

Mitigation Measure CULT-5: Should an archaeological deposit be encountered during project construction while an archaeological monitor is not on site, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the California Register of Historical Resources), the East Bay Regional Park District (District) shall be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recordation of the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods and findings shall be prepared and submitted to the District and regional State of California Department of Parks and Recreation archaeologist for review. The final report shall be submitted to the Northwest Information Center at Sonoma State University.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? ***(Less Than Significant with Mitigation Incorporated)***

According to the CEQA Guidelines, "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (CEQA Guidelines Section 15064.5 (c)(1)). Those archaeological sites that do not qualify as historical resources shall be assessed to determine if these qualify as "unique archaeological resources" (California PRC Section 21083.2). Archaeological deposits identified during project construction would be treated by the District—in consultation with a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology—in accordance with Mitigation Measures CULT-4 and CULT-5. With implementation of this mitigation measure, the project's potential impacts to archaeological resources would be less than significant.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? ***(Less-Than-Significant Impact)***

Native American human remains have been identified at P-07-000037, a precontact archaeological site that is intersected by the proposed trail. There is a potential that Native American remains could be unearthed during project construction and during implementation of Mitigation Measure CULT-1.

In the event that human remains are identified during implementation of Mitigation Measure CULT-1 or project construction, these remains would be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate.

Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the California Native American Heritage Commission (NAHC) within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendent (MLD) to inspect the site, and the MLD shall recommend the proper treatment of the remains and associated grave goods.

Section 5097.98 of the Public Resources Code states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5, shall immediately notify those persons (i.e., the MLD) it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

With these regulations in place, no impact on human remains is anticipated, and no mitigation is necessary.

3.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

*a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? **(Less-Than-Significant Impact)***

This analysis evaluates energy consumption for both construction and operation of the proposed project, including diesel fuel use for construction off-road equipment.

Construction. Construction of the proposed project would require the use of energy to fuel grading vehicles, trucks, and other construction vehicles. All or most of this energy would be derived from non-renewable resources. Construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. As such, construction energy usage would be less than significant. In addition, implementation of Mitigation Measure AIR-1 (refer to Section 3.3) would restrict equipment idling times to 5 minutes or less and construction workers would be required to shut off idle equipment, which would increase energy efficiency on the site during project construction. Therefore, impacts would be less than significant.

Operation. Typically, energy consumption is associated with fuel used for vehicle trips and electricity and natural gas use. However, the proposed project includes an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project involves construction of a multi-use paved trail primarily along Marsh Creek Road.

Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. It is anticipated that the project would not result in the addition of trips to the surrounding roadways, as the project is the extension of an existing trail. Therefore, the project would not result in a significant increase in gasoline consumption. Operation of the proposed project would not require the consumption of natural gas. Therefore, energy use consumed by the proposed project would primarily be associated with minimal electricity consumption associated with lighting along the project segment. Therefore, implementation of the project would not result in a long-term

substantial demand for electricity and natural gas nor would the project require new service connections or construction of new off-site service lines or substations to serve the project. The nature of proposed improvements would not require substantial amounts of energy for either construction or maintenance purposes. Therefore, the proposed project would not use non-renewable resources in a wasteful or inefficient manner. Therefore, operational energy impacts would be less than significant.

*b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? **(Less-Than-Significant Impact)***

In 2002, the Legislature passed Senate Bill 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

The CEC is recently adopted the 2019 Integrated Energy Policy Report.[35] The 2019 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2019 Integrated Energy Policy Report covers a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage in the project area during construction and operation would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the 2019 Integrated Energy Policy Report. Thus, as shown above, the project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Impacts would be less than significant.

[35] California Energy Commission. 2020. *2019 Integrated Energy Policy Report.* California Energy Commission. Docket # 19-IEPR-01. February.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv. Landslides?	☐	☒	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
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?	☐	☒	☐	☐
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?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

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? Refer to Division of Mines and Geology Special Publication 42. **(No Impact)***

The project site is located in a seismically active area, the San Francisco Bay Area, which is located in the vicinity of the San Andreas Fault System at the margin between the Pacific Tectonic Plate and the North American Tectonic Plate.[36] The San Andreas Fault System includes major active earthquake faults. Known, active earthquake faults located near the Study Area include the Greenville/Marsh Creek, Calaveras, Concord, and Hayward faults. The Greenville/Marsh Creek fault is located 5 miles to the southwest and is the nearest Alquist-Priolo Earthquake fault zone to the

[36] Bartow, Alan, and Tor H. Nilsen. 1990. Department of the Interior, U.S. Geological Survey. *Review of the Great Valley Sequence, Eastern Diablo Range and Northern San Joaquin Valley, Central California*. Open-File Report 90-226.

project area.[37] The Calaveras fault is located approximately 15 miles southwest of the Study Area. The Concord fault is located approximately 13 miles to the northwest, and the Hayward fault is located approximately 26 miles to the southwest. The West Napa Fault is located approximately 15 miles to the north. The San Andreas Fault is located approximately 50 miles to the southwest. No active earthquake faults are known to cross the subject property; therefore, surface fault rupture is considered to have no impact to site use or improvements.

ii. Strong seismic ground shaking? ***(Less-Than-Significant Impact)***

Earthquakes which occur along or near one of the active earthquake faults in the region could impact the site due to the effects of strong seismic ground shaking. Peak ground accelerations at the project site are estimated to be on the order of 50 percent that of gravity (g) with a 10 percent chance of exceedance in a 50-year period. [38] Ground accelerations of this magnitude could result in significant damage to unreinforced structures or buildings. Current Building Codes, including the 2019 California Building Code, which has been adopted by the County of Contra Costa, require new structures to be designed to resist the effects of strong seismic ground shaking. New structures at the site would be designed in accordance with current California Building Codes.

Incorporation of seismic construction standards in accordance with the California Building Code would reduce the potential for catastrophic effects of ground shaking, such as complete structural failure, and would reduce the impact of strong seismic ground shaking to a level of less than significant. Therefore, the impact of strong seismic ground shaking is considered less than significant.

iii. Seismic-related ground failure, including liquefaction? ***(Less Than Significant with Mitigation Incorporated)***

Another effect of seismic activity is the potential for seismic related ground failure, including liquefaction and dynamic densification. During and following strong seismic ground shaking, low-density silty sand and poorly graded sand deposits can undergo settlement. Liquefaction occurs when water saturated sand deposits lose strength due to a loss of pore pressure. Liquefaction settlement generally occurs gradually over the following days and weeks. Dynamic densification occurs when dry sand and silty sand deposits settle immediately during strong seismic ground shaking.

According to preliminary liquefaction and quaternary deposit maps, soils in the lowland portions of the project area have a medium to high susceptibility to liquefaction due to seismic shaking.[39] The liquefaction susceptibility on the slope and upland areas is considered low.

---

37 California Geological Survey (CGS). 1982. Alquist-Priolo Earthquake Fault Zone Map. Website: www.conservation. ca.gov/cgs/alquist-priolo (accessed July 3, 2020).

38 Peterson, M.D., et al. 1996. *Probabilistic Seismic Hazard Assessment for the State of California*, California Geological Survey. Open-File report issued jointly with U.S. Geological Survey, CDMG 96-08 and USGS 96-706.

39 Witter, R.C., et al. 2006. Maps of Quaternary deposits and liquefaction susceptibility in the central San Francisco Bay region, California: U.S. Geological Survey Open-File Report. 2006-1037.Website: pubs.usgs.gov/of/2006/1037/ (accessed November 11, 2020).

The Seismic Hazards Map of the Brentwood Quadrangle indicates that much of the proposed trail areas are included as zones of required investigation for liquefaction hazards.[40] Areas to receive structures that could be damaged by the effects of soil liquefaction should be evaluated to determine the potential settlement associated with seismic induced liquefaction. The potential effects of liquefaction on trail improvements and associated structures should also be evaluated.

Seismic-related ground failure, including liquefaction, is considered to be a less-than-significant impact with implementation of Mitigation Measure GEO-1, which requires preparation and implementation of a design-level Geotechnical Investigation.

Mitigation Measure GEO-1: **Seismic-Related Ground Failure, Including Liquefaction**. A Design-level Geotechnical investigation shall be performed for proposed trail improvements. Geotechnical recommendations shall be prepared for the Project under the direction of a California Registered Geotechnical Engineer, or Registered Civil Engineer experienced in geotechnical engineering. The Geotechnical recommendations shall be based on the information developed for the site and shall establish the seismic design parameters, as determined by the engineer in accordance with requirements of the California Building Code, for improvements to the project site. The Geotechnical recommendations and design plans shall identify specific measures to reduce the liquefaction potential of surface soils in areas where liquefaction would pose a risk to health and safety in accordance with Public Resources Code Section 2693 (c).

iv. Landslides? ***(Less Than Significant with Mitigation Incorporated)***

The project includes proposed trails in upland areas in locations that may be subject to landslide and seismically induced landslide, as shown on the Seismic Hazard Map of the Brentwood Quadrangle.[41,42] The proposed project also includes construction of trail segments along the moderately sloping Marsh Creek Road embankment by placing new fill in a wedge against the existing embankment. Placing fill to create the trail segments could result in potential instabilities to the existing roadway fill section unless fills are properly engineered and constructed, consistent with Mitigation Measure GEO-1, described above. The potential for landslides and seismically induced landslide should be evaluated in a design level geotechnical investigation as described in Mitigation Measure GEO-1 and the following Mitigation Measure GEO-2. With implementation of Mitigation Measures GEO-1 and GEO-2, impacts related to landslide would be reduce to less than significant.

---

40 California Geological Survey. 2018. *Seismic Hazard Zone Report for the Brentwood 7.5-Minutequadrangle, Contra Costa County, California; CGS Seismic Hazard Zone Report 124, Plate 1.1: Quaternary Geologic Materials Map and Locations of Boreholes Used in Evaluating Liquefaction Hazard, Brentwood*.

41 Ibid.

42 California Department of Conservation. 2019. The California Landslide Inventory. Website: www.conservation.ca.gov/cgs/landslides (accessed July 3, 2020).

Mitigation Measure GEO-2: **Landslides and Seismically-Induced Landslide.** The design Geotechnical Investigation as described under Mitigation Measure GEO-1 shall include investigation of trail segments located in areas of potential slope instabilities including the areas as identified on the Seismic Hazard Zones Map of the Brentwood Quadrangle as being potentially located in areas subject to seismically induced landslide. The investigation will also evaluate the proposed wedge fill proposed for the trail along Marsh Creek Road. Specific geotechnical design recommendations will be developed to mitigate the potential for landslides and seismically-induced landslide, including measures such as excavation of landslide areas and replacement with buttress fills, construction of retaining walls, removal of landslide materials, stabilization of shallow landslides using rock riprap replacement, and stabilization using biotechnical stabilization measures. Specific design measures for construction of a stable wedge fill along Marsh Creek Road will include retaining walls, geotextile reinforced fills and other measures as determined by the design professionals.

Cut and fill slopes shall also include erosion control measures, as discussed in Mitigation Measure GEO-3, such as the use of erosion control blankets and planting with vegetation to reduce the potential for erosion of finished cut and fill slopes.

b. Would the project result in substantial soil erosion or the loss of topsoil? ***(Less Than Significant with Mitigation Incorporated)***

Proposed improvements to the site include grading of roads, trails, and various other site improvements. Areas to be graded and altered during construction and restoration activities could be subject to soil erosion by wind and water. Site soils have a low erosion hazard due to their general cohesiveness and gentle slopes in much of the site area. Localized areas with steeper slopes are more susceptible to the potential for soil erosion and loss of topsoil during and following grading activities. All projects that will disturb or alter more than 1 acre in the area are subject to the requirement to reduce the potential impact of soil erosion by developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) and Erosion Control Plan developed in accordance with permitting requirements with the State Water Resources Control Board. The SWPPP shall include Best Management Practices (BMPs) for control of soil erosion and sedimentation and shall be prepared by a Qualified SWPPP Developer (QSD). With implementation of Mitigation Measure GEO-3, impacts related to soil erosion or the loss of topsoil would be less than significant.

Mitigation Measure GEO-3: **Soil Erosion and Loss of Topsoil.** In accordance with the Clean Water Act and the State Water Resources Control Board, the proponent for any construction projects that disturb more than 1 acre shall file a Storm Water Pollution Prevention Plan (SWPPP) prior to the start of construction. The SWPPP shall include specific best management practices to reduce soil erosion. This is required

to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit).

Additionally, any construction activities planned as a result of the implementation of the plan shall require an Erosion Control Plan (Plan) to be submitted to Contra Costa County (Conservation and Development Department) as required by the County's Grading and Stormwater Ordinances. The Plan shall include winterization, dust, erosion and pollution control measures conforming to the California Stormwater Quality Association Best Management Practices handbooks, with sediment basin design calculations. The Plan shall describe the "best management practices" to be used during and after construction to control pollution resulting from both storm water and construction water runoff. The Plan shall include locations of vehicle and equipment staging, portable restrooms, mobilization areas, and planned access routes.

Recommended soil stabilization techniques include placement of straw wattles, silt fences, berms, and gravel construction entrance areas or other control to prevent tracking sediment off-site onto city streets and into storm drains, as well as hydroseeding or planting of all disturbed areas.

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? ***(Less Than Significant with Mitigation Incorporated)***

As discussed above in Response 3.7.1 a.iii., the soils underlying the lowland portions of the site are subject to the effects of liquefaction and could settle following strong seismic ground shaking. Lateral spreading could occur in areas with liquefiable soils located adjacent to a stream channel. Additionally, soils and bedrock in portions of the upland areas could become unstable and result in landslides during and following strong ground shaking.[43] Project specific measures will be developed and implemented in accordance with requirements of the Public Resources Code. The impact of being located on a soil unit that is unstable or could become unstable and result in lateral spreading, liquefaction, or landsliding is considered less than significant with implementation of Mitigation Measures GEO-1 and GEO-2.

[43] Graymer, R.W., et al. 1994. Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California, USGS Open-File 94-622.

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? ***(Less-Than-Significant Impact)***

Expansive soils are present at the project site area. Seasonal expansion and contraction of site soils could damage site improvements such as foundations, concrete slabs, pathways, and other pavement areas. Expansive soils can be mitigated by including design measures such as removal and replacement with non-expansive soils, segregating expansive soils from overlying improvements, lime-treating expansive soils to reduce the expansiveness, and increasing the thickness of non-expansive construction materials such as Class 2 Aggregate Base between the expansive soil and overlying concrete and hot mix asphalt improvements. The impact of expansive soils is considered less than significant.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? ***(No Impact)***

There are no planned on-site wastewater disposal systems at the project site. Therefore, the project would have no impact related to soils incapable of supporting septic tanks or alternative wastewater disposal systems.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(No Impact)***

The project would not directly or indirectly destroy a known unique paleontological resource or site, or a unique geologic feature, as none are known to be located on the project site. The impact of directly or indirectly destroying a known unique paleontological resource or a unique geologic feature is considered no impact.

3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Greenhouse gas emissions (GHGs) are present in the atmosphere naturally, and are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. However, over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global climate change. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

While GHGs produced by human activities include naturally occurring GHGs such as CO_2, CH_4, and N_2O, some gases, such as HFCs, PFCs, and SF_6, are completely new to the atmosphere. Certain other gases, such as water vapor, are short-lived in the atmosphere compared to those GHGs that remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this analysis, the term “GHGs” will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to carbon dioxide, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are

typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e). For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than carbon dioxide.

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

Construction Greenhouse Gas Emissions. The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. Construction activities would produce combustion emissions from various sources. During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. According to the results of the RoadMod analysis, the project would generate 563.5 metric tons of CO_2e construction emissions. As discussed in Section 3.3, Air Quality, implementation of Mitigation Measure AIR-1 would further reduce construction GHG emissions by limiting construction idling emissions. Therefore, construction emissions would not be considered significant.

Operational Greenhouse Gas Emissions. Long-term GHG emissions are typically generated from mobile and area sources as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions typically include project-generated vehicle trips to and from a project. Area-source emissions would be associated with activities such as landscaping and maintenance on the project site. Energy source emissions are typically generated at off-site utility providers as a result of increased electricity demand generated by a project. Waste source emissions generated by projects include energy generated by land filling and other methods of disposal related to transporting and managing project-generated waste. In addition, water source emissions associated with projects are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

The proposed project includes an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project involves construction of a multi-use paved trail and associated improvements primarily along Marsh Creek Road. Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. The project would not result in additional trips to the surrounding roadways, as the project is the extension of an existing trail. Therefore, the project would not result in a significant increase in the generation of vehicle trips that would increase mobile source emissions. The proposed project would result in low levels of off-site emissions due to energy generation associated with lighting along the project segment. However, these emissions would be minimal and would not exceed the pollutant thresholds established by the BAAQMD. Therefore, the proposed project would not generate substantial GHG emissions or result in substantial new vehicle trips that would contribute to an increase in GHG emissions. GHG emissions generated by the proposed project 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? ***(Less-Than-Significant Impact)***

The proposed project is located in the City of Brentwood and in unincorporated Contra Costa County. The City of Brentwood does not have an adopted Climate Action Plan (CAP); however, Contra Costa County adopted a CAP on December 15, 2015.[44] The CAP is designed to demonstrate the County's commitment to addressing the County's commitment to addressing the challenges of climate change by reducing local GHG emissions while improving community health. This CAP identifies how the County will achieve the Assembly Bill 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents. In addition to reducing GHG emissions, the CAP includes GHG reduction measures and actions to reduce GHG emissions from community-wide sources that relate to energy efficiency, renewable energy, land use and transportation, solid waste, water conservation, and government operations.

As discussed above, the proposed project includes an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project involves construction of a multi-use paved trail and associated improvements primarily along Marsh Creek Road. Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. Strategy Measure LUT 1.5 of the County's CAP states the County will work with the Contra Costa Transportation Authority to improve access to community-wide bicycle and pedestrian networks by closing gaps in the network, removing barriers, and providing additional bike- and pedestrian-oriented infrastructure. The proposed project is consistent with this strategy as it would extend an existing trail and provide access for hikers, runners, mountain bicyclists, and equestrians, as well as vehicles for emergency and maintenance purposes. The proposed trail would include an undercrossing/overcrossing of Marsh Creek Road, as well as a pedestrian bridge overcrossing of Marsh Creek. Therefore, the proposed project would be consistent with applicable CAP strategies.

Additionally, as discussed above, the proposed project would not generate long-term GHG emissions. Therefore, the proposed project would not generate substantial GHG emissions that would have a significant effect on the environment and would not conflict with the strategies of the County's CAP. Therefore, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

[44] Contra Costa, County of. 2015. *Contra Costa County Climate Action Plan*. December 15.

3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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 it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***(Less-Than-Significant Impact)***

Hazardous substances include chemicals regulated under both the United States Department of Transportation[45] and the U.S. Environmental Protection Agency (USEPA)[46] "Hazardous Materials" regulations. Hazardous waste requires specific handling and disposal procedures because of potential damage to public health and the environment. The proposed trail would be on located on lands owned by CCCFCWCD, and State Parks and would generally parallel Marsh Creek Road. There is no indication of current or historical hazardous materials use, storage, disposal, or release at the project site.

[45] U.S. Department of Transportation. 2017. *Hazardous Materials Regulations.* Available online at: www.phmsa.dot.gov/standards-rulemaking/hazmat/hazardous-materials-regulations (accessed July 6, 2020).

[46] U.S. Environmental Protection Agency. 2012. *Hazardous Waste Regulations.* Available online at: www.epa.gov/osw/lawsregs/regs-haz.htm (accessed September 6, 2017).

Operation of the proposed project would not require the routine transport, use, or disposal of significant quantities of hazardous materials. Implementation of the proposed project would therefore result in a less-than-significant impact on the public and the environment related to the routine transport, use, and handling of hazardous materials.

b. Would the project 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? ***(Less-Than-Significant Impact)***

Construction at the project site would require the use and transport of hazardous materials. These materials would include fuels, oils, and other chemicals used during construction activities. Improper use and transportation of hazardous materials could result in accidental releases or spills, potentially posing health risks to workers, the public, and environment.

As noted in Section 3.10, Hydrology and Water Quality, construction activities at the project site would require implementation of a SWPPP. The SWPPP would incorporate current BMPs for construction, including site housekeeping practices, hazardous material storage, inspections, maintenance, worker training in pollution prevention measures, and containment of releases to prevent runoff via stormwater. Although designed to protect stormwater quality, implementation of the SWPPP would also reduce the potential impacts of hazardous materials releases during construction to a less-than-significant level.

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? ***(Less-Than-Significant Impact)***

No schools are located within 0.25 miles of the project site. In addition, the proposed project would not routinely emit hazardous emissions, and handling of hazardous or acutely hazardous materials, substances, or waste on the project site (if any) would be temporary and cease upon project completion. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.

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? ***(Less-Than-Significant Impact)***

The project site is not listed on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[47] McCabe Pump Station site, located near the intersection of Marsh Creek Road and Hoffman Lane approximately 0.6 miles west of the Round Valley Regional Preserve staging area, was previously listed as a Cleanup Program site. However, the State Water Resources Control Board (State Water Board) issued case closure in February 2014; therefore, no potential exists for those contaminants to have migrated and affected soils and groundwater at the

[47] California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed June 23, 2020).

project site.[48] No other listed sites are located in proximity to the proposed trail. Therefore, no significant hazard to the public or environment would be associated with this listed site, and this impact would be less than significant.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 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? ***(No Impact)***

The project site is located more than 10 miles from the nearest public airports, which include Byron Airport, Livermore Municipal Airport, and Stockton Metropolitan Airport. Therefore, there would be no impact related to airport safety hazards.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(No Impact)***

The project site is located along Marsh Creek Road, within existing undeveloped lands. The majority of the trail alignment is not located near a population center; however the northern terminus is located within the City of Brentwood. The Contra Costa County Office of Emergency Services, a division of the Sheriff's Department, is responsible for planning, outreach, and training as it relates to Disaster Management and Emergency Preparedness. The proposed project includes construction of a multi-use trail and would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Therefore, no impact related to this topic would occur.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***(Less-Than-Significant Impact)***

A wildland fire is a fire occurring in a suburban or rural area which contains uncultivated land, timber, range, brush, or grasslands. Wildland fires are primarily a concern in areas where there is a mix of developed and undeveloped lands. The project site is located within a State Responsibility Area (SRA), as mapped by the California Department of Forestry and Fire Protection (CAL FIRE).[49] This hazard determination was based on modeling risks due to fuels, terrain, and weather in the area over a 30 to 50 year time horizon. The East Contra Costa Fire Protection District (ECCFPD), provides suppression, dispatches emergency services for a 250-mile area, (including Brentwood), and is the second largest fire service area in the County. In addition, the ECCFPD has a contractual relationship with CAL FIRE (The Amador Contract) that enables CAL FIRE to serve as First Responder in the Marsh Creek/Morgan Territory area (from their Sunshine station on Marsh Creek Road).

[48] State Water Resources Control Board. 2020. GeoTracker. Website: geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Round+Valley+REgional+Preserve%2C+Brentwood%2C+CA (accessed June 23, 2020).

[49] California Board of Forestry and Fire Protection. 2020. State Responsibility Area Viewer. Website: bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer (accessed June 23, 2020).

Much of the proposed trail alignment is within an area identified by the California Department of Forestry and Fire Protection as a community at moderate risk for wildland fire.[50] Additionally, the Safety Element of the Contra Costa County General Plan identifies the project area as a Moderate Fire Hazard State Responsibility Area and Fire Weather Class III, which indicates that the area has over 9.5 days of critical fire weather per year.[51]

The proposed project does not involve construction of residential or commercial structures or any other structures for human occupation, and people would use the trail for a limited duration of time. Construction of the trail would follow the District's best management practices to minimize fire danger in fire-prone wildlands (e.g., prohibiting work on red flag days, warning the public of fire danger on high fire days, establishing pump truck requirements). Implementation of the proposed project would not expose people or structures to significant loss, injury, or death from wildfires beyond the existing condition. Therefore, impacts related to this topic would be less than significant.

50 California Department of Forestry. 2008. Fire Hazard Severity Zones. Available as part of the Association of Bay Area Government Earthquake and Hazards Program. Website: resilience.abag.ca.gov/wildfires (accessed June 23, 2020).

51 Contra Costa County. 2005. *Contra Costa County General Plan 2005-2020*. January 18.

3.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or 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;	☐	☒	☐	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☐	☒
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; or	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☒	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☒	☐	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

*a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? **(Less Than Significant with Mitigation Incorporated)***

The proposed project would construct approximately 2.2 miles of paved trails, traversing areas that drain to Marsh Creek. Assuming a 25-foot-wide construction corridor along the trail with larger construction disturbance areas at the proposed bridge, undercrossing and inclined trail section near Marsh Creek Dam (along Marsh Creek Road, approximately 9.5 acres of land would be temporarily disturbed by clearing and grading activities during trail construction. In addition, temporary construction staging areas near these proposed structures would result in 1.25 acres of temporary disturbance.

Grading and construction of the proposed trail, parking area, and other features could cause short-term, potentially significant impacts to water quality if soil erosion and consequent sediment-laden runoff, fuel or other construction chemicals are not adequately controlled, and are accidentally or unintentionally released into area waterways. Unless disturbed areas and stormwater runoff are adequately controlled during construction, and disturbed areas are stabilized and re-vegetated following construction, the proposed project would violate Regional Water Quality Control Board

standards and National Pollutant Discharge Elimination System (NPDES) Waste Discharge Requirements and could potentially degrade surface water quality. Groundwater quality impacts could also occur if construction chemicals spill or leak and infiltrate into areas of shallow groundwater. Implementation of Mitigation Measures HYDRO-1, HYDRO-2, HYDRO-3 and HYDRO-4 would reduce these potentially significant impacts to a less-than-significant level.

Mitigation Measure HYDRO-1: **Soil Erosion Control and Revegetation Plan.** The East Bay Regional Park District shall prepare a Soil Erosion Control and Revegetation Plan (Plan) that addresses temporary construction-related erosion control and provides permanent erosion control through revegetation and other means. The Plan, which can be a part of the project Stormwater Pollution Prevention Plan see (HYDRO-2), shall be incorporated into the project's construction documents. The construction plans shall specify erosion and sediment control measures, including best management practices (BMPs) to control short-term construction-related water quality impacts. BMPs shall include at a minimum the following measures (where applicable):

- Limit access routes and stabilize access points. Surface disturbance of soil and vegetation shall be minimized; existing access and maintenance roads shall be used wherever feasible.
- Stabilize graded areas as soon as possible following completion of disturbance with seeding, mulching, and installation of erosion control materials such erosion control blankets and straw rolls or other approved and effective methods. Only native seed and plant materials shall be used, unless otherwise approved by the Qualified Biologist.
- Delineate clearing limits, easements, setbacks, environmentally sensitive areas, and drainage courses by marking them in the field, and installing exclusion fencing, silt fencing, and/or coir logs or straw rolls.
- Stabilize and prevent sediment from entering temporary conveyance channels and storm drain outlets.
- If rainfall is expected to occur, use temporary sediment control measures (such as additional silt fencing, straw rolls, covering stock piles and directing runoff to sediment detention structures) to filter and remove sediment.
- Use temporary measures, such as flow diversion, temporary ditches, and silt fencing or straw wattles.

- Place, slope, and cover any stockpiled soil so that it would not be subject to accelerated erosion.

- Avoid accidental discharge of all project related materials and fluids into local waterways by using straw rolls or silt fences, constructing berms or barriers around construction materials, or installing geofabric in disturbed areas with long, steep slopes.

- After ground-disturbing activities are complete for each project component constructed, cover all graded or disturbed areas with protective material such as mulch, and re-seed with native plant species. The Erosion Control and Revegetation Plan Stormwater Pollution Prevention Plan shall include details regarding site preparation, top soiling or composting, seeding, fertilizer, mulching, and temporary irrigation.

Mitigation Measure HYDRO-2: **Stormwater Pollution Prevention Plan.** A Stormwater Pollution Prevention Plan (SWPPP) and a Spill Control and Countermeasures Plan shall be prepared and implemented by the East Bay Regional Park District Construction Contractor following State Water Resources Control Board standards for erosion control and stormwater management. Specific measures, as cited below, shall be adapted from the most current edition of the Stormwater Best Management Practice Handbook for Construction, published by the California Stormwater Quality Association. The SWPPP shall include best management practices to prevent or minimize stormwater pollution during construction activities, as well as addressing post construction stormwater management and permanent erosion control. The Project Erosion Control and Revegetation Plan and Spill Control and Countermeasures Plan shall be included as part of the SWPPP. Plan preparation and implementation shall be included in the project's construction documents.

Mitigation Measure HYDRO-3: **Equipment and Materials Storage and Maintenance Operations.** All refueling and/or storage and maintenance of heavy equipment shall take place at a minimum of 50 feet away from the top of bank of creeks and all identified jurisdictional wetlands and Waters of the US drainage courses. The refueling/maintenance and construction materials and chemical storage staging area shall be bermed, graveled, or covered with straw and incorporate measures for capture of any accidental spills. If construction with pollutant material storage requirements occurs during the rainy season, no storage or construction staging areas will be located within identified 100-year flood plain or reservoir flow easement areas. All temporary construction lay-down and staging areas shall be

restored upon completion of work with silt fences, straw rolls, and ground bags, etc. removed and the area re-seeded and stabilized.

Mitigation Measure HYDRO-4: **Stormwater Management.** The East Bay Regional Park District shall prepare and implement a post construction stormwater management plan in compliance with the Contra Costa County joint municipal stormwater permit and development permit program, as required.

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? ***(No Impact)***

The proposed project is not located within a California Department of Water Resources (DWR) recognized Groundwater Basin and does not contain a recognized groundwater aquifer of any size or depth. A small/shallow groundwater body is located within a relatively narrow band of alluvium along Marsh Creek. An old well is located at the John Marsh Historic House and another well exists at the Round Valley Preserve staging area; no other domestic or agricultural wells are located within the project area. Several ranches along Marsh Creek Road near the project area are served by individual, generally shallow domestic wells in the Marsh Creek alluvial groundwater body. Some of these wells may have performance problems during periods of prolonged drought. The District does not propose to use any groundwater as part of the proposed project. Water used during construction activities would be acquired from approved and metered water hydrants in the City of Brentwood.

The increase in the amount of impervious surface area associated with implementation of the proposed project (consisting mainly of paved multi-use trails) is relatively low compared to the size of the project area (approximately 5.7 acres dispersed over the project area [less than 1 percent of the total project area]), and all runoff from paved trails and parking/staging areas would be dispersed to adjacent undeveloped areas for infiltration and would not be collected within a storm drain system. Therefore the proposed project would not substantially interfere with groundwater recharge and would not impede sustainable groundwater management (see also Response 3.10.e.). No impact on groundwater would occur.

c. Would the project substantially alter the existing drainage pattern of the site or 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; ***(Less Than Significant with Mitigation Incorporated)***

As noted in Response 3.10.a. above, all trail and parking area runoff would be locally dispersed; therefore, the proposed project would not result in a substantial increase in the rate or amount of runoff associated with the construction or operation of the proposed trail that could cause increased on-site or downstream flooding. As noted in Response 3.10.a. above, construction activities have the potential to increase erosion and siltation. However, implementation of Mitigation Measures HYDRO-1 through HYDRO-4 would reduce potential impacts associated with erosion/siltation to less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; ***(No Impact)***

As noted in Response 3.10.a. above, all trail and parking area runoff would be locally dispersed; therefore, the proposed project would not result in a substantial increase in the rate or amount of runoff associated with the construction or operation of the proposed trail that could cause increased on-site or downstream flooding.

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; or ***(Less-Than-Significant Impact)***

As discussed above, construction activities could alter drainage patterns during grading and other construction activities, and spill, leak, or transport construction-related pollutants such as liquid and petroleum products and concrete waste via stormwater runoff into adjacent drainages and down-stream receiving waters. As specified in Mitigation Measures HYDRO-1 through HYDRO-4, the proposed project would be required to comply with the requirements set forth in the Construction General Permit, which requires the preparation of a SWPPP and implementation of construction BMPs to control stormwater runoff. With implementation of these mitigation measures, impacts related to the creation or contribution of runoff that would exceed the capacity of the storm water drainage system or provide substantial additional sources of polluted runoff would be less than significant.

As described in Response 3.10.b. above, the increase in the amount of impervious surface area associated with implementation of the proposed project (consisting mainly of paved multi-use trails) is relatively low compared to the size of the project area (approximately 5.7 acres dispersed over the project area [less than 1 percent of the total project area]), and all runoff from paved trails and parking/staging areas would be dispersed to adjacent undeveloped areas for infiltration and would not be collected within a storm drain system. Therefore impacts related to the creation or contrib-ution of runoff, which would exceed the capacity of the existing storm water drainage system or provide substantial additional sources of polluted runoff would be less than significant.

iv. Impede or redirect flood flows? ***(Less Than Significant with Mitigation Incorporated)***

The proposed trail alignment has been located and designed to minimize alteration of existing site drainage patterns and impacts to existing flow conditions. Minor alteration would occur to the banks of Marsh Creek for construction of bridge abutments, including placement of bridge support piers and rock slope protection. In addition, the proposed paved trail would traverse through the floodplain of Marsh Creek downstream of the Marsh Creek Road bridge crossing. Although streamflow patterns, including flood flows, would not be significantly changed or altered, proposed construction activities could result in local bank erosion and downstream siltation within Marsh Creek. In addition, if not well engineered, construction of the proposed pedestrian bridge and paved trail in this area could potentially impede or re-direct Marsh Creek flood flows, threatening or causing damage to the Marsh Creek Road vehicular bridge, bridge abutments, and roadway embankment through flood surface water level increases, or locally increased scour and erosion associated with the proposed project.

This potentially significant impact was analyzed in more detail through hydraulic modeling using preliminary pedestrian bridge plans and a modification of the Contra Costa County Hydraulic Model prepared for the proposed road bridge by WRECO.[52] The results of the initial hydraulic modeling are presented in Appendix C.

The results of the initial hydraulic analysis indicate that there would be a minor/insignificant increase in upstream flood water surface elevations (less than 0.1 inches of water surface rise at the proposed pedestrian bridge during a 100-year flood event). This rise is not measureable and is within the limits of the modeling capability. However, this preliminary analysis indicates that there is a potential that the final engineered bridge design, if not carefully executed, could potentially affect the Marsh Creek Road vehicular bridge. This potentially significant impact would be fully mitigated by implementing Mitigation Measure HYDRO-5, which calls for additional hydraulic modeling integrated with the final pedestrian bridge design, and requires CCCFCWCD and Contra Costa County Department of Conservation and Community Development approval of the final pedestrian bridge and trail plans within floodplain areas. With implementation of Mitigation Measure HYDRO-5, impacts associated with flood flows would be less than significant.

Mitigation Measure HYDRO-5: **Bridge Design.** The East Bay Regional Park District shall prepare and submit final bridge plans for all new pedestrian bridges that cross waterways under jurisdiction of Contra Costa County and the State of California. The final bridge plans are subject to review and approval by the Contra Costa County Flood Control and Water Conservation District and the Department of Conservation and Community Development (Engineering and Flood Plain manager). The bridge plans shall include structural engineering, geotechnical engineering, and hydraulic engineering information. The responsible bridge designer shall be a State of California licensed Civil Engineer and shall be experienced in hydraulic analysis, bridge design, and flood channel and bank protection design. The Engineering Plans shall demonstrate conformity to Contra Costa County, and any applicable Federal Emergency Management Agency floodplain management regulations and include design elevations of the bridge, conformity with 50-year and 100-year flood elevation freeboard requirements, the locations and structural design of the bridge abutments with respect to flood flows, bridge loading, and channel bank protection requirements. The technical studies shall confirm that there is no impact of trail bridges or trail structures on Marsh Creek Road flood elevations and road embankment stability, on the functioning of Marsh Creek Reservoir, or on County operated and maintained bridges.

[52] WRECO. 2019. *Marsh Creek Road Bridges Replacement Project Draft Bridge Design Hydraulic Study Report*. Prepared for Contra Costa County Department of Public Works.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? ***(Less Than Significant with Mitigation Incorporated)***

The majority of the project area is not located within a 100-year regulatory floodplain identified or recognized by the Federal Emergency Management Agency, other than a small area below Marsh Creek Dam and along Marsh Creek in the vicinity of Vineyard Avenue. A non-regulatory 100-year floodplain, as identified by CCCFCWCD, extends along Marsh Creek upstream of Marsh Creek Dam, including an area that floods along Marsh Creek Road near the Marsh Creek Road vehicle crossing.[53] In addition, a flow easement area associated with the Marsh Creek Reservoir extends along and outward from the Reservoir to an elevation of approximately 200 feet.

Although portions of the proposed trail are located within a flood hazard area and reservoir inundation overflow area, no structures are proposed for these areas that would store chemical pollutants that could be released during periods of flooding.

The proposed trail would be located within the non-regulatory floodplain near Marsh Creek Road and the Marsh Creek Road vehicle bridge near Camino Diablo Road. Possible pollutant use in these areas include temporary use of construction chemicals such as concrete, asphalt, equipment fuel and lubricants, hydraulic fluids, and paint for wood fencing and trail structures. Storage and use of these construction chemicals during the winter flood-prone period and within identified flood hazard areas could potentially result in the release of these pollutants during periods of inundation. Implementation of Mitigation Measures HYDRO-1 through HYDRO-4 would reduce potential impacts related to construction activities to less than significant.

The proposed project is not located within a coastal or Bay zone subject to tsunami run-up. The size and depth of water storage in the Marsh Creek Reservoir is such that there is no risk of a seismically induced water wave or seiche, since Marsh Creek Reservoir has not impounded. Therefore, no impact associated with tsunamis or seiches releases would occur.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(No Impact)***

The proposed project would not conflict with the Regional Water Quality Control Board's Basin Water Quality Control Plan or the California Sustainable Groundwater Management Act (SGMA), which took effect on January 1, 2015.[54] SGMA established a framework of priorities and requirements to facilitate sustainable groundwater management throughout the State.[55] The intent of SGMA is for groundwater to be managed by local public agencies (e.g., water districts, irrigation

[53] California Department of Water Resources. 2020. Division of Safety of Dams. Website: water.ca.gov/Programs/All-Programs/Division-of-Safety-of-Dams (accessed July 3, 2020).

[54] California Regional Water Quality Control Board. 2018. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Fifth Edition, the Sacramento River Basin and the San Joaquin River Basin*. May. Available online at: www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf (accessed July 3, 2020).

[55] California, State of. 2014. Department of Water Resources. *Sustainable Groundwater Management Act*. Website: water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management (accessed July 3, 2020).

districts, etc.) and newly formed Groundwater Sustainability Agencies (GSAs) to ensure a groundwater basin is operated within its sustainable yield (no long term overdraft) through the development and implementation of Groundwater Sustainability Plans (GSPs). The project area is located at the southern end of the East Contra Costa Sub-basin, which is managed by Contra Costa County. The area immediately to the north is managed by the City of Brentwood. This Sub-basin is designated a Medium Priority groundwater basin based on the Groundwater Basin Prioritization established by the DWR.[56] The GSP for this area is not due to be completed until 2022 or 2023.

The proposed project would not conflict with the GSP for this area, given the general lack of useable groundwater and the fact that the proposed project would not include any on-site groundwater utilization, nor would it significantly reduce groundwater recharge. Therefore, no impact related to groundwater sustainability or conflict with a GSP would occur.

[56] California Department of Water Resources. 2020. SGMA Basin Prioritization Dashboard. Available online at: gis.water.ca.gov/app/bp-dashboard/final (accessed July 3, 2020).

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☒	☐
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

*a. Would the project physically divide an established community? **(Less-Than-Significant Impact)***

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and an outlying area.

The project would construct an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the City of Brentwood to the District's Round Valley Regional Preserve Trailhead. Portions of the proposed trail would be located on lands owned by CCCFCWCD, and State Parks. The proposed project would not result in the removal of any means of access or the closure of any trails, but instead would provide an important trail connection to existing open space areas. Overall, the proposed project would enhance public access to the Marsh Creek Regional Trail and Round Valley Regional Preserve. Therefore, the proposed project would not disrupt or divide the physical arrangement of an established community, but would instead result in an overall benefit to connectivity within the area, and this impact would be less than significant.

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

As described below, the proposed project would not conflict with the following applicable land use plans and regulations that govern the site: the City of Brentwood General Plan, the City of Brentwood Municipal Code, the Contra Costa County Zoning Ordinance, the Contra Costa County General Plan, the Marsh Creek State Park General Plan and Program Environmental Impact Report, and the East Bay Regional Park District 2013 Master Plan (District Master Plan).

City of Brentwood Zoning. The northern portion of the proposed trail alignment is located within the City of Brentwood and is zoned Planned Development (PD-64). The purpose of the PD-64 zone is to permit the orderly development of "The Vineyards at Marsh Creek" project to include up to 1,100 active adult single-family residential units, up to 150 executive, single-family residential units, a recreation center, a winery with amphitheater and associated uses, a village center, a water tank and pump stations, water quality/detention basins, and associated parks and open space. Parks, playground and recreational trails are permitted uses in the PD-64 zone. Therefore, the proposed project would be consistent with the City Zoning Ordinance.

City of Brentwood General Plan. The northern portion of the project site is designated as Park (P) and Public Facility (PF) on the City of Brentwood General Plan Land Use Map. The Park designation includes existing and future park and recreation facilities. This portion of the trail alignment would be located within the MCSP, which is an existing State Park. The Public Facility designation applies to land areas reserved for government offices and facilities, public agency offices and facilities and public utility facilities. This portion of the trail alignment would be located on CCCFCWCD lands associated with the Marsh Creek Reservoir. Operation of the proposed recreational trail would not conflict with continued management of the MCSP or Marsh Creek Reservoir facilities for park or public utility use. Therefore, the proposed project would be consistent with the City of Brentwood General Plan land use designation for the project site.

Contra Costa County Zoning. The majority of the project site is located within unincorporated Contra Costa County and is zoned A-3 and A-4. The A-3 district was established to provide for all types of agricultural use, including general farming, wholesale horticulture and floriculture, wholesale nurseries and greenhouses, mushroom rooms, dairying, livestock production, fur farms, poultry raising, animal breeding, aviaries, apiaries, forestry, and similar agricultural uses. The A-4 district is intended to provide areas that provide primarily for the commercial production of food and fiber and other compatible uses consistent with the intent and purpose of the Land Conservation Act of 1965. The zoning regulations for these districts regulate development of new structures and require a use permit for uses other than agriculture, which would be applied for and obtained prior to project construction. The proposed use consists of low-intensity recreational improvements that would enhance public access to the Marsh Creek Regional Trail and the Round Valley Regional Preserve. The proposed trail use would not conflict with or preclude use of the project site for agriculture. Therefore, the proposed project would be consistent with the County Zoning Ordinance.

Contra Costa County General Plan. The project site is designated as Parks and Recreation (PR), Public/Semi Public (PS), Agricultural Lands (AL), and Watershed (WS) on the Contra Costa County General Plan Land Use Map. The Parks and Recreation designation includes publicly-owned park facilities and allows for passive and active recreation-oriented activities and ancillary commercial uses (e.g., snack bars, restaurants). The Public and Semi-Public designation includes properties owned by public governmental agencies and allows for a wide variety of public and private uses, except the construction of private residential or commercial uses or subdivision of land. The Agricultural Lands designation includes most of the privately-owned rural lands in the County, excluding private lands that are composed of prime soils or lands located in or near the Delta. The purpose of the AL designation is to preserve and protect lands capable of and generally used for the production of food, fiber and plant materials, but shall not exclude or limit other types of agricultural, open space, or non-urban uses. Areas designated Watershed include much of the land owned by the East Bay Municipal Utility District (EBMUD) and Contra Costa Water District (CCWD), including properties surrounding Los Vaqueros Reservoir. Uses allowed in Watershed area include agriculture; passive, low-intensity recreational uses such as hiking and biking, and small-scale commercial uses that support picnicking, boating, and fishing activities on adjacent reservoirs.

The proposed project would consist of a paved, multi-use trail and associated improvements designed for the purpose of improving public access to Marsh Creek Regional Trail, and the Round

Valley Regional Preserve. Therefore, the proposed project would be consistent with the County General Plan land use designations for the project site.

Marsh Creek State Park General Plan and Program Environmental Impact Report. The MCSP General Plan provides a long-term vision and opportunities for recreation and long-term resource management for the MCSP, including a comprehensive set of goals and guidelines focused on visitor use and facilities, natural and cultural resource management, operations and management, and collaboration with resource and open space organizations to ensure integration of the MCSP with the surrounding parks and trail systems of the region. Specifically, the MCSP General Plan identifies the potential to provide connections to the Marsh Creek Trail, the Round Valley Regional Preserve, and to connection visitors from Brentwood to the John Marsh House. Completion of the proposed project would fulfill some of these goals.[57]

District Master Plan. The District Master Plan contains policies and goals pertaining to parks and trails within the District. This Plan establishes policies to provide a diverse system of non-motorized trails to accommodate a variety of recreational users, and to expand the District's paved multi-use regional trails connecting parklands and major population centers. Completion of the proposed project would implement both of these policies.[58]

Conclusion. Generally, the proposed project is in direct support of many applicable plans and policies. These plans contain goals and policies, which support working with the District to ensure recreational opportunities by expanding District parklands. Additional relevant policies relate to the protection of natural resources, water quality, and provision of public services. Many project impacts related to these topics are less than significant or limited to the short-term construction phase of the project described in relevant sections of this IS/MND. With mitigation measures contained in this IS/MND, the proposed project is consistent with all the relevant regulations and policies contained in these documents. Therefore, implementation of the proposed project would result in less-than-significant impacts related to this topic.

[57] California Department of Parks and Recreation. 2012. *Marsh Creek State Park General Plan and Program Environmental Impact Report.* January.

[58] East Bay Regional Park District. 2013. *2013 Master Plan*. Available online at: www.ebparks.org/Page50.aspx (accessed June 17, 2020).

3.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

*a. 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? **(No Impact)***

The State Mining Reclamation Act of 1975 (SMARA) identifies and protects California's mineral resources. Numerous State-designated mineral resources sectors are located within Contra Costa County, containing regionally significant mineral resources.[59] However, none of these State-designated resources is located within the project area.

The Conservation Element of the Contra Costa County General Plan includes policies for conserving and utilizing the County's mineral resources for current and future development, while ensuring that adverse environmental effects resulting from surface mining operations are minimized. The most important mineral resources that are currently mined in the County include crushed rock near Mt. Zion, on the north side of Mt. Diablo, in the Concord area; shale in the Port Costa area; and sand and sandstone deposits, mined from several locations, but focused in the Byron area of southeast County. According to Figure 8-4, *Mineral Resource Areas*, in the Contra Costa County General Plan, no mineral resources are located within the project area. Therefore, the proposed project would not 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.

*b. 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? **(No Impact)***

Refer to Response 3.12.a. The proposed project would not 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 project would have no impact related to this topic.

[59] California Department of Conservation. 1996. Division of Mines and Geology. *Generalized Mineral Land Classification Map of the South San Francisco Bay Production-Consumption Region*. Available online at: file:///C:/Users/SGuiler/Downloads/OFR_96-03_Plate1.pdf (accessed June 16, 2020).

3.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
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?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
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 2 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?	☐	☐	☐	☒

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements that better represent human sensitivity to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on dBA. CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies, including, as appropriate, the City of Brentwood and Contra Costa County.

The City of Brentwood addresses noise in the General Plan and in Chapter 9.32, Noise Regulations, of the Municipal Code. The General Plan contains noise policies that preserve a pleasant noise environment and enhance the quality of existing and future land uses by minimizing exposure to harmful and excessive noise. The following policies from the City of Brentwood General Plan are applicable to the proposed project.

- **Policy N 1-6:** Require acoustical studies for new developments and transportation improvements that affect noise-sensitive uses such as schools, hospitals, libraries, group care facilities, convalescent homes, and residential areas.

- **Policy N 1-7:** For projects that are required by CEQA to analyze noise impacts, the following criteria shall be used to determine the significance of those impacts:

  Stationary and Non-Transportation Noise Sources

  - A significant impact will occur if the project results in an exceedance of the noise level standards contained in this element, or the project will result in an increase in ambient noise levels by more than 3 dB, whichever is greater.

  Transportation Noise Sources

  - Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in roadway noise levels will be considered significant;

  - Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in roadway noise levels will be considered significant; and

  - Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB L_{dn} increase in roadway noise levels will be considered significant.

- **Policy N 1-11:** Ensure that existing development is protected, to the greatest extent feasible, from noise impacts due to construction on adjacent or nearby properties.

- **Policy N 1-15:** Require construction activities to comply with standard best practices (see Action N 1e).

- **Action N1e:** During the environmental review process, determine if proposed construction will constitute a significant impact on nearby residents and, if necessary, require mitigation measures in addition to the standard best practice controls. Suggested best practices for control of construction noise include:

  - Construction period shall be less than 12 months;
  - Noise-generating construction activities, including truck traffic coming to and from the construction site for any purpose, shall be limited to between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, and between 8:00 a.m. and 5:00 p.m. on Saturdays. No construction shall occur on Sundays or City holidays;
  - All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment;
  - The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists;
  - At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences;
  - Unnecessary idling of internal combustion engines shall be prohibited;
  - Construction staging areas shall be established at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction activities, to the extent feasible;
  - The required construction-related noise mitigation plan shall also specify that haul truck deliveries are subject to the same hours specified for construction equipment;
  - Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing; and
  - The construction contractor shall designate a "noise disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall be responsible for determining the cause of the noise complaint (e.g., starting too early, poor muffler, etc.) and instituting reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

The City of Brentwood also addresses noise in 9.32, Noise Regulations, of the Municipal Code. Section 9.32.070 states that construction activity performed by an agency of government, provided that all equipment is operated in accordance with manufacturer's specifications and is equipped with all noise reducing equipment in proper condition shall be exempt.

In addition, Contra Costa County addresses noise in the General Plan. The General Plan contains noise policies that aim to improve the overall environment in the County by reducing annoying and physically harmful levels of noise for existing and future residents and for all land uses. The following policies from the Contra Costa County General Plan are applicable to the proposed project.

- **Policy 11-6:** If an area is currently below the maximum "normally acceptable" noise level, an increase in noise up to the maximum should not be allowed necessarily.

- **Policy 11-7:** Public projects shall be designed and constructed to minimize long-term noise impacts on existing residents.

- **Policy 11-8:** Construction activities shall be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.

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 following section addresses the short-term construction and long-term operational noise impacts of the proposed project.

Short-Term (Construction) Noise Impacts. Project construction would result in short-term noise impacts on nearby sensitive receptors, the closest of which include the residential development associated with the Vineyards at Marsh Creek neighborhood located to the north of the trail alignment. In addition, the Los Medanos College New Brentwood Center is currently under construction, just north of the trail terminus, west of the intersection of the State Route 4 Bypass and Marsh Creek Road. The closest existing sensitive receptor includes the residences located approximately 400 feet from the northern end of the trail alignment at the intersection of Vineyards Parkway and Miwok Way.

Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. The level and types of noise impacts that would occur during construction are described below.

Short-term noise impacts would occur during grading and site preparation activities. Table 3.C lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would no longer occur once construction of the project is completed.

Table 3.C: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet[1]
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Pick-up Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston Noise Code for the "Big Dig" project.
L_{max} = maximum instantaneous sound level

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transport of construction equipment and materials to the site, which would incrementally increase noise levels on roads leading to the site. As shown in Table 3.C, there would be a relatively high single-event noise exposure potential at a maximum level of 84 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during grading and construction on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 3.C lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor.

Typical maximum noise levels range up to 87 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

As described in Section 1.0, Project Information, project construction would occur over one construction season (approximately 8 months from April 1 through November 30). Construction staging would occur at the existing Round Valley staging area, within a flat area adjacent to the existing parking area. Construction staging would also occur at both ends of the proposed underpass, along both sides of the proposed bridge over Marsh Creek, and along the existing dirt road on both sides of the dam embankment and at the toe of the dam near Marsh Creek Road. A small vacant area on Vineyard Drive may also be used for minor work on the bridge, installation of signs, striping, etc.

The proposed project would entail 11,500 lineal feet (approximately 2.2 miles) of new paved trail construction. As discussed in Section 1.0, Project Information, the total disturbed area for project construction would be approximately 9.5 acres and permanent disturbance would be approximately 5.7 acres. To be conservative, this analysis assumes 9.5 acres of disturbance. In addition, the proposed project would result in the excavation of approximately 11,100 cubic yards of cut, while the wedge fill placed along the Marsh Creek Road embankment for the dam incline (Segment 3) would be approximately 5,600 cubic yards. In addition, approximately 200 cubic yards of imported engineered fill would be used for installing the proposed trail bridge. Grading for the trail surface itself is anticipated to be balanced within the project.

This analysis assumes that a tractor, excavator, grader, rubber tired dozer, and scraper would be operating simultaneously during construction of the proposed project. Based on the typical construction equipment noise levels shown in Table 3.C, noise levels associated with these pieces of construction equipment operating simultaneously would be approximately 92 dBA L_{max} at 50 feet.

As noted above, the closest existing sensitive receptor includes the residences located approximately 400 feet from the northern end of the trail alignment at the intersection of Vineyards Parkway and Miwok Way. At 400 feet, there would be a decrease of approximately 18 dBA from the increased distance compared to the noise level measured at 50 feet from the active construction area. Therefore, the closest sensitive receptor may be subject to short-term maximum construction noise reaching 74 dBA L_{max} during construction. However, construction equipment would operate at various locations within the 11,500-linear-foot length of the project. Due to the linear nature of the project, construction activities at any one receptor location would occur for a limited duration.

As discussed above, the City of Brentwood General Plan Policy N-15 requires construction activities to comply with standard best practices as included in the City of Brentwood General Plan Action N1e. As such, Mitigation Measure NOI-1 would be required to ensure that construction of the proposed project would incorporate the City's suggested best practices for control of construction noise and would reduce potential construction-period noise impacts for sensitive receptors to less-

than-significant levels. Implementation of Mitigation Measure NOI-1 would also meet County requirements.

Mitigation Measure NOI-1: The project contractor shall implement the following measures during construction of the proposed project:

- Construction period shall be less than 12 months;
- Noise-generating construction activities, including truck traffic coming to and from the construction site for any purpose, shall be limited to between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, and between 8:00 a.m. and 5:00 p.m. on Saturdays. No construction shall occur on Sundays or holidays;
- All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment;
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists;
- At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences;
- Unnecessary idling of internal combustion engines shall be prohibited;
- Construction staging areas shall be established at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction activities, to the extent feasible;
- The required construction-related noise mitigation plan shall also specify that haul truck deliveries are subject to the same hours specified for construction equipment;
- Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing; and
- The construction contractor shall designate a "noise disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance

coordinator shall be responsible for determining the cause of the noise complaint (e.g., starting too early, poor muffler, etc.) and instituting reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

Implementation of Mitigation Measure NOI-1 would limit construction hours and require the construction contractor to implement noise-reducing measures during construction, which would reduce short-term construction noise impacts to a less-than-significant level.

Operational Noise Impacts. A characteristic of sound is that a doubling of a noise source is required in order to result in a perceptible (3 dBA or greater) increase in the resulting noise level. The proposed project includes an extension of the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project involves construction of a multi-use paved trail and associated primarily along Marsh Creek Road.

Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. The project is not expected to add trips to the surrounding roadways, as the project is the extension of an existing trail, through open space lands and along an existing roadway. Therefore, the project would not result in a significant increase in the generation of vehicle trips that would result in a perceptible increase in traffic noise levels at receptors in the project vicinity. Pedestrians or bicyclists may converse resulting in intermittent noise while using the trail; however, this noise level would be similar to existing conditions and would not generate noise levels that would exceed the applicable standards. Therefore, the proposed project would not result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance. This impact would be less than significant.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? ***(Less-Than-Significant Impact)***

Common sources of ground borne vibration and noise include trains and construction activities such as blasting, pile driving, and operating heavy earthmoving equipment. Construction of the proposed project would involve site preparation and construction activities but would not involve the use of construction equipment that would result in substantial ground-borne vibration or ground-borne noise on properties adjacent to the project sites. No pile driving, blasting, or significant grading activities are proposed. Furthermore, operation of the proposed project would not generate substantial ground-borne noise and vibration. Therefore, the project would not result in the exposure of persons to or generation of excessive ground-borne noise and vibration impacts are considered less than significant.

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 2 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? ***(No Impact)***

The proposed project is not located within 2 miles of a public or public use airport. Aircraft noise is occasionally audible at the project site; however, no portion of the project site lies within the 60 dBA CNEL noise contours of any public airport nor does any portion of the project site lie within 2 miles of any private airfield or heliport. Therefore, the proposed project would not result in the exposure of people residing or working in the project area to excessive noise levels and there would be no impact.

3.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ***(No Impact)***

The proposed project is a multi-use trail for pedestrians, bicyclists, and equestrians and would not induce substantial growth in the area either directly or indirectly. The proposed project would not provide additional vehicle access or additional major infrastructure to the project site. Additionally, the proposed project would not facilitate development of any dwelling units or commercial or industrial structures. No impact related to this topic would occur as a result of implementation of the proposed project.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ***(No Impact)***

No housing currently exists along the proposed trail alignment, and no residential property would be acquired for the implementation of the proposed project. No existing housing would be removed or displaced as a result of the project, and construction of replacement housing would not be required. No impact related to housing would occur.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. 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:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☐	☒

a. 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:

i. Fire protection? ***(Less-Than-Significant Impact)***

The ECCFPD, provides suppression, dispatches emergency services for a 250-mile area, (including Brentwood), and is the second largest fire service area in the County. The ECCFPD provides firefighting personnel and emergency medical service (basic life support) to the residents and businesses in Bethel Island, Brentwood, Byron, Discovery Bay, Knightsen, Marsh Creek, Morgan Territory, and Oakley.[60] In addition, the ECCFPD has a contractual relationship with CAL FIRE (The Amador Contract) that enables CAL FIRE to serve as First Responder in the Marsh Creek/Morgan Territory area (from their Sunshine station on Marsh Creek Road).[61] The proposed project would extend the existing Marsh Creek Regional Trail, closing an approximately 3-mile gap from the intersection of Vineyard Parkway and Marsh Creek Road in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead in unincorporated Contra Costa County. The proposed project would not result in a substantial increase in usage of the Marsh Creek Regional Trail or the Round Valley Regional Preserve, and would not include housing units or other structures. Therefore, the demand for fire protection services would not substantially increase with development of the proposed project. In addition, the new trail would be clearly marked to aid in access and timely response for medical emergencies. Therefore, the proposed project would result in a less-than-

60 De Novo Planning Group. 2014. *Public Draft Environmental Impact Report for the 2014 Brentwood General Plan Update, SCH #2014022058*. April. Available online at: www.brentwoodca.gov/civicax/filebank/blobdload.aspx?BlobID=25329 (accessed June 16, 2020).

61 East Contra Costa Fire Protection District. 2020. About the District. Website: www.eccfpd.org (accessed June 16, 2020).

significant impact on fire services in the area and would not result in the need for additional or altered fire protection services.

ii. Police protection? ***(Less-Than-Significant Impact)***

The Brentwood Police Department provides law enforcement and police protection services throughout the City of Brentwood, while the Contra Costa County Office of the Sheriff provides law enforcement for the unincorporated County. Additionally, the District Public Safety Division provides fire and police services for its parks and trails. During the peak summer season, the Public Safety Division is staffed with approximately 500 personnel including 40 industrial firefighters, 71 sworn police officers providing law enforcement through policing contracts, as well as approximately 200 members in the Volunteer Trail Safety Patrol. Emergency services including fire suppression, search and rescue, and pre-hospital emergency medical care are provided by the District's Fire Department. The District's Police Department headquarters are in Lake Chabot in Castro Valley, and law enforcement services are provided 24 hours per day. Public use of the Marsh Creek Regional Trail is not expected to generate a significant increase in calls for police services and would not generate the need for additional officers or equipment. Therefore, the proposed project would result in a less-than-significant impact on police services in the area and would not result in the need for additional or altered police protection facilities.

iii. Schools? ***(No Impact)***

The City of Brentwood is served by the Brentwood Union School District (K-5 elementary schools and 6-8 middle schools) and the Liberty Union High School District (9-12 high schools). The proposed project would not include the construction of housing or employment-generating facilities. Therefore, it would not increase demand for school services, and the proposed project would have no impact on schools.

iv. Parks? ***(Less-Than-Significant Impact)***

The proposed project would include construction of an extension of the Marsh Creek Regional Trail to connect to the Round Valley Regional Preserve. The project site, which is located on lands owned by CCCFCWCD, and State Parks, is generally surrounded by open space areas and unincorporated areas of Contra Costa County. The proposed project would not significantly increase the usage of the Marsh Creek Regional Trail or the Round Valley Regional Preserve or any surrounding open space preserves, nor would it increase the demand for new park facilities within the vicinity of the project site. Please refer to Section 3.16, Recreation, for a description of the proposed project's impact on surrounding parks and open space areas. Therefore, this impact would be less than significant.

v. Other public facilities? ***(No Impact)***

Other public facilities would include facilities such as libraries, post offices, meeting rooms, or hospitals. The proposed project would not result in an increase in population or facilities that would require other public facilities, or result in the need for physically altered facilities. Therefore, the proposed project would have no impact on other public facilities.

3.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

*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? **(Less-Than-Significant Impact)***

The Marsh Creek Regional Trail is a planned 14-mile, paved, multi-use trail that will connect the Delta region with the foothills of Morgan Territory Regional Preserve and Round Valley Regional Park east of Mt. Diablo State Park. Currently, the trail is about 6.5 miles long and extends from Creekside Park in Brentwood to Big Break.[62] The proposed trail alignment would extend the Marsh Creek Regional Trail from its existing terminus in the City of Brentwood to the District's Round Valley Regional Preserve Trailhead. The Round Valley Regional Preserve is a 2,191-acre preserve that provides opportunities for hiking, horseback riding, bicycling and group camping. From the Round Valley Regional Preserve Trailhead, recreationists can access several trails that extend into the Preserve. Portions of the trail alignment would also be located on State Parks land, providing a connection to the MCSP Primary Historic Zone, including the Historic House.

The proposed trail would be managed by the District, a special district operating a system of parks in Alameda and Contra Costa Counties in the East Bay area of the San Francisco Bay Area. The District manages the largest regional park system in the United States, with over 75 regional parks and recreation areas, as well as 31 inter-park trails and 1,330 miles of trails.[63]

The proposed project is a recreational trail alignment that is partially developed but has many incomplete segments. Completion of the project would enhance public accessibility to the Round Valley Regional Preserve, as well as provide an additional segment of the Marsh Creek Regional Trail. Due to the size of the Round Valley Regional Preserve, the length of the Marsh Creek Regional Trail, linkages to other trails, the proximity of other open space area, and the daily hours of operation, it is likely that the arrival of visitors would be dispersed over time on any given day, and the visitors themselves would be dispersed throughout the project area and adjacent areas. In addition, the proposed project is not anticipated to result in a significant increase of use at the

[62] East Bay Regional Park District. 2018. Marsh Creek Regional Trail. Website: www.ebparks.org/parks/trails/marsh_creek (accessed June 16, 2020).

[63] East Bay Regional Park District. 2018. About Us. Website: www.ebparks.org/about/default.htm (accessed June 16, 2020).

project site or within the Round Valley Regional Preserve. Therefore, the proposed project is not expected to result in a substantial increase in 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. 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? ***(Less-Than-Significant Impact)***

The proposed project would construct an extension of the existing Marsh Creek Regional Trail, which is a recreational facility. Potential impacts associated with the implementation of the proposed project are discussed throughout this Initial Study. As noted in Sections 3.14 and 3.15, the proposed project would not substantially increase the use of local facilities or require the construction of new, or the expansion of existing, recreational facilities and this impact would be less than significant.

3.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

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

The proposed extension of the Marsh Creek Regional Trail between the City of Brentwood and Round Valley Regional Preserve would provide access for hikers, runners, mountain bicyclists, and equestrians, as well as vehicles for emergency and maintenance purposes. The proposed trail would include an undercrossing (or overcrossing) of Marsh Creek Road, as well as a pedestrian bridge overcrossing of Marsh Creek. The proposed trail would be under the jurisdiction of the District.

Primary vehicle access to the existing Round Valley Regional Preserve trailhead is provided from Marsh Creek Road in unincorporated Contra Costa County. Access to the north end of the trail alignment is provided via Vineyards Parkway and Miwok Avenue in the City of Brentwood.

The project would be consistent with the District's Master Plan, the Contra Costa County General Plan and Countywide Bike Master Plan policies that promote alternative transportation modes. Therefore, the proposed project would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? ***(Less-Than-Significant Impact)***

With the current CEQA Guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT). The Contra Costa County Transportation Analysis Guidelines provide screening criteria to determine if a proposed project should be expected to prepare a detailed VMT analysis.[64] Absent substantial evidence indicating that a project would generate a

[64] Contra Costa County Conservation and Development Department and Public Works Department. 2020. *Contra Costa County Transportation Analysis Guidelines*. Adopted June 23. Available online at: www.contracosta.ca.gov/DocumentCenter/View/67487/FINAL-CCC-Transportation-Analysis-Guidelines?bidId= (accessed June 25, 2020).

potentially significant level of VMT, the following types of projects should be expected to cause a less-than-significant impact under CEQA and would not require further VMT analysis. Among the examples provided is the following:

- Public facilities (e.g. emergency services, passive parks (low-intensity recreation, open space), libraries, community centers, public utilities) and government buildings.

The proposed project is consistent with the category identified above. Therefore, consistent with the County's Guidelines, the proposed is unlikely to result in a substantial or measurable increase in VMT, and the transportation impact for the purposes of CEQA 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)? ***(Less-Than-Significant Impact)***

The proposed project involves construction of a multi-use paved trail and associated improvements (e.g., signage, pedestrian bridge, undercrossing/overcrossing, landscaping), primarily along Marsh Creek Road. Implementation of the proposed project would not significantly alter public roadways or access to Marsh Creek Trail from public roadways, except to provide safer connections to the proposed trail. The project is the extension of an existing trail, through open space lands and along an existing roadway and is compatible with surrounding land uses. The proposed project would include an undercrossing (or overcrossing) of Marsh Creek Road to provide a safe crossing for pedestrians and bicyclists. As such, the proposed project would not result in hazards due to incompatible uses (e.g., farm equipment). Therefore, the proposed project would result in a less-than-significant impact related to hazards associated with a design feature or incompatible uses.

d. Would the project result in inadequate emergency access? ***(Less-Than-Significant Impact)***

The proposed project would not result in inadequate emergency access, but would provide a new trail connection between the City of Brentwood and the Round Valley Regional Preserve. Implementation of the proposed project would improve access allowing for easier ingress and egress for emergency vehicles, pedestrians, and bicyclists during an emergency. Therefore, the project's impact would be less than significant.

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. 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:				
i. 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)? Or	☐	☒	☐	☐
ii. 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? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

a. 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:

i. 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)? Or

ii. 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? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. ***(Less Than Significant with Mitigation Incorporated)***

Assembly Bill 52 (AB 52), which became law on January 1, 2015, provides for consultation with California Native American tribes during the CEQA environmental review process, and equates significant impacts to "tribal cultural resources" with significant environmental impacts. Public Resources Code (PRC) Section 21074 states that "tribal cultural resources" are:

> Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are one of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources.

- Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.

- 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A "historical resource" (PRC Section 21084.1), a "unique archaeological resource" (PRC Section 21083.2(g)), or a "nonunique archaeological resource" (PRC Section 21083.2 (h)) may also be a tribal cultural resource if it is included or determined to be eligible for inclusion in the California Register.

The consultation provisions of the law require that a public agency consult with local Native American tribes that have requested placement on that agency's notification list for CEQA projects. Within 14 days of determining that a project application is complete, or a decision by a public agency to undertake a project, the lead agency must notify tribes of the opportunity to consult on the project, should a tribe have previously requested to be on the agency's notification list. California Native American tribes must be recognized by the California Native American Heritage Commission as traditionally and culturally affiliated with the project site, and must have previously requested that the lead agency notify them of projects. Tribes have 30 days following notification of a project to request consultation with the lead agency.

The purpose of consultation is to inform the lead agency in its identification and determination of the significance of tribal cultural resources. If a project is determined to result in a significant impact on an identified tribal cultural resource, the consultation process must occur and conclude prior to adoption of a Negative Declaration or Mitigated Negative Declaration, or certification of an Environmental Impact Report (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

As described in Section 3.5, Cultural Resources, the District sent letters describing the project and maps depicting the project site on August 13, 2020 to tribes eligible to consult with the District. To date, one tribe has requested consultation pursuant to Public Resources Code section 21080.3.1. Ms. Mariah Mayberry of the Wilton Rancheria responded via email on August 14, requesting consultation with the District. Ms. Mayberry's email also included the Wilton Rancheria's mitigation measures, which are consistent with Mitigation Measures Cult-1 through Cult-5. On May 11, 2021, the District consulted with Ms. Mayberry and provided the draft copy of this Initial Study. The District followed up with Ms. Mayberry on June 8, 2021, inquiring whether or not the Wilton Rancheria had any comments and/or edits in regard to the Initial Study. Ms. Mayberry responded on June 9, 2021 that the Wilton Rancheria has no other comments. Therefore, the District concluded that consultation was complete.

As noted in Section 3.5, Cultural Resources, the proposed trail would intersect historical resource P-07-000037, a precontact archaeological site that is listed in the NRHP and CRHR due to its potential to yield information important in prehistory. To minimize project ground-disturbing impacts to P-07-

000037, the project would provide a design profile that would limit ground penetration and distribute weight across the trail within the MCSP Primary Historic Zone. However, a potential substantial adverse change in the significance of P-07-000037 could still result from trail construction. Implementation of Mitigation Measures CULT-1, CULT-2, and CULT-3 would reduce potential impacts to P-07-000037 to less than significant.

The District, as Lead Agency, has not determined that there are any additional existing resources significant to Native American Tribes within the project site. Implementation of the Wilton Rancheria's Mitigation Measures and Mitigation Measures CUL-4 and CUL-5 would ensure potential impacts related to previously unidentified tribal and archaeological historical resources would be less than significant.

3.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

*a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? **(No Impact)***

The proposed project is a multi-use trail alignment for use by bicyclists, pedestrians, and equestrians. The proposed project would not include the construction of any new buildings and therefore would not require any new or relocated utility lines or connections, and there would be no impact to existing utility infrastructure.

*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? **(Less-Than-Significant Impact)***

Construction of the proposed project would temporarily require small amounts of water for cleanup activities. During trail construction, water would be provided via a water truck as no utility lines exist along the proposed trail alignment. Use of water would cease when construction is complete. Sufficient water supplies are available to provide for the project's minimal water needs during the construction phase of the project. Water would not be required for long-term operation of the project as no potable or non-potable water facilities are proposed. The proposed project would not include any new structures or facilities that would generate water demand, and there would be no impact to existing or future water supplies.

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? ***(No Impact)***

As noted above, the proposed project would not include the construction of any new facilities that would generate demand for wastewater services. Therefore, there would be no impact to wastewater treatment services.

d. 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? ***(Less-Than-Significant Impact)***

Construction of the proposed project could generate a small amount of solid waste. The majority of the construction waste would be organic materials such as cleared vegetation and dirt, as well as waste generated by construction workers. The generation of such solid waste would be temporary, and non-hazardous waste would be hauled to the Mount Diablo Recycling Center and Transfer Station. Waste from this transfer station is then disposed of at the Keller Canyon Landfill in Pittsburg. The Keller Canyon Landfill has an expected disposal capacity through 2030 and is permitted to receive 3,500 tons of solid waste per day.[65] This facility has the capacity to handle the small amount of waste that would be generated by construction of the proposed project.

Operation of the proposed project would not generate solid waste. The amount of construction waste would not be substantial and would not result in substantial reduction in the capacity of the landfill. Therefore, the proposed project would not affect landfill capacity and would comply with all statutes and regulations related to solid waste, and this impact would be less than significant.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(Less-Than-Significant Impact)***

Please refer to Section 3.19.d.

[65] CalRecycle. 2019. Facility/Site Summary Details: Keller Canyon Landfill (07-AA-0032). Website: www2.calrecycle.ca.gov/SolidWaste/Site/Summary/228 (accessed September 1, 2020).

3.20 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, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? ***(Less-Than-Significant Impact)***

The project site is located in a State Responsibility Area for fire hazards, as mapped by CAL FIRE. Additionally, as noted in Section 3.9, Hazards and Hazardous Materials, the project site is located within a moderate fire hazard severity zone (Section 3.9.g), and due to the nature of the proposed project, no impairment or interference with emergency response or emergency evacuation plans would occur (Section 3.9.f). Therefore, this impact would be less than significant.

b. Would the project, 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? ***(Less-Than-Significant Impact)***

The proposed project would consist of construction of a multi-use trail, primarily along Marsh Creek Road. As noted in Section 3.9, Hazards and Hazardous Materials, the proposed project does not involve construction of residential or commercial structures or any other structures for human occupation (Section 3.9.g) and people would use the trail for a limited duration of time. Construction of the trail would follow the District's best management practices to minimize fire danger in fire-prone wildlands (e.g., prohibiting work on red flag days, warning the public of fire danger on high fire days, establishing pump truck requirements). Therefore, the proposed project would not exacerbate wildfire risks, and this impact would be less than significant.

c. Would the project 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? ***(Less-Than-Significant Impact)***

As noted above, the proposed project would include construction of a multi-use trail along Marsh Creek Road, consisting of a 10-foot-wide trail with 2-foot-wide gravel shoulders. The proposed project would not include any buildings and therefore would not require fuel breaks, emergency water sources, power lines, or other utilities to be installed that may exacerbate fire risk or result in impacts to the environment. Therefore, this impact would be less than significant.

d. Would the project 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? ***(Less-Than-Significant Impact)***

The proposed project would include construction of a multi-use trail along Marsh Creek Road. As noted in Section 3.10, Hydrology and Water Quality, all trail and parking area runoff would be locally dispersed to minimize the rate or amount of runoff associated with construction and operation of the proposed trail. As required by Mitigation Measure HYDRO-5, additional hydraulic modeling would be integrated with the final design for the pedestrian bridge to ensure that impacts associated with flood flows would be less than significant. Therefore, the proposed project would not 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. This impact would be less than significant.

3.21 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?	☐	☒	☐	☐
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.)	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

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? ***(Less Than Significant with Mitigation Incorporated)***

Implementation of the mitigation measures recommended in this Initial Study would ensure that the construction and operation of the proposed project would not substantially degrade the quality of the environment; reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory. The proposed project has been designed to minimize impacts to both biological and cultural resources. Section 3.4, Biological Resources, includes mitigation measures to minimize impacts to special-status species, nesting birds, sensitive communities (e.g., riparian woodlands) and jurisdictional waters. Additionally, Section 3.5, Cultural Resources, includes mitigation measures to minimize impacts to known cultural resources in the vicinity of the trail alignment. With implementation of these mitigation measures, the proposed project would result in less-than-significant impacts to the quality of the environment. No additional mitigation is required.

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)? ***(Less-Than-Significant Impact)***

CEQA Guidelines require a discussion of significant environmental impacts that would result from project-related actions in combination with "closely related past, present, and probably future projects: located in the immediate vicinity (CEQA Guidelines Section 15130[b][1][A]). Cumulative environmental impacts are those impacts that by themselves are not significant, but when considered with impacts occurring from other projects in the vicinity would result in a cumulative impact. Related projects considered to have the potential of creating cumulative impacts in association with the proposed project consist of projects that are reasonably foreseeable and that would be constructed or operated during the life of the proposed project.

As described in this Initial Study, the majority of environmental impacts associated with the proposed project would be temporary, construction-related, and would be reduced to a less-than-significant level with implementation of the mitigation measures contained herein. The Los Medanos College New Brentwood Center is currently under construction on a 17-acre site, just north of the trail terminus, west of the intersection of the State Route 4 Bypass and Marsh Creek Road. No other construction projects are anticipated in the immediate area of the proposed trail. Many mitigation measures identified in the document, such as those for Air Quality, Biological Resources, Geology and Soils, and Hydrology and Water Quality, would address both the impacts of the project as well as cumulative impacts resulting from the effects of other projects in lands managed by the District, or cumulative development in the region. Therefore, the proposed project would not make a considerable contribution toward cumulative impacts. Cumulative impacts would be less than significant and no mitigation is required.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(Less Than Significant with Mitigation Incorporated)***

The proposed project's potential to result in environmental effects that could directly or indirectly impact human beings have been evaluated in this Initial Study. With implementation of the recommended mitigation measures, all environmental effects that could adversely affect human beings would be less than significant.

4.0 LIST OF PREPARERS

4.1 LSA ASSOCIATES, INC.

157 Park Place
Richmond, CA 94801
- Theresa Wallace, AICP, Principal in Charge
- Shanna Guiler, AICP, Associate/Environmental Planner
- Matthew Wiswell, Environmental Planner
- E. Timothy Jones, Associate/Cultural Resources Manager
- Patty Linder, Graphics and Production
- Charis Hanshaw, Document Management
- Ameara Martinez, Document Management

2491 Alluvial Avenue, PM 626
Clovis, CA 93611
- Amy Fischer, Principal
- Cara Carlucci, Senior Planner/Air Quality and Noise Specialist

4.2 QUESTA ENGINEERING

1220 Brickyard Cove Road, Suite 206
Point Richmond, CA 94801
- Jeffrey Peters, Principal
- Margaret Henderson Landscape Architect
- Oliver Reyes, Designer and Graphics Specialist
- Tom Hawbaker, Technical Editor
- Will Hopkins, P.G., C.E.G. Professional Geologist
- Syd Temple, P.E., C.E., Principal Hydrologist

This page intentionally left blank

5.0 REFERENCES

Alameda County Waste Management Authority. 2020. *Alameda County Integrated Waste Management Plan Countywide Element*. Available online at: www.stopwaste.org/resource/reports/countywide-integrated-waste-management-plan-coiwmp (accessed June 24, 2020). April 22.

Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Bartow, Alan, and Tor H. Nilsen. 1990. Department of the Interior, U.S. Geological Survey. *Review of the Great Valley Sequence, Eastern Diablo Range and Northern San Joaquin Valley, Central California*. Open-File Report 90-226.

Beason, Mark A., and Jarma Jones. 2007. Department of Parks and Recreation form 523 record for P-07-002991. On file, Northwest Information Center, Sonoma State University, Rohnert Park, California.

Brentwood, City of, and California State Parks. 2012. *Marsh Creek State Park General Plan/Program Environmental Impact Report*. California Department of Parks and Recreation. January.

California Board of Forestry and Fire Protection. 2020. State Responsibility Area Viewer. Website: bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer (accessed June 23, 2020).

California Department of Conservation. 2018. Division of Land Resource Protection, *Contra Costa County Important Farmland 2016.* Website: www.conservation.ca.gov/dlrp/fmmp/Pages/ContraCosta.aspx (accessed May 21, 2020).

California Department of Conservation. 2019. The California Landslide Inventory. Website: www.conservation.ca.gov/cgs/landslides (accessed July 3, 2020).

California Department of Conservation. 1996. Division of Mines and Geology. *Generalized Mineral Land Classification Map of the South San Francisco Bay Production-Consumption Region*. Available online at: file:///C:/Users/SGuiler/Downloads/OFR_96-03_Plate1.pdf (accessed June 16, 2020).

California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7. Available online at: nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843 (accessed July 3, 2020).

California Department of Fish and Wildlife. 2019. California Natural Diversity Database, commercial version dated July 2019. Biogeographic Data Branch, California Department of Fish and Wildlife, Sacramento.

California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. March 20.

California Department of Forestry. 2008. Fire Hazard Severity Zones. Available as part of the Association of Bay Area Government Earthquake and Hazards Program. Website: resilience.abag.ca.gov/wildfires (accessed June 23, 2020).

California Department of Parks and Recreation. 2012. *Marsh Creek State Park General Plan and Program Environmental Impact Report.* January.

California Department of Water Resources. 2020. Division of Safety of Dams. Website: water.ca.gov/Programs/All-Programs/Division-of-Safety-of-Dams (accessed July 3, 2020).

California Department of Water Resources. 2020. SGMA Basin Prioritization Dashboard. Available online at: gis.water.ca.gov/app/bp-dashboard/final (accessed July 3, 2020).

California Native Plant Society. 2019. Inventory of rare and endangered plants in California (online edition, v8-02). California Native Plant Society, Sacramento. July 26. Website: www.cnps.org/inventory.

California Energy Commission. 2020. *2019 Integrated Energy Policy Report.* California Energy Commission. Docket # 19-IEPR-01. February.

California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed June 23, 2020).

California Geological Survey (CGS). 1982. Alquist-Priolo Earthquake Fault Zone Map. Website: www.conservation.ca.gov/cgs/alquist-priolo (accessed July 3, 2020).

California Geological Survey. 2018. *Seismic Hazard Zone Report for the Brentwood 7.5-Minutequad-rangle, Contra Costa County, California; CGS Seismic Hazard Zone Report 124, Plate 1.1: Quaternary Geologic Materials Map and Locations of Boreholes Used in Evaluating Liquefaction Hazard, Brentwood*.

California Regional Water Quality Control Board. 2018. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Fifth Edition, the Sacramento River Basin and the San Joaquin River Basin*. May. Available online at: www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf (accessed July 3, 2020).

California, State of. 2014. Department of Water Resources. *Sustainable Groundwater Management Act*. Website: water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management (accessed July 3, 2020).

Contra Costa County Department of Conservation and Development. 2017. *2016 Agricultural Preserves Map.* Available online at: www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract?bidId= (accessed May 21, 2020).

Contra Costa County. 2005. *Contra Costa County General Plan 2005-2020*. January 18.

Contra Costa, County of. 2015. *Contra Costa County Climate Action Plan*. December 15

Contra Costa County Conservation and Development Department and Public Works Department. 2020. *Contra Costa County Transportation Analysis Guidelines*. Adopted June 23.Available online at: www.contracosta.ca.gov/DocumentCenter/View/67487/FINAL-CCC-Transportation-Analysis-Guidelines?bidId= (accessed June 25, 2020).

De Novo Planning Group. 2014. *Public Draft Environmental Impact Report for the 2014 Brentwood General Plan Update, SCH #2014022058*. April. Available online at: www.brentwoodca.gov/civicax/filebank/blobdload.aspx?BlobID=25329 (accessed June 16, 2020).

East Bay Regional Park District. 2013. *2013 Master Plan*. Available online at: www.ebparks.org/Page50.aspx (accessed June 17, 2020).

East Bay Regional Park District. 2018. Marsh Creek Regional Trail. Website: www.ebparks.org/parks/trails/marsh_creek (accessed June 16, 2020).

East Bay Regional Park District. 2018. About Us. Website: www.ebparks.org/about/default.htm (accessed June 16, 2020).

East Contra Costa Fire Protection District. 2020. About the District. Website: www.eccfpd.org (accessed June 16, 2020).

Graymer, R.W., et al. 1994. Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California. USGS Open-File 94-622.

Jones and Stokes. 2006. *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan, Vols. 1 & 2*. October 2006.

LSA Associates, Inc. 1993. *Biological Resources, Cowell Ranch, Contra Costa County*. Prepared for the Cowell Ranch Project, Lafayette, California. November 1.

Peterson, M.D., et al. 1996. *Probabilistic Seismic Hazard Assessment for the State of California*, California Geological Survey. Open-File report issued jointly with U.S. Geological Survey, CDMG 96-08 and USGS 96-706.

Rosenthal, Jeffrey S., 2010. *Archaeological Investigations at CA-CCO-18/548 along Marsh Creek, Brentwood, California, 1946-2008.* Far Western Anthropological Research Group, Inc., Davis California.

Samuelson, Ann, et al. 1993. *Archaeological Survey and Testing Report, Cowell Ranch Project, Contra Costa County, California. Volume I: Background, Results, and Recommendations*. William Self Associates, Orinda, California.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation*. Second edition. California Native Plant Society Press, Sacramento.

State Water Resources Control Board. 2020. GeoTracker. Website: geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Round+Valley+REgional+Preserve%2C+Brentwood%2C+CA (accessed June 23, 2020).

U.S. Department of Transportation. 2017. *Hazardous Materials Regulations.* Available online at: www.phmsa.dot.gov/standards-rulemaking/hazmat/hazardous-materials-regulations (accessed July 6, 2020).

U.S. Environmental Protection Agency, 2012. *Hazardous Waste Regulations.* Available online at: www.epa.gov/osw/lawsregs/regs-haz.htm (accessed September 6, 2017

United States Fish and Wildlife Service. 2019. Information for Planning and Consultation (IPaC). July 26.

U.S. Fish and Wildlife Service. 1999. *San Joaquin Kit Fox Survey Protocol for the Northern Range*. Sacramento Fish and Wildlife Office. June.

Witter, R.C., et al. 2006. Maps of Quaternary deposits and liquefaction susceptibility in the central San Francisco Bay region, California: U.S. Geological Survey Open-File Report. Website: pubs.usgs.gov/of/2006/1037/ (accessed November 11, 2020).

WRECO. 2019. *Marsh Creek Road Bridges Replacement Project Draft Bridge Design Hydraulic Study Report*. Prepared for Contra Costa County Department of Public Works.

APPENDIX A

ROADMOD OUTPUT SHEETS

This page intentionally left blank

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Marsh Creek Regional Trail Project – Brentwood to Round Valley Regi				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust				
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	1.08	10.12	11.68	30.52	0.52	30.00	6.69	0.45	6.24	0.02	2,220.51	0.58	0.05	2,249.60
Grading/Excavation	5.68	47.24	64.43	32.77	2.77	30.00	8.70	2.46	6.24	0.11	10,770.32	2.87	0.29	10,928.99
Drainage/Utilities/Sub-Grade	3.27	30.04	33.09	31.57	1.57	30.00	7.68	1.44	6.24	0.06	5,734.22	1.19	0.08	5,788.94
Paving	1.49	17.68	14.53	0.86	0.86	0.00	0.76	0.76	0.00	0.03	2,871.59	0.74	0.06	2,907.42
Maximum (pounds/day)	5.68	47.24	64.43	32.77	2.77	30.00	8.70	2.46	6.24	0.11	10,770.32	2.87	0.29	10,928.99
Total (tons/construction project)	0.33	2.91	3.58	2.41	0.16	2.24	0.61	0.15	0.47	0.01	613.17	0.15	0.01	621.17

Notes:

Project Start Year ->	2021
Project Length (months) ->	8
Total Project Area (acres) ->	10
Maximum Area Disturbed/Day (acres) ->	3
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	400	40
Grading/Excavation	173	0	270	0	1,000	40
Drainage/Utilities/Sub-Grade	0	0	0	0	760	40
Paving	0	0	0	0	600	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Marsh Creek Regional Trail Project – Brentwood to Round Valley Regi				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust				
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	0.01	0.09	0.10	0.27	0.00	0.26	0.06	0.00	0.05	0.00	19.54	0.01	0.00	17.96
Grading/Excavation	0.20	1.66	2.27	1.15	0.10	1.06	0.31	0.09	0.22	0.00	379.12	0.10	0.01	349.00
Drainage/Utilities/Sub-Grade	0.10	0.93	1.02	0.97	0.05	0.92	0.24	0.04	0.19	0.00	176.61	0.04	0.00	161.75
Paving	0.02	0.23	0.19	0.01	0.01	0.00	0.01	0.01	0.00	0.00	37.91	0.01	0.00	34.82
Maximum (tons/phase)	0.20	1.66	2.27	1.15	0.10	1.06	0.31	0.09	0.22	0.00	379.12	0.10	0.01	349.00
Total (tons/construction project)	0.33	2.91	3.58	2.41	0.16	2.24	0.61	0.15	0.47	0.01	613.17	0.15	0.01	563.53

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

This page intentionally left blank

APPENDIX B

SPECIAL-STATUS SPECIES TABLES

This page intentionally left blank

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Amsinckia grandiflora	Large-flowered fiddleneck	FE/SE/1B	Grassy openings in cismontane woodland, valley and foothill grassland, cannot occur in dense grass; found in grassland communities (containing both annual and perennial grasses) on the edge of oak or juniper woodland; existing populations known to occur on very steep, north- or west-facing slopes in canyons. Elevation: 275-550 m. Blooms: April-May	This species is not likely to occur within the project site, since the proposed trail will not be constructed in steep slopes. The closest CNDDB occurrence (#10) is from extirpated or presumed extirpated populations approximately 4.1 miles from the site. Close to these historic native occurrences; an experimental population was initiated in the early 1990s near the Judsonville site (Lougher Ridge).
Anomobryum julaceum	Slender silver moss	--/--/4	Broad-leafed upland forest, lower montane coniferous forest, North Coast coniferous forest /damp rock and soil on outcrops, usually on road cuts. Elevation: 100-1,000 m. Blooms: N/A	This species may occur in seasonally damp soils at the site. The closest CNDDB occurrence (#7) is from a presumed extant population on Mt. Diablo. This occurrence has non-specific location information.
Arctostaphylos auriculata	Mt. Diablo manzanita	--/--/1B, HCP/NCCP-covered	Chaparral (sandstone), cismontane woodland. Elevation: 135-650 m. Blooms: January-March	No suitable chaparral/scrub present. The closest CNDDB occurrence (#12) is from a presumed extant population located approximately 2.7 miles from the site. No manzanita species were observed during the field survey.
Arctostaphylos manzanita ssp. *laevigata*	Contra Costa manzanita	--/--/1B	Chaparral (rocky). Elevation: 500-1,100 m. Blooms: January-April	No suitable chaparral/scrub present. The closest CNDDB occurrence (#10) is from a 1932 record at unknown location approximately 1 mile east of Round Valley. No manzanita species were observed during the field survey.
Astragalus tener var. *tener*	Alkali milk-vetch	--/--/1B	Mesic alkaline and adobe clay soils in valley and foothill grassland, adjacent to vernal pools. Elevation: 1-60 m. Blooms: March-June	Suitable habitat present in grasslands near vernal pools at the site, but the elevation range associated with this species is more typical of delta grasslands. Project site is above known elevation range for species.

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Atriplex cordulata var. *cordulata*	Heartscale	--/--/1B	Saline or alkaline soils in chenopod scrub, meadows, and seeps. Sandy soils in valley and foothill grassland. Elevation: 0-560 m. Blooms: April-October	Could occur within the alkaline grasslands or wetlands at the site.
Atriplex coronata var. *coronata*	Crownscale	--/--/4	Alkaline, often clay soils in chenopod scrub, valley and foothill grassland, and vernal pools. Elevation: 1-590 m. Blooms: March-October	Known to occur at the northern end of the project site.[1,2]
Atriplex depressa	Brittlescale	--/--/1B, HCP/NCCP-covered	Wet, alkaline grassland, chenopod scrub, alkali scalded areas, and/or vernal pools. Elevation: 1-320 m. Blooms: April-October	Could occur within the alkaline grasslands or wetlands at the site. Closest CNDDB occurrence is approximately 0.7 mile from the site.
Atriplex minuscula	Lesser saltscale	--/--/1B	Alkaline, sandy in chenopod scrub, playas, and valley and foothill grassland. Elevation: 15-200 m. Blooms: May-October	Could occur within the alkaline grasslands or wetlands at the site.
Blepharizonia plumosa	Big tarplant	--/--/1B, HCP/NCCP-covered	Valley and foothill grassland with clay to clay loam soils. Elevation: 50-505 m. Blooms: July-October	Species recorded at the project site in 1994 where approximately 2,500 plants were observed along the grassy hillside adjacent to a creek channel.[3] Could also occur within the annual grasslands.
California macrophylla (syn. = *Erodium macrophyllum*)	Round-leaved filaree	--/--/1B, HCP/NCCP-covered	Grassy openings in cismontane woodland, valley and foothill grassland with clay soils. Elevation: 15-1,200 m. Blooms: March-May	Potential to occur within the oak savannah understory and annual grassland.

1 LSA Associates, Inc. 1993. Biological Resources, Cowell Ranch, Contra Costa County. Prepared for the Cowell Ranch Project, Lafayette, California. November 1.

2 Brentwood, City of, and California State Parks. 2012. *Marsh Creek State Park General Plan/Program Environmental Impact Report*. California Department of Parks and Recreation. January.

3 California Department of Fish and Wildlife. 2019. California Natural Diversity Database, commercial version dated July 2019. Biogeographic Data Branch, California Department of Fish and Wildlife, Sacramento.

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Calochortus pulchellus	Mt. Diablo fairy-lantern	--/--/1B, HCP/NCCP-covered	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland, on wooded and brushy slopes. Elevation: 30-840 m. Blooms: April-June.	Potential to occur within the oak savannah understory and annual grassland. The closest CNDDB occurrence (#1) is located approximately 2.3 miles from the site.
Campanula exigua	Chaparral harebell	--/--/1B	Chaparral (rocky, usually serpentine). Elevation: 275-1,250 m. Blooms: May-June	No suitable chaparral or serpentine habitat present. It also has more of an affinity for the serpentine slopes of Mt. Diablo.
Centromadia parryi subsp. *congdonii*	Congdon's tarplant	--/--/1B	Grazed and un-grazed annual grassland. Alkaline or saline soils sometimes described as heavy white clay (saline clay soil). Elevation: 1-230 m. Blooms: May-October (November)	Suitable habitat may be present in grasslands on the site.
Cordylanthus nidularius	Mt. Diablo bird's-beak	--/SR/1B	Chaparral (serpentine). Elevation: 600-800 meters. Blooms: July-August	No suitable chaparral or serpentine habitat present.
Cryptantha hooveri	Hoover's cryptantha	--/--/1A	Inland dunes, sandy soils in valley and foothill grassland. Elevation: 9-150 m. Blooms: April-May	The habitat conditions of the site are generally unlike those required for this species.
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	--/--/1B	Within and beside chaparral, grassy openings of cismontane woodland, sometimes mesic areas in above habitats. Elevation: 230-1,095 m. Blooms: April-June	Potential to occur within the oak savannah.
Delphinium recurvatum	Recurved larkspur	--/--/1B, HCP/NCCP-covered	Wet, alkaline areas, chenopod scrub. Elevation: 3-750 m. Blooms: March- June	Suitable habitat may be present in alkaline grasslands on the site.
Didymodon norrisii	Norris' beard moss	--/--/2B	Cismontane woodland, lower montane coniferous forest/intermittently mesic, rock. Elevation: 600-1,973 m. Blooms: N/A	The habitat conditions of the site are unlike those required for this species. The site's elevation is below the range associated with this species.

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Dirca occidentalis	Western leatherwood	--/--/1B	Broadleaved upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland on brushy slopes, mesic sites. Elevation: 30-395 m. Blooms: January-March (April)	Potential habitat present in the riparian woodland along Marsh Creek, but the species is not known to occur east of the Berkeley Hills.
Eriogonum truncatum	Mt. Diablo buckwheat	--/--/1B	Openings with bare soil in chaparral, coastal scrub, or valley and foothill grassland with dry exposed clay or sandy substrates. Elevation: 3-350 m. Blooms: April-November	Could occur along rocky banks of Marsh Creek. Closest CNDDB occurrence is a 1934/1862/1903 record at an unknown location approximately 1.5 miles from the site.
Eschscholzia rhombipetala	Diamond-petaled California poppy	--/--/1B,=	Alkaline or clay soils in valley and foothill grassland. Elevation: 0-975 m. Blooms: March-April	Could occur within the alkaline grasslands or wetlands on the site. Closest CNDDB occurrence (#4) is a possibly extirpated record north of the 1.1 miles north of Marsh Creek Reservoir.
Extriplex joaquinana	San Joaquin spearscale	--/--/1B, HCP/NCCP-covered	Wet, alkaline sparse grassland areas, alkaline pools. Elevation: 1-835 m. Blooms: April-October	Known to occur at the project site.[4,5] The closest CNDDB occurrence (#43) is approximately 0.2 mile from the site.
Fritillaria agrestis	Stinkbells	--/--/4	Clay, sometimes serpentinite in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. Elevation: 10-1555 m. Blooms: March-June	Could occur within grasslands on the site. The closest CNDDB occurrence (#8) is at an unknown location mapped approximately 0.7 mile from the site.
Fritillaria liliacea	Fragrant fritillary	--/--/1B	Coastal scrub, valley and foothill grassland, and coastal prairie. Often on serpentine soils. Other various soils reported, though usually clay. Elevation: 3-410 m. Blooms: February-April	Potential to occur within the oak savannah understory and annual grasslands on the site.

[4] LSA Associates, Inc. 1993. op. cit.
[5] Brentwood, City of, and California State Parks. 2012. op. cit.

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Helianthella castanea	Diablo helianthella	--/--/1B, HCP/NCCP-covered	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland, usually within rocky azonal soils. Elevation: 60–300 m. Blooms: April-June	Potential to occur within the riparian woodland, oak savannah, and grasslands. The closest CNDDB occurrence (#14) is located approximately 2.7 miles from the site.
Hesperevax caulescens	Hogwallow starfish	--/--/4	Sometimes alkaline in valley and foothill grassland (mesic, clay) and vernal pools (shallow). Elevation: 0–505 m. Blooms: March-June	Could occur in the alkaline grasslands and wetlands on the site.
Hesperolinon breweri	Brewer's western flax	--/--/1B, HCP/NCCP-covered	Serpentine chaparral, cismontane woodland, and valley and foothill grassland. Elevation: 30-900 m. Blooms: May-July	Could occur in the alkaline grasslands on the site. It has an affinity for the serpentine slopes on Mt. Diablo and no serpentine present, but could also occur in alkaline habitat. The closest CNDDB occurrence (#31) is approximately 0.2 mile from the site.
Hibiscus lasiocarpos var. *occidentalis*	Woolly rose-mallow	--/--/1B	Freshwater marshes and swamps, riprap on sides of levees. Elevation: 0-120 m. Blooms: June-September	The habitat conditions of the site are unlike those required for this species. The geographic range associated with this species relates to those of delta marshlands.
Lasthenia conjugens	Contra Costa goldfields	FE/--/1B,= =	Valley and foothill grassland and cismontane woodland in vernal pools, swales, and moist depressions (alkaline). Extirpated from most of its range; extremely endangered. Elevation: 0-470 m. Blooms: March-June	Could occur within alkaline seasonal wetlands and depressions on the site, but no CNDDB occurrences recorded within 5 miles of the site.
Madia radiata	Showy madia	--/--/1B, HCP/NCCP-covered	Valley and foothill grassland and openings in cismontane woodland. Elevation: 25-1,215 m. Blooms: March-May.	Potential to occur within grasslands and oak savannah. The closest CNDDB occurrence (#25) is located approximately 3.6 miles from the site.
Malacothamnus hallii	Hall's bush-mallow	--/--/1B	Chaparral, coastal scrub. Some populations on serpentine. Elevation: 10-760 m. Blooms: May-September (October)	Chaparral and scrub land cover type is not present on the site. This species has an affinity for the serpentine slopes of Mt. Diablo. No serpentine occurs on the site.

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Monolopia gracilens	Woodland woolythreads	--/--/1B	Openings in broadleaf upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland/serpentine. Elevation: 100-1,200 m. Blooms: March-July	This species has an affinity for serpentine soils in grasslands and within openings in chaparral and oak woodland. There is no serpentine on the site.
Navarretia gowenii	Lime Ridge navarretia	--/--/1B	Chaparral, clay and serpentine soils. Elevation: 180-305 Blooms: May-June	This species has an affinity for clay and serpentine soils in grasslands and chaparral. There is no serpentine on the site.
Navarretia nigelliformis subsp. *radians*	Adobe navarretia	--/--/1B, HCP/NCCP-covered	Valley and foothill grassland. Elevation: 100-1,000 m. Blooms: April–June	Potential to occur within grasslands on site. Closest CNDDB occurrence (#81) is located approximately 4.6 miles from the site.
Oenothera deltoides ssp. *howellii*	Antioch Dunes evening-primrose	FE/CE/1B	Interior sand dunes Elevation: 0-30 m. Blooms: March – September	No suitable sand dune habitat present. The geographic range associated with this species relates to the unique sand dune habitat near the city of Antioch.
Phacelia phacelioides	Mt. Diablo phacelia	--/--/1B	Chaparral and cismontane woodland/rocky; strong indicator of serpentine soils. Elevation: 500-1,370 m. Blooms: April-May	The habitat conditions of the site are unlike those required for this species. The geographic range associated with this species relates to open rocky slopes at an elevation much higher than the site.
Puccinellia simplex	California alkali grass	--/--/1B	Alkaline, vernally mesic; sinks, flats, and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation: 2-930 m. Blooms: March-May	Potential to occur in alkaline grasslands and wetlands at the site. Closest CNDDB occurrence (#46) is a possibly extirpated record located approximately 2.3 miles from the site.
Sanicula saxatilis	Rock sanicle	--/SR/1B	Rocky ridges or tallus, broadleaved upland forest, chaparral, valley and foothill grassland. Elevation: 620-1,175 m. Blooms: April-May	The habitat conditions at the site are unlike those required for this species. The geographic range associated with this species relates to open rocky slopes at an elevation higher than the site.
Senecio aphanactis	Chaparral ragwort	--/--/2B	Drying alkaline flats in cismontane woodland and coastal scrub. Elevation: 20-575 m. Blooms: January-April	Potential to occur in alkaline flats on the site. Closest CNDDB occurrence (#16) is approximately 4.9 miles from the site.

Table B-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR, HCP/NCCP)	General Habitat Description	Rationale
Spergularia macrotheca var. *longistyla*	Long-styled sand-spurrey	--/--/1B	Alkaline in meadows and seeps and marshes and swamps. Elevation: 0-255 m. Blooms: February-May (June)	Potential to occur in alkaline grasslands and wetlands at the site. Closest CNDDB occurrence (#12) is approximately 2.4 miles from the site.
Streptanthus albidus ssp. *peramoenus*	Most beautiful jewel-flower	--/--/1B	Chaparral, cismontane woodland, valley and foothill grassland, serpentine soils. Elevation: 95-1,000 m. Blooms: March-October	This species has an affinity for serpentine soils in grasslands and within openings in chaparral and oak woodland. No serpentine occurs at the site.
Streptanthus hispidus	Mt. Diablo jewel-flower	--/--/1B	Chaparral, valley and foothill grassland/rocky. Elevation: 365-1,200 m. Blooms: March-June	This species has an affinity for serpentine soils in grasslands and within openings in chaparral and oak woodland. No serpentine occurs at the site.
Triquetrella californica	Coastal triquetrella	--/--/1B	Coastal bluff scrub, coastal scrub/soil. Elevation: 10-100 m. Blooms: N/A	This species may occur in seasonally damp soils and rocks adjacent to Marsh Creek and Marsh Creek Road at the site.
Tropidocarpum capparideum	Caper-fruited tropidocarpum	--/--/1B	Alkaline clay soils in grassland and oak woodland (valley and foothill grassland). Elevation: 1-455 m. Blooms March-April	Potential to occur in alkaline grasslands on the site. Closest CNDDB occurrence (#6) is possibly extirpated record approximately 3.7 miles from the site.
Viburnum ellipticum	Oval-leaved viburnum	--/--/2B	Chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 215-1,400 m. Blooms May-June	Potential to occur within the oak savannah at the site.

Source: LSA (2020).

Status:
FE = Federally listed as endangered
FT = Federally listed as threatened
FSC = Federal Species of Concern
HCP/NCCP-covered = species is covered by the HCP/NCCP
no-take = no-take species under the HCP/NCCP
SE = State-listed as endangered
ST = State Threatened
SR = State Rare
SSC = State Species of Special Concern

CRPR = California Rare Plant Rank:
1A = California Rare Plant Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.
1B = California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
2B = California Rare Plant Rank 2B: Plants rare, threatened or endangered in California but more common elsewhere
3 = California Rare Plant Rank 3: Plants about which more information is needed – a review list
4 = Plants of Limited Distribution - A Watch List

This page intentionally left blank

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Branchinecta conservatio	Conservancy fairy shrimp	FE/--/--	Large, steep-sided, alkali playa-type pools with moderately turbid water.	Suitable playa pools may be present in project vicinity. Not identified in the pools at the site.[1,2]
Branchinecta longiantenna	Longhorn fairy shrimp	FE/--/--, HCP/NCCP-covered	Vernal pools, seasonal ponds, sometimes constructed features that hold water. Ponding duration can be as little as 6-7 weeks in winter or 3 weeks in spring.	Suitable vernal pools may be present in project vicinity. Not identified in the pools at the site.[3,4]
Branchinecta lynchi	Vernal pool fairy shrimp	FT/--/--, HCP/NCCP-covered	Vernal pools, alkali pools, stock ponds, ponds in vernal swales. Ponding duration can be as little as 6-7 weeks in winter or 3 weeks in spring.	Suitable vernal pools present in project vicinity. Species known to occur in pools north of trail alignments.[5]
Brachinecta mesovallensis	Midvalley fairy shrimp	--/--/--, HCP/NCCP-covered	Vernal pools and a variety of constructed features. Often ponding is of shallow duration, but can occur in long-duration ponds.	Suitable vernal pools may be present in project vicinity. Not identified in the pools at the site.[6,7]
Callophrys mossii bayensis	San Bruno elfin butterfly	FE/--/--	Coastal mountainous areas with grassy ground cover within fog belt. Associated with host plant *Sedum spathulifolium*.	The project site is not located within the fog belt and the site is not known to support the host plant of this species.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT/--/--	Riparian habitat. Adults feed and lay eggs on blue elderberry (*Sambucus mexicana*) shrubs. Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for stressed elderberries. Occurs only in the Central Valley of California.	Project site supports blue elderberry, but the site is west of the known range of the species.

1 LSA Associates, Inc. 1993. Biological Resources, Cowell Ranch, Contra Costa County. Prepared for the Cowell Ranch Project, Lafayette, CA. November 1.
2 California Department of Fish and Wildlife. 2019. California Natural Diversity Database, commercial version dated July 2019. Biogeographic Data Branch, California Department of Fish and Wildlife, Sacramento.
3 Ibid.
4 California Department of Fish and Wildlife. 2019. op. cit.
5 Ibid.
6 LSA Associates, Inc. 1993. op. cit.
7 California Department of Fish and Wildlife. 2019. op. cit.

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Lepidurus packardi	Vernal pool tadpole shrimp	FE/--/--, HCP/NCCP-covered	Large or small, clear or turbid, alkali or fresh water vernal pools, clay flats, alkaline pools, ephemeral stock tanks, roadside ditches, and road ruts.	Suitable vernal pools may be present in project vicinity. Not identified in the pools at the site.[8,9]
Hypomesus transpacificus	Delta smelt	FT/SE/--	Sacramento-San Joaquin Delta at salinities less than 2 ppm. Generally not found in smaller freshwater streams.	Suitable aquatic habitat not present.
Oncorhynchus mykiss	Central California Coast steelhead	FT/--/--	Clear, cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.	The project site and project vicinity are outside the known range of this species. The dam at Marsh Creek Reservoir prohibits salmonids from moving upstream into Marsh Creek. May briefly occur downstream of Marsh Creek Reservoir during high flows.
Oncorhynchus mykiss	Central Valley steelhead	FT/--/--	Clear, cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.	The project site and project vicinity are outside the known range of this species. The dam at Marsh Creek Reservoir prohibits salmonids from moving upstream into Marsh Creek. May briefly occur downstream of Marsh Creek Reservoir during high flows.
Oncorhynchus tshawytscha	Central Valley spring-run Chinook salmon	FT/ST/--	Clear, cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.	The project site and project vicinity are outside the known range of this species. The dam at Marsh Creek Reservoir prohibits salmonids from moving upstream into Marsh Creek. May briefly occur downstream of Marsh Creek Reservoir during high flows.
Oncorhynchus tshawytscha	Central Valley winter-run Chinook salmon	FE/SE/--	Clear, cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.	The project site and project vicinity are outside the known range of this species. The dam at Marsh Creek Reservoir prohibits salmonids from moving upstream into Marsh Creek. May briefly occur downstream of Marsh Creek Reservoir during high flows.

8 LSA Associates, Inc. 1993. op. cit.
9 California Department of Fish and Wildlife. 2019. op. cit.

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Ambystoma californiense	California tiger salamander – Central Valley DPS	FT/ST/SSC, HCP/NCCP-covered	Grassland, oak woodland, ruderal, and seasonal pool habitats. Seasonal ponds and vernal pools are necessary for breeding. Adults use mammal burrows and other underground retreats as aestivation habitat.	Known to breed in ponds in the project area.[10] Suitable upland habitat present in grasslands at the site.
Rana boylii	Foothill yellow-legged frog	--/SE/SSC, HCP/NCCP-covered	Streams with rocky or cobbly substrate that flow at least to May.	No suitable habitat present. Species has not been found in recent surveys of the area and is considered extirpated from Contra Costa County.[11] The nearest known population is in the upper Alameda Creek watershed in southern Alameda County.
Rana draytonii	California red-legged frog	FT/--/SSC, HCP/NCCP-covered	Creeks, ponds, marshes. Prefers aquatic habitat with deep (2 feet or deeper) areas and undercut banks, emergent aquatic vegetation, and bank cover. Does not occur in brackish water.	Potential breeding habitat present in stock ponds and Marsh Creek and suitable movement and upland habitat present within riparian habitat, grasslands, and creeks/drainages. Closest CNDDB occurrence (#546) is approximately 0.2 mile west of the project site in Marsh Creek.
Emys marmorata	Western pond turtle	--/--/SSC, HCP/NCCP-covered	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation.	Known to occur in Marsh Creek Reservoir and at the mouth of Marsh Creek.[12] May move through other creeks and drainages on the site when water is present.
Anniella pulchra pulchra	Silvery legless lizard	--/--/SSC, HCP/NCCP-covered	Sandy or loose loamy soils with sparse vegetation and high moisture content.	The project site does not support sandy or loose loamy soils suitable for this species.
Masticophis lateralis euryxanthus	Alameda striped racer (= Alameda whipsnake)	FT/ST/--, HCP/NCCP-covered	Chaparral, rocky outcrops, south facing slopes and ravines within valley-foothill grassland with shrubs and oak trees in Alameda and Contra Costa counties.	Although no rocky outcrops or chaparral habitat are near the trail alignments, the oak savannah, grasslands, and riparian habitats at the site support suitable movement and foraging habitat.

10 California Department of Fish and Wildlife. 2019. op. cit.
11 Ibid.
12 Ibid.

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Phrynosoma blainvillii	Coast horned lizard (= Blainville's horned lizard)	--/--/SSC	Chaparral, oak savannah, and grassland habitat types with loose soils. Also in lowlands, along sandy washes with scattered low bushes.	The project vicinity supports suitable habitat for this species. Closest CNDDB occurrence (#613) is approximately 3.4 miles from the site.
Thamnophis gigas	Giant garter snake	FT/ST/--, HCP/NCCP-covered	Agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands primarily within the Sacramento Valley.	The project vicinity is outside the known range of this species. Suitable habitat may be present in the creeks and drainages on the site, but species not known to occur in the project vicinity.
Aytha americana	Redhead	--/--/SSC	Large, deep bodies of water; nests in freshwater emergent wetlands.	Suitable foraging habitat present in the Marsh Creek Reservoir. Species not known to breed in the County.[13] Species known to occur at the Marsh Creek Reservoir.[14]
Pelecanus erythrorhynchos	American white pelican	--/--/SSC	Shallow inland and coastal marine habitats, marshes, lakes, rivers.	Suitable aquatic habitat present in in the Marsh Creek Reservoir. Species not known to breed in the County.[15] Species observed at the Marsh Creek Reservoir in November 2019.[16]
Aquila chrysaetos	Golden Eagle	--/--/FP, HCP/NCCP-covered	Forests, canyons, shrub lands, grasslands, and oak woodlands. Large trees or cliffs for nesting. Open grasslands for foraging.	The project vicinity provides potential nesting habitat for this species. Oak savannah and native grassland provides suitable foraging habitat. Closest CNDDB occurrence (#145) is approximately 1 mile from the site. Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[17]

[13] Shuford, D. W. and T. Gardali, Eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. *Studies of Western Birds 1*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

[14] eBird. 2020. Bird Checklist for the Marsh Creek Reservoir, Contra Costa County, California, US. Available online at: ebird.org/hotspot/L616414 (accessed July 7, 2020).

[15] Shuford, D. W. and T. Gardali, Eds. 2008. op. cit.

[16] eBird. 2020, Bird Checklist for the Marsh Creek Reservoir. op. cit.

[17] eBird. 2020. Bird Checklist for the Round Valley Regional Preserve, Contra Costa County, California, US. Available online at: ebird.org/hotspot/L484636 (accessed July 7, 2020).

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Buteo swainsoni	Swainson's hawk	--/ST/--, HCP/NCCP-covered	Open grasslands and agricultural fields. Nests in large trees such as valley oak, cottonwood, or eucalyptus.	Project site provides suitable nesting habitat for this species. Known to nest in 2012 in an oak tree along Marsh Creek within the project site.[18] Species observed at the Marsh Creek Reservoir in May 2020.[19]
Circus hudsonius	Northern harrier	--/--/SSC	Nests and forages in meadows, grasslands, open rangeland, and fresh or saltwater marshes.	Suitable nesting and foraging habitat present in grasslands on and adjacent to site. Species observed foraging near project site during the 2019 reconnaissance-level survey. Species known to occur at the Marsh Creek Reservoir.[20]
Elanus leucurus	White-tailed kite	--/--/FP	Grassland and savannah for foraging. Large trees for roosting and nesting.	Project site provides suitable nesting habitat and the oak savannah, riparian habitat, and grassland provide suitable foraging habitat. Species known to occur at the Marsh Creek Reservoir.[21]
Haliaeetus leucocephalus	Bald eagle	DE/SE/FP	Nest in large, old growth, or dominant live tree with open branches near ocean shore, lake margins, and rivers. Usually nests within 1 mile of water.	Suitable foraging habitat present near the Marsh Creek Reservoir, but species not known to breed in the region.[22] Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[23]
Falco peregrinus anatum	American Peregrine falcon	--/--/FP	Nests on cliffs, transmission towers, skyscrapers.	Suitable nesting habitat (cliffs, skyscrapers, transmission towers) is absent from the site. Could forage on the site. Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[24]

18 California Department of Fish and Wildlife. 2019. op. cit.
19 eBird. 2020, Bird Checklist for the Marsh Creek Reservoir. op. cit.
20 Ibid.
21 Ibid.
22 Glover, S. 2009. *Breeding Bird Atlas of Contra Costa County*. Mount Diablo Audubon Society. Walnut Creek, California.
23 eBird. 2020. Bird Checklist for the Round Valley Regional Preserve. op. cit.
24 Ibid.

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Rallus obsoletus obsoletus	California Ridgway's rail (=California clapper rail)	FE/SE/FP	Saltwater and brackish marshes often crossed by tidal sloughs in the San Francisco Bay. Closely associated with pickleweed.	No suitable habitat present within the project vicinity.
Sternula antillarum browni	California least tern	FE/SE/FP	Coastal estuaries, lagoons, tidal flats, salt flats.	No suitable habitat present within the project vicinity.
Asio flammeus	Short-eared owl	--/--/SSC	Open grasslands, meadows, and marshes with few trees. Requires dense ground vegetation for both roosting and nesting.	Suitable foraging habitat present. Species not known to breed in the region.[25,26]
Asio otus	Long-eared owl	--/--/SSC	Woodlands and forests that are open or adjacent to grasslands, meadows, or shrublands.	Suitable roosting trees present, but rare breeder in the County.[27]
Athene cunicularia	Western burrowing owl	--/--/SSC, HCP/NCCP-covered	Open habitats (e.g., grasslands, agricultural areas) with mammal burrows or other features (e.g., culverts, pipes, and debris piles) suitable for nesting and roosting.	Suitable ground squirrel burrows observed near the trail alignment. Could breed, winter, and/or forage in the grasslands on the site. Closest CNDDB occurrence (#244) is approximately 1.8 miles from the site.
Chaetura vauxi	Vaux's swift	--/--/SSC	Grasslands and agricultural fields; nests in dense vegetation in large hollow trees near open water; forages in most habitats but prefers rivers and lakes.	Suitable foraging habitat present. Species not known to breed in the County.[28] Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[29]
Contopus cooperi	Olive-sided flycatcher	--/--/SSC	Coniferous forests with open canopies.	No suitable nesting habitat present. Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[30]

25 Shuford, D. W. and T. Gardali, Eds. 2008. op. cit.
26 Glover, S. 2009. op. cit.
27 Ibid.
28 Shuford, D. W. and T. Gardali, Eds. 2008. op. cit.
29 eBird. 2020. Bird Checklist for the Round Valley Regional Preserve. op. cit.
30 Ibid.

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Lanius ludovicianus	Loggerhead shrike	--/--/SSC	Found in grasslands and open shrub or woodland communities. Nests in dense shrubs or trees and forages in scrub, open woodlands, grasslands, and croplands. Frequently uses fences, posts, and utility lines as hunting perches.	Suitable nesting and foraging habitat present. Species known to occur at the Marsh Creek Reservoir.[31]
Ammodramus savannarum	Grasshopper sparrow	--/--/SSC	Grasslands with coyote brush and other shrubs.	Suitable habitat present within grasslands on the site. Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[32]
Agelaius tricolor	Tricolored blackbird	--/ST/SSC, HCP/NCCP-covered	Nesting usually occurs in areas of dense cattails and/or tall bulrushes in creeks or ponds, tall mustard (*Brassica* sp.), grain stalks in fields, or Himalayan blackberry (*Rubus discolor*).	Suitable large patches of cattails and emergent wetland vegetation present in Marsh Creek Reservoir and along portions of Marsh Creek. Known to occur at the Marsh Creek Reservoir in 1989, 1992, and 2008, but nesting not confirmed.[33] Species observed at the Marsh Creek Reservoir in March 2017.[34]
Dendroica petechia	Yellow warbler	--/--/SSC	Nests in extensive willow riparian woodlands.	Suitable habitat present at the Marsh Creek Reservoir or along portions of Marsh Creek where extensive willow thickets are present, but species not known to breed in the region.[35] May forage on the site during migration. Species known to occur at the Round Valley Regional Preserve, southwest of the project site.[36]
Antrozous pallidus	Pallid bat	--/--/SSC	Usually maternity roosts occur in enclosed areas of buildings, caves, and mines. Forages in a wide variety of open habitats.	Project vicinity may provide suitable roosting habitat for this species within the buildings and large trees. Suitable foraging habitat present.

31 eBird. 2020. Bird Checklist for the Marsh Creek Reservoir. op. cit.
32 eBird. 2020. Bird Checklist for the Round Valley Regional Preserve. op. cit.
33 California Department of Fish and Wildlife. 2019. op. cit.
34 eBird. 2020, Bird Checklist for the Marsh Creek Reservoir. op. cit.
35 Glover, S. 2009. op. cit.
36 eBird. 2020. Bird Checklist for the Round Valley Regional Preserve. op. cit.

Table B-2: Special-Status Wildlife Species Potentially Occurring in the Project Site

Scientific Name	Common Name	Status (F/S/CDFW, HCP/NCCP)	General Habitat Description	Rationale
Corynorhinus townsendii townsendii	Townsend's big-eared bat	--/--/SSC, HCP/NCCP-covered	Usually maternity roosts occur in enclosed areas of buildings, caves, and mines. Forages along habitat edges, often gleaning insects from trees or shrubs.	Buildings in the project vicinity may provide suitable roosting habitat. Suitable foraging habitat present.
Brassariscus astutus	Ringtail	--/--/FP	Mixture of forest and scrub in close association with rocky or riparian areas. Nests in rocky areas and hollow trees and logs.	Project site supports suitable foraging areas and potentially supports denning areas in hollow trees and logs along Marsh Creek or at the Marsh Creek Reservoir.
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST/--, HCP/NCCP-covered	Annual grasslands including grasslands with vernal pools, or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Marginally suitable denning, foraging, and movement habitat present. Suitable ground squirrel burrows observed along the trail alignment during the survey. Closest CNDDB occurrence (#573) is 1978 record is from near the site at Marsh Creek Road and Camino Diablo Road. Species rare in region.
Taxidea taxus	American badger	--/--/SSC	Open grassland areas with plentiful prey such as pocket gophers and ground squirrels.	Suitable denning, foraging, and movement habitat present. No dens were observed during the survey. Closest CNDDB occurrence (#182) is approximately 1.7 miles from the site.

Source: LSA (2020).
Status:
FE = federally endangered
FP = State fully protected
FT = federally threatened
HCP/NCCP-covered = species is covered by the HCP/NCCP
no-take = no-take species under the HCP/NCCP
SE = State endangered
SSC = State species of special concern
ST = State threatened

APPENDIX C

HYDRAULIC ANALYSIS

This page intentionally left blank

Marsh Creek Trail Bridge Crossing

Hydraulic Analysis

Prepared for:

East Bay Regional Parks District

Prepared by:

Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
Point Richmond, CA 94801

June 10, 2020

1. Introduction

East Bay Regional Parks District (EBRPD) is currently evaluating whether to extend the Marsh Creek Regional Trail (MCRT) from Round Valley Regional Preserve to Vineyard Parkway. The new section of trail will cross Marsh Creek 200 feet downstream from Marsh Creek Road, approximately 3 miles south of Deer Valley Road in eastern Contra Costa County. EBRPD is proposing a 180-foot span pedestrian bridge to convey MCRT over Marsh Creek as shown in Figure 1. The purpose of this document is to assess the hydraulic impacts the proposed MCRT bridge will have on the channel and adjacent Marsh Creek Road. Using this assessment then suggest design modifications to mitigate any channel instability that may result from a new pedestrian bridge.

Contra Costa County (County) is simultaneously planning to replace the bridges that carry Marsh Creek Road over Marsh Creek. The new county bridge will be approximately 200 feet upstream from the proposed MCRT bridge. A draft hydraulic study for the new county bridge has already been conducted by WRECO in 2019; *Draft Bridge Hydraulic Study Report* (attached to this report).

The hydrology and hydraulic analysis for the MCRT bridge is based on the analysis done by WRECO for the County bridge. The recurrence flows, existing channel geometry, and previously compiled hydraulic model that was used for the County bridge was used for the MCRT bridge analysis to ensure consistency between models. The analysis for the MCRT bridge used the expected conditions after the placement of the new County Bridge to ensure that combined impacts of both bridges in the channel will not produce cumulative adverse impacts.

Project Purpose

The Purpose of the project is to create a crossing over Marsh Creek so that the Marsh Creek Regional Trail can extend from Round Valley Preserve to Vineyard Parkway. The bridge will be 6 to 10 feet wide and designed for foot and bike traffic.

Hydraulic Design Criteria

The following criteria were set for the Marsh Creek Crossing of the Marsh Creek Regional trail. The criteria reflect the Contra Costa County, Caltrans and regulatory standards.

- The crossing must not impede the flow of Marsh Creek such that flood conditions are worsened
- The crossing must have a freeboard of at least 1 foot above the 100-year flood elevation.
- The proposed bridge design must not produce any scour effects that will change channel geometry such as bed elevation change or contraction.
- The proposed trail bridge should not hydraulically impact the new county road bridge or result in increased flooding

2. Project Setting

Location

The bridge site is located on Marsh Creek along Marsh Creek about 2.2 miles west of the intersection of Camino Diablo and Marsh Creek. The project is located downstream from Marsh Creek Road and approximately 1.5 miles upstream from Marsh Creek Reservoir dam.

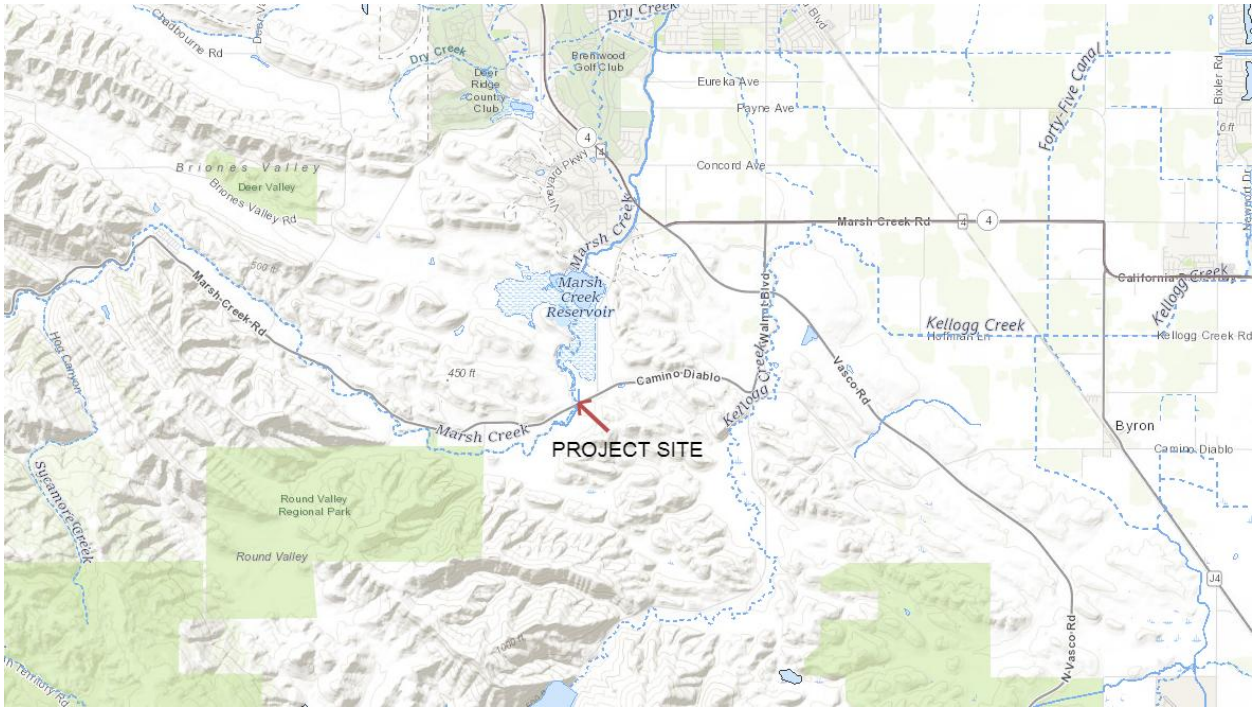


Figure 1. Project Location

3. Hydrologic Analysis

This analysis uses the results of the Contra Costa County Hydrologic Analysis done for the Marsh Creek Road Bridges Replacement Project as reported in the 2019 *Draft Bridge Design Hydraulic Study Report* published by WRECO. WRECO used the Conta Costa Flood Control District's *HEC-HMS Guidance for the Unit Hydrograph Method* to calculate the 12-hour, 50- and 100- year rainfall events. A hydrograph was then produced to estimate the 50- and 100- year peak discharges at the bridge site.

Table 1. Design Discharges

Recurrence	Peak Discharges (CFS)
50-year	5400
100-year	6300

4. Hydraulic Analysis

The MCRT hydraulic analysis was done in HEC-RAS using WRECO's previously compiled model for the Proposed new County Bridge. Using the existing model created by WRECO ensures consistency between the analysis and that the Marsh Creek Trail Bridge is designed in accordance to expected conditions after the placement of the new County Bridge. The cross section locations and positions of proposed structures are shown in **Figure 2**.

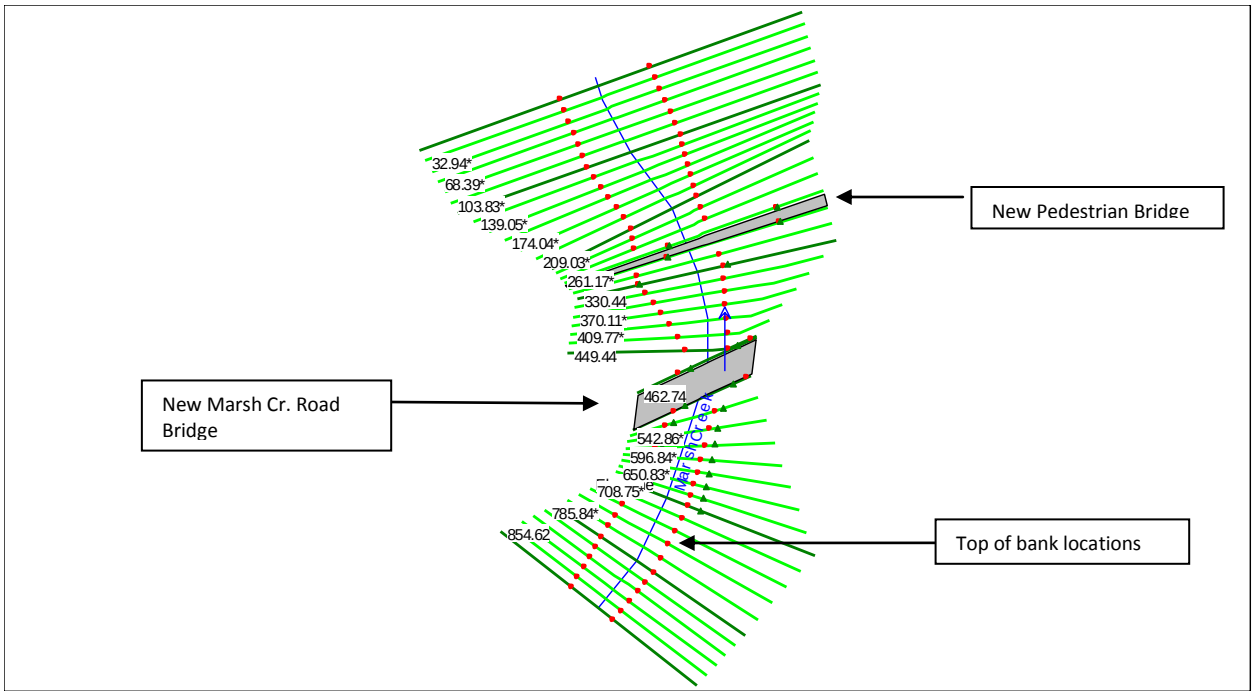


Figure 2. Model cross section layout

The hydraulic analysis was completed under two basic scenarios. The first scenario assumes that the Marsh creek reservoir is full (TW) and the second assumes that the reservoir is not full and that there is no downstream backwater (ND) impacting the project site.

The first downstream control assumed water level of the Marsh Creek Reservoir is low enough that it would not cause backwater at the Bridge site during the peak 50- and 100- year storm event (ND). The downstream boundary was set to normal depth using a slope of 0.0022 ft/ft.

The second downstream control assumed the following conditions at the Marsh Creek Reservoir, based on the information available from United Department of Agriculture's *Hydraulic Model Investigation of Marsh Creek Dam Principal Spillway in Contra Costa County, California* dated February 1976:

- All of the flood flows entering the Marsh Creek Reservoir are discharged to downstream via emergency spillway and primary spillway.
- Water level at the Marsh Creek Reservoir is at the crest elevation of the emergency spillway with the incoming flow rate of 5,400 cfs for the 50-year storm event and 6,300 cfs for the 100-year storm event.

Based on the preceding assumptions, the water level at the reservoir during the 50- and 100-year storm events would be approximately 198.06 ft and 198.52 ft NAVD 88, respectively.

Manning's Roughness Coefficients

Manning's roughness coefficients were used in the hydraulic model to estimate energy losses in the flow due to friction. A roughness coefficient of 0.035 was used to describe the channel banks and a roughness coefficient of 0.030 was used to describe the overbank areas. These values were selected

based on engineering judgment to represent the smooth channel bed, vegetated banks, and grassy overbanks.

Expansion and Contraction Coefficients

Expansion and contraction coefficients were used in the hydraulic model to represent energy losses in the channel. An expansion coefficient of 0.3 and a contraction coefficient of 0.1 were used to represent the channel. These values represent a channel with gradual transitions between cross sections. The expansion coefficient and a contraction coefficient were unchanged to represent the cross sections adjacent to the bridge because the bridge is planned to be a large span with only one pier in the channel. These values represent a channel with minor transitions between cross sections.

Water Surface Elevations

The water surface elevations (WSE) were estimated for the proposed conditions. The WSEs in the immediate vicinity of the bridge are shown for the conditions with (TD) and without backwater (ND) from Marsh Creek Reservoir, respectively. The 50- and 100-year water surface profiles comparing the proposed conditions with and without backwater from Marsh Creek Reservoir are depicted in **Figures 3** and **4**.

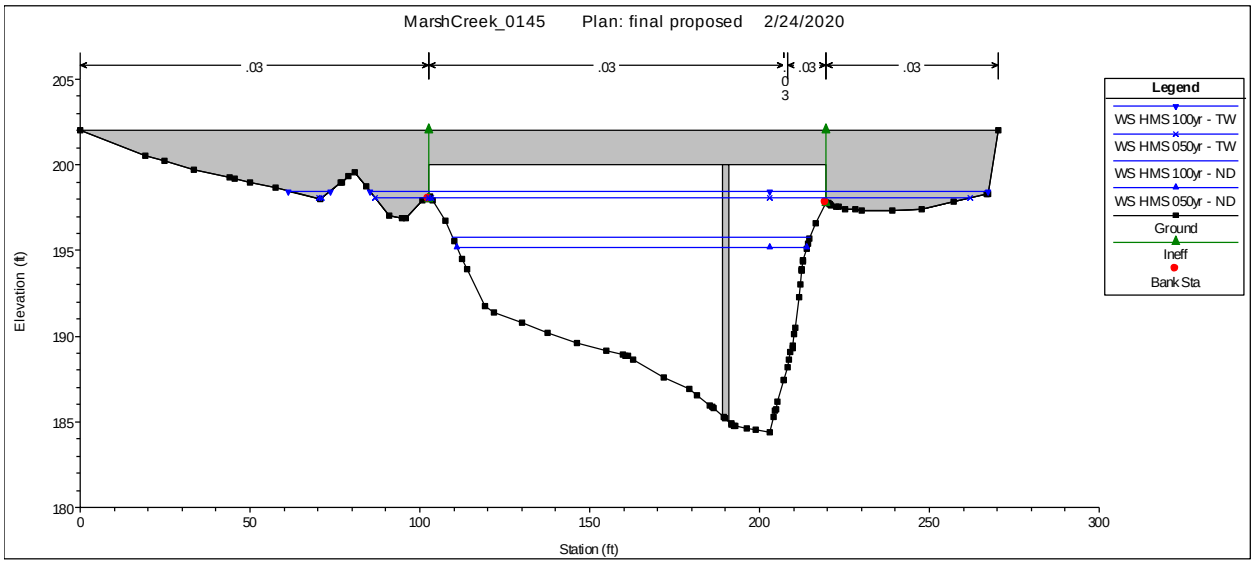


Figure 3. Water surfaces at Bridge

The hydraulic modeling indicates that the addition of the proposed pedestrian bridge would little to minor imp[acts to predicted water surface elevations at the newly proposed county bridge. When Marsh Creek Reservoir is not full all flows are contained in the channel and the effects of the proposed pedestrian/trail bridge do impact overbank flooding, thus this discuss is limited to the the condition when the reservoir is full. At the bridge location the new bridge raises water surface profiles 0.01 feet or 0.12 inches at the upstream face only during the 100 yr flow scenario. The addition of the pedestrian bridge also has minor impacts upstream and downstream of the new proposed County bridge at the 50 and 100yr flows. These water surface increases vary from 0.06 to 0.07 feet (0.72 to 0.84 inches) during the 100-yr flow and 0.03 to 0.04 (0.36 to 0.48 inches) at the 50-year flow. These slight increases are within the error of the modeling and being less than an inch is unlikely to create greater flooding and floodplain impacts. Furthermore the bridge spans could be increased resulting in slightly less fill for the abutments which would further reduce these small increases.

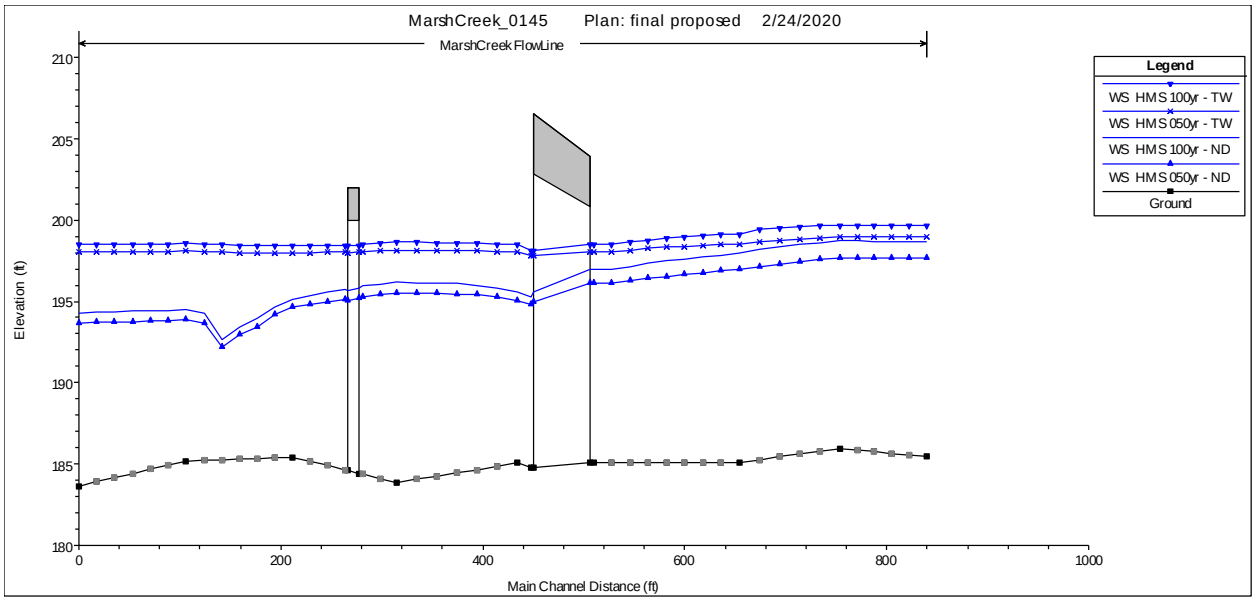


Figure 4. Water surface profiles under different reservoir scenarios

Freeboard

The freeboard, the distance between the design water surface and the bottom of the bridge, was calculated assuming the reservoir is full. The bridge was assumed to have a thickness of 2 feet and the bottom of the bridge would sit at elevation 200. The minimum freeboard was determined to be 1.5 feet during the 100-year flow and 2 feet during the 50-year flow. This meets Contra Costa County requirements for the bridge to be designed to pass the 50-year storm event with 2 feet of freeboard and/or the 100-year storm event with 1 ft of freeboard to account for debris and bedload.

Channel Scour Conditions

To analyze potential scour conditions we used the scenario where the reservoir is not full and there is no backwater influencing the bridge site. This would represent the worst case scenario. Under this condition, general channel flow velocities vary between 8 to 9 feet per second. This generally matches the velocities in the channel upstream and downstream of the bridge. The channel shear forces vary from 0.9 to 1 lbs/square foot. These shear forces have the ability to move cobbles up to 2.5 to 4 inch size class and match the shear stresses found throughout the channel reach. Median grain size in the channel is reported to be generally finer than 0.5 inch so it is assumed that active channel bedload transport and possibly bank erosion could occur under design flow conditions. Depending on the abutment and pier design, rock revetment in around the abutments maybe needed to prevent scour/erosion during significant flow events. This would be addressed in the final design of the bridge.

Channel bed elevations may fluctuate over time as a result of changes in local sediment transport capacity and supply. In general, channel aggradation occurs when more sediment is supplied by watershed erosion and upstream channel flow than can be transported locally, and channel degradation occurs when sediment transport capacity exceeds supply. Only channel degradation is considered for the purposes of analyzing long-term scour and bridge stability. The long term channel degradation was analyzed in the WRECO 2019 bridge report. Generally the analysis showed that channel degradation occurred from 1937 to 1971, but after 1971 the channel has generally become somewhat stable and scour and bed changes have varied within 4.5 feet since then. This is likely the response of the channel

after the reservoir was built, and would indicate that the channel has likely degraded but has stabilized and now is undergoing minor fluctuations based on year to year sediment supply and transport conditions. Because of this we do not expect excessive long term bed degradation at the bridge site. we do expect the installation of the new trail bridge to alter these dynamics and should not change the scour or bed elevation significantly.

Adjacent Floodplain Issues

The proposed trail and bridge is generally located in shallow flooding area behind the Marsh Creek Dam. During 100-yr reservoir conditions the adjacent fields and floodplain are flooded at depths of less than 2 feet. Thought his a rare occurrence the trail, bridge approaches, and the bridge abutments should be designed knowing that shallow flooding may occur along the trail alignment and at the bridge site. The bridge will be designed to provide freeboard and minimize impacts to water surface elevations but the surrounding area is subject to infrequent flooding.

This page intentionally left blank