

DRAFT

**CEQA INITIAL STUDY/MITIGATED
NEGATIVE DECLARATION**

**CANYON ROAD BRIDGE REPLACEMENT PROJECT
MORAGA, CALIFORNIA**

Prepared for:

Town of Moraga
Public Works Department
329 Rheem Boulevard
Moraga, California 94556

Prepared by:

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LSA Project No. NLT1301

LSA

November 2016

MITIGATED NEGATIVE DECLARATION

Project Name. Canyon Road Bridge Replacement Project

Project Location. The Canyon Road Bridge over the West Branch of San Leandro Creek (also called Moraga Creek) is located within the Town of Moraga, just south of Constance Place and north of the Contra Costa County line (Figures 1 and 2).

Project Description. The Town of Moraga proposes to replace the existing, structurally deficient, approximately 104-foot-long, multi-span bridge over the West Branch of San Leandro Creek (Moraga Creek) with a new multi-span bridge. The new clear-span bridge would be approximately 120 feet long and 48 feet wide to accommodate two 12-foot travel lanes, and two 8-foot-wide shoulders on both sides, serving as bike lanes, and one 5-foot sidewalk for pedestrians on the west side of the bridge. The replacement bridge would be located generally on the same alignment as the existing bridge. Foundations for the new bridge would be supported on cast-in-drilled-hole (CIDH) piles. Rock slope protection would be required on the creek banks to prevent scour under the bridge abutments. Construction would be staged to maintain public and emergency vehicle access across the creek.

Findings. It is hereby determined that, based on the information contained in the attached Initial Study, the project would not have a significant adverse effect on the environment.

Mitigation measures, necessary to avoid potentially significant effects on the environment, are included in the attached Initial Study, which is hereby incorporated and fully made part of this Mitigated Negative Declaration. The Town of Moraga has hereby agreed to implement each of the identified mitigation measures, which would be adopted as part of the Mitigation Monitoring and Reporting Program.



Edric Kwan, Public Works Director

11/7/2016

Date

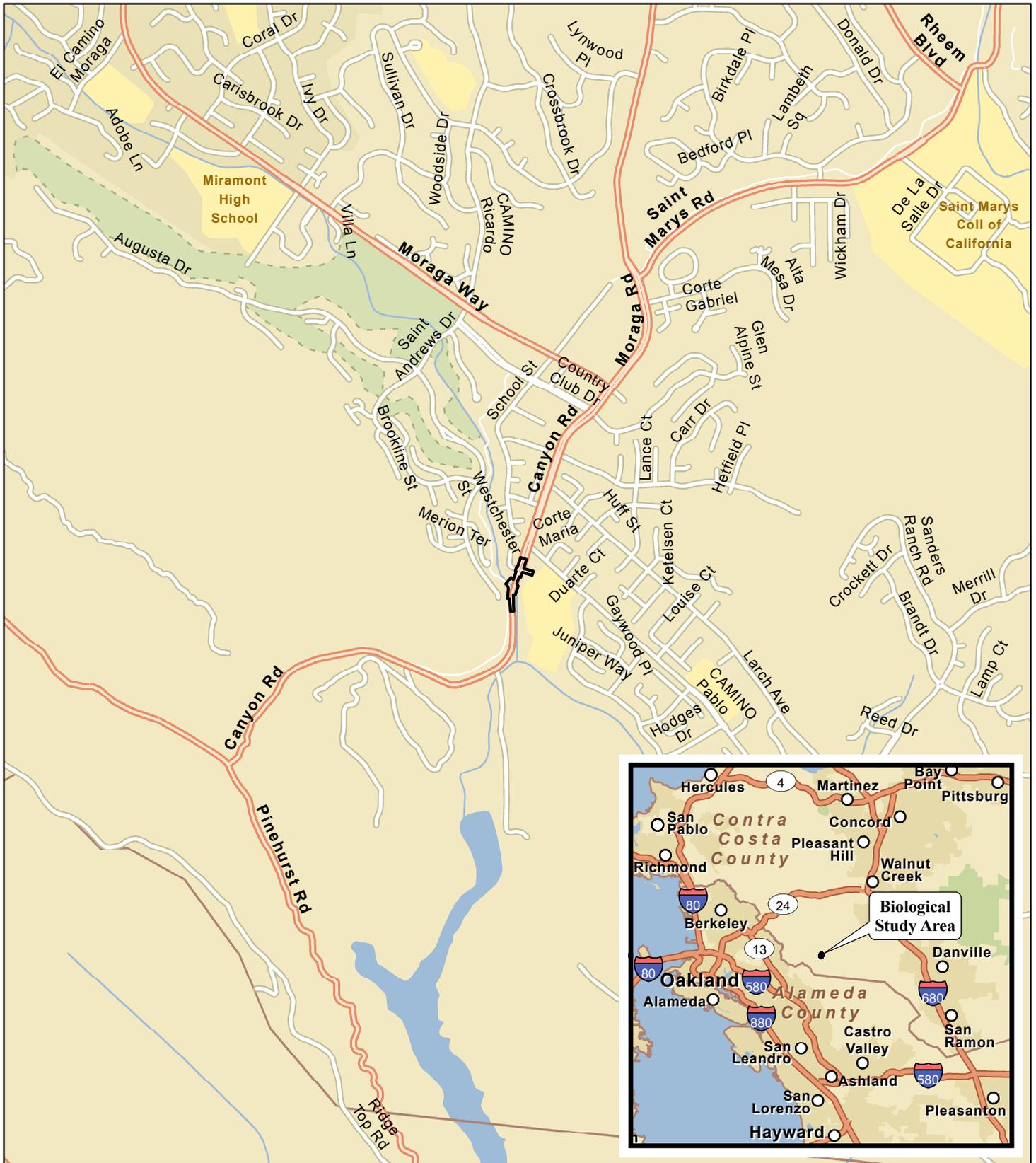


FIGURE 1

LSA

LEGEND

 Project Area

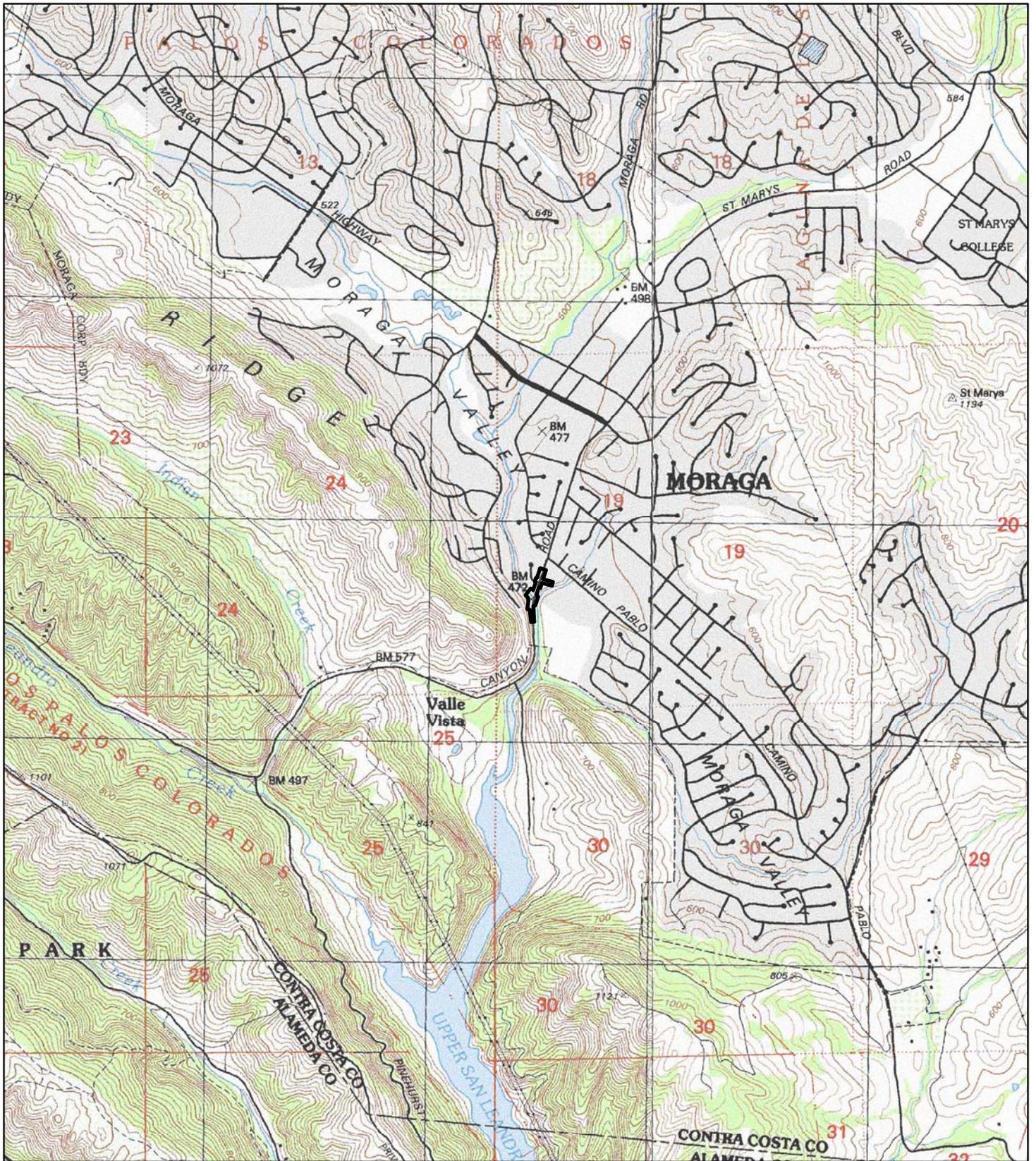


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SOURCE: ESRI StreetMap North America (2012).

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Canyon Road Bridge Replacement Project
Town of Moraga, Contra Costa County, California
Federal ID # BRLS-5415(011)
Regional Location and Project Vicinity Map



LSA

LEGEND

 Project Area

FIGURE 2



SOURCE: USGS 7.5-minute Topo Quads - Oakland East, Calif. (1980) and Las Trampas Ridge, Calif. (1980).

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Canyon Road Bridge Replacement Project
 Town of Moraga, Contra Costa County, California
 Federal ID # BRLS-5415(011)

Project Site

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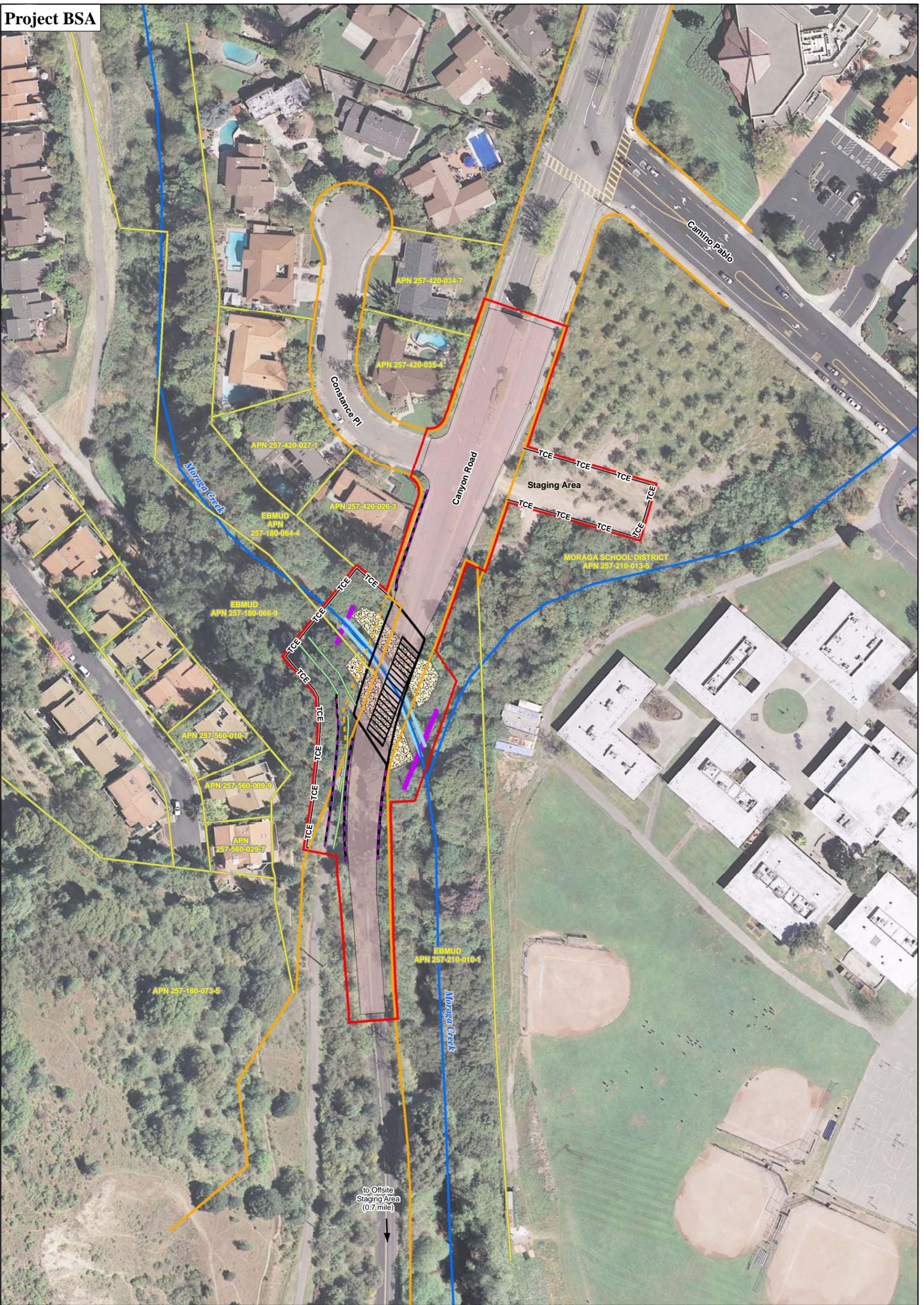
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1. **Project title:**
Canyon Road Bridge Replacement Project
2. **Lead agency name and address:**
Town of Moraga
Public Works Department
329 Rheem Boulevard
Moraga, CA 94556
3. **Contact person and phone number:**
Edric Kwan, Public Works Director
Town of Moraga, Public Works Department
329 Rheem Boulevard
Moraga, CA 94556
T: 925-888-7026
lsucgang@moraga.ca.us
4. **Project location:**
The Canyon Road Bridge over the West Branch of San Leandro Creek (also called Moraga Creek) is located within the Town of Moraga, just south of Constance Place and north of the Contra Costa County line (Figures 1 and 2).
5. **Project sponsor's name and address:**
Town of Moraga
Public Works Department
329 Rheem Boulevard
Moraga, CA 94556
6. **General plan designation:**
The Town of Moraga General Plan Diagram designates Canyon Road as a 4-lane arterial street from near the town center to just south of Camino Pablo. South of Camino Pablo and adjacent to Joaquin Moraga Intermediate School, Canyon Road is designated as a 2-lane arterial street and continues south and west to the Town's limits.
7. **Zoning:**
Canyon Road is designated as public right-of-way on the Town of Moraga Zoning Map.
8. **Description of project:**
The Town of Moraga (Town) proposes to construct the Canyon Road Bridge Replacement Project (proposed project). The proposed project consists of replacing the existing, structurally deficient Canyon Road Bridge over the West Branch of San Leandro Creek (also called Moraga Creek) with a new clear-span bridge, approximately 120 feet long and 48 feet wide. The new bridge would accommodate two 12-foot travel lanes, and two 8-foot-wide shoulders on both sides, serving as bike lanes, and one 5-foot sidewalk to accommodate pedestrians on the west side of the bridge.

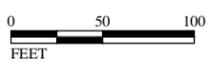
The project site is located within the Town of Moraga, just south of Constance Place and north of the Contra Costa County line. Moraga Creek is part of the Moraga Creek Watershed that is owned and maintained by East Bay Municipal Utility District (EBMUD). Refer to Figure 3 for an aerial

view of the project area. The existing bridge was originally constructed in 1936, is approximately 104 feet long, 24 feet wide, and carries two lanes of traffic. The existing bridge is structurally deficient with a sufficiency rating of 48.8. A sufficiency rating of less than 50 qualifies a bridge for replacement according to the funding guidelines for the Federal Highway Bridge Program.

Project BSA



LSA



LEGEND

- Project Area
- Temporary Construction Easement
- Existing Right-of-way
- Property Line
- Proposed Right-of-way
- Existing Bridge
- Proposed Bridge
- New Roadway and Sidewalks
- Proposed Retaining Wall
- Proposed Trail
- Rock Slope Protection
- Temporary Bypass Culvert
- Temporary Dam
- Creek

FIGURE 3

*Canyon Road Bridge Replacement Project
Town of Moraga, Contra Costa County, California
Federal ID # BRLS-5415(011)
Aerial Photo and Project Area*

SOURCE: NV5 (05/2015); Aerial Imagery from Contra Costa County (2008).

I:\NLT1301\GIS\Maps\ISMND\Figure 3_Aerial Photo and Project Area.mxd (9/14/2016)

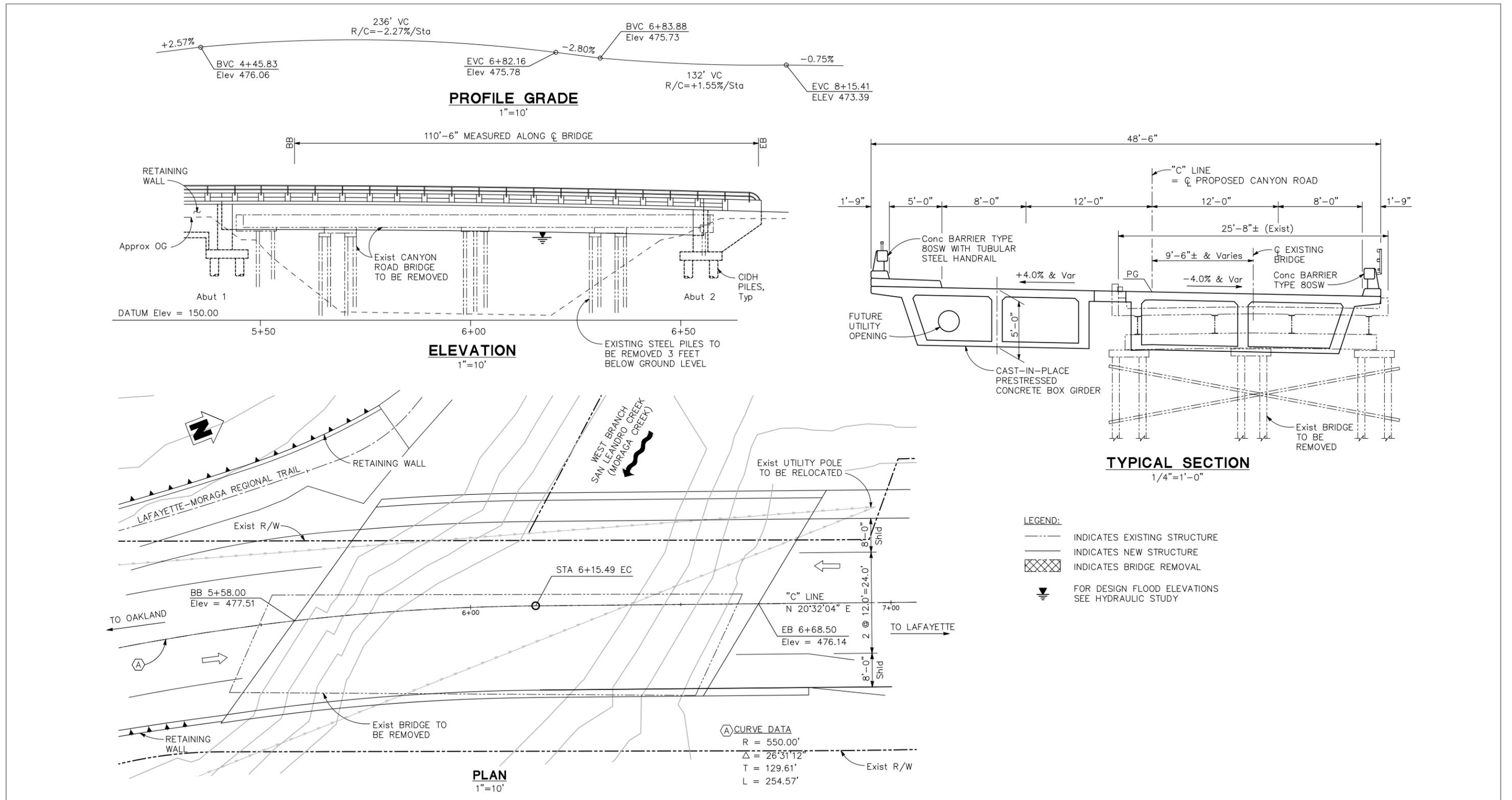
Proposed Bridge. The replacement bridge would be located generally on the same alignment as the existing bridge due to natural site constraints, including the creek alignment downstream of the bridge and a hillside adjacent to the southwest approach of the bridge. The roadway profile at the new bridge would be raised approximately 2 feet higher than the existing bridge in order to accommodate design flood elevations and a deeper structure depth that is needed to clear span the creek. Roadway approach work would be required at each end of the bridge in order to transition from the new bridge profile and geometry and conform to the existing roadway. Refer to Figure 4 for the design of the replacement bridge.

Foundations of the new bridge would be located outside of the 100-year water elevation and be supported on cast-in-drilled-hole (CIDH) piles. CIDH pile installation produces substantially less vibration and noise compared to piles driven with an impact hammer and would have the least impact to the adjacent residences and Joaquin Moraga Intermediate School. Temporary shoring, including steel sheet piling, would be required for stage construction of the bridge, and roadway approaches would be vibrated or driven into place. Rock slope protection would be required on the creek banks to prevent scour under the bridge abutments. Temporary dams would be installed in the creek upstream and downstream of the construction site and connected with a temporary bypass culvert to maintain flow and protect the quality of the creek water during construction. The dams would consist of clean, gravel-filled bags that will be covered with clean plastic sheeting. The temporary dams and bypass culvert would be removed after project construction is complete. New retaining walls would be built along the southeast and southwest edges of the proposed roadway.

A portion of the Lafayette-Moraga Regional Trail (maintained by the East Bay Regional Park District [EBRPD]) that serves recreational cyclists as well as nearby residents that walk to Joaquin Moraga Intermediate School located adjacent to the northeast approach to the bridge is closed due to a recent hill slide that rendered it unusable. Although the date of reconstruction and reopening of this segment of the trail is unknown, if it were reopened prior to construction, it would be rebuilt to conform to the wider roadway and higher profile of the new bridge. The trail also served as a fire access trail and, if reopened prior to construction of the bridge replacement, cannot be closed during construction. The existing timber lagging wall adjacent to the trail would be removed during construction of the southwest abutment to allow installation of a temporary shoring system that would provide sufficient width to maintain access to the existing trail during construction. A new timber lagging wall, similar to the existing, would be rebuilt in roughly the same location as the existing wall.

Need for the Proposed Project. Currently, the Canyon Road Bridge is structurally deficient and the existing geometry is a safety issue for bicyclists and pedestrians who use the bridge to access the Lafayette-Moraga Regional Trail. The proposed project would replace the existing bridge with a new bridge that clear spans the creek and accommodates design flood elevations, resulting in a safer travel route for travelers along Canyon Road. In addition, a portion of the trail would be rebuilt and realigned, increasing safety for bicyclists and pedestrians who use the Lafayette-Moraga Regional Trail.

Construction. Construction is anticipated to take approximately 1 to 2 years. Construction of the new bridge would be staged in order to maintain public and emergency vehicle access across the creek. With staged construction, a portion of the existing bridge would be demolished to allow construction of a portion of the new bridge. Vehicles and bicyclists would be required to cross the bridge one direction at a time with temporary traffic signal controls at each end.



With completion of the first stage of the new bridge, vehicles would be shifted to the new bridge, and the remaining portions of the old, existing bridge would be demolished to allow construction of the second half of the new bridge.

Underground and overhead utilities including water, power, and telephone would be relocated for the bridge reconstruction.

Construction staging/lay down areas that are being considered for the project include a portion of the pear orchard adjacent to the bridge. A temporary construction easement or agreement would be required from Moraga School District for the use of the pear orchard as a construction staging area. No privately held right-of-way takes or easements would be required for the project.

Temporary and permanent rights-of-way would be required from the parcels adjacent to the creek that are owned by EBMUD.

9. Surrounding land uses and setting:

The project site is located along Canyon Road in the southern portion of the Town of Moraga in Contra Costa County. From north to south, the project extends for approximately 900 feet from just north of Constance Place, across Moraga Creek, to approximately 200 feet south of the Canyon Road Bridge. The Lafayette-Moraga Regional Trail is located adjacent to and west of the project site in a residential area and connects to Canyon Road just south of the bridge. Joaquin Moraga Intermediate School and a pear orchard owned by the Moraga School District are located adjacent to and east of the project site. The temporary staging area is located in a portion of the pear orchard along the eastern side of Canyon Road north of the bridge. The project area is surrounded by residential uses to the north, east, and west and public right-of-way to the south. Open space is located southwest of the bridge, west of the Lafayette-Moraga Regional Trail.

The project site is relatively flat, with an elevation ranging from approximately 470 feet above mean sea level (amsl) at the northern end of the project site, to approximately 450 feet where Canyon Road crosses Moraga Creek, and then approximately 470 feet at the southern end of the project site, south of the bridge. Vegetation within the project site consists of riparian woodland between the eastern side of Canyon Road and across Moraga Creek and oak woodland south of the existing Canyon Road Bridge along the west side of Canyon Road.

10. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement): As the Lead Agency for the California Environmental Quality Act (CEQA), the Town is responsible for approving this IS/MND. In addition to CEQA compliance, the following entitlements and approvals are necessary to allow for construction and operation of the project:

- California Department of Fish and Wildlife (CDFW) Section 1602 Streambed Alteration Agreement
- United States Fish and Wildlife Service (USFWS) Section 7 of the Federal Endangered Species Act (FESA)
- United States Army Corps of Engineers Federal Clean Water Act (CWA) Section 404 Nationwide Permit
- Regional Water Quality Control Board (RWQCB) CWA Section 401 Water Quality Certification

- RWQCB National Pollutant Discharge Elimination System (NPDES) Construction General Permit

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” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|--|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural/Forest Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

Determination. (To be completed by the Lead Agency.)

On the basis of this initial evaluation:

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



Edric Kwan, Public Works Director

11/7/2016

Date

EVALUATION OF ENVIRONMENTAL IMPACTS

This section identifies the environmental impacts of this project by answering questions from Appendix G of the CEQA Guidelines, the Environmental Checklist Form. The environmental issues evaluated in this chapter include:

- Aesthetics
- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems
- Mandatory Findings of Significance

All analyses take into account the entire action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. Impacts are categorized as follows:

Potentially Significant Impact is appropriate if there is substantial evidence that an effect is significant, or where the established threshold has been exceeded. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) may be required.

Less Than Significant with Mitigation Incorporated applies where the incorporation of mitigation measures would reduce an effect from Potentially Significant Impact to a Less Than Significant Impact. Mitigation measures are prescribed to reduce the effect to a less than significant level.

Less Than Significant applies when the project will affect or is affected by the environment, but based on sources cited in the report, the impact will not have an adverse effect. For the purpose of this report, beneficial impacts are also identified as less than significant. The benefit is identified in the discussion of impacts, which follows each checklist category.

A **No Impact** answer is adequately supported if referenced information sources show that the impact simply does not apply to projects like the one involved. A No Impact Answer is explained where it is based on project-specific factors as well as general standards.

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The stretch of Canyon Road located within the project area runs immediately adjacent to the eastern bank of Moraga Creek and one of its tributaries. The main branch of Moraga Creek crosses from west to east under the Canyon Road Bridge to join the tributary immediately east of the project site. The visual landscape in the project area is both developed and undeveloped. Lands north of the project site were historically farmed and a pear orchard remains on the east side, while residential development has replaced agriculture on the west side. The Joaquin Moraga Intermediate School is located adjacent to the northeast approach to the bridge just beyond the pear orchard. Lands south of the project site are dominated by woodland riparian vegetation growing immediately adjacent to the Moraga Creek bank and undeveloped land used primarily for grazing livestock. The Lafayette-Moraga Regional Trail, maintained by the East Bay Regional Park District (EBRPD), is located along the west side of Canyon Road and connects Las Trampas Ridge to the Oakland Hills.

Discussion:

a) *Have a substantial adverse effect on a scenic vista?*

Less Than Significant Impact. Canyon Road is a designated Scenic Corridor according to the Community Design Element of the Town’s General Plan. The General Plan requires the protection of viewsheds along scenic corridors, ridgelines, hillsides, and of mature native tree groupings to maintain the Town’s semi-rural character. Per Policy CD3.6 in the General Plan, the Town has also adopted Development Standards and Design Guidelines for Scenic Corridors to control site design and setbacks, landscaping, infrastructure locations, grading, and signage. The project site is located in a relatively flat area with riparian vegetation associated with Moraga Creek, resulting in a limited viewshed. Visible elements of the proposed project would

include the proposed bridge, new retaining walls, new timber lagging wall, and rock slope protection on the creek banks. The roadway profile at the new bridge would be raised approximately 2 feet higher than the existing bridge; however, the grade change is not significant enough to impair surrounding views. Proposed improvements would be constructed almost entirely within the existing roadway right-of-way and would be similar to the existing condition. Implementation of the proposed project would require removal of vegetation and trees within the project area; however, the proposed project would provide similar landscape resources to those existing resources. All areas temporarily impacted during construction would be revegetated with native species. The proposed project would replace an existing bridge and would therefore not result in substantial adverse impacts to scenic views compared to the existing condition. Therefore, implementation of the proposed project would have a less than significant impact on scenic vistas, and no mitigation is required.

- b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway?*

Less Than Significant Impact. The Caltrans Landscape Architecture Program administers the Scenic Highway Program, contained in Streets and Highways Code Sections 260–263. State highways are classified as either Officially Listed or Eligible. No Officially Listed or Eligible State Scenic Highways designated under the Scenic Highway Act are located in close proximity to the project site.¹ Canyon Road is a designated Scenic Corridor according to the Community Design Element of the Town’s General Plan. The General Plan include goals and policies to ensure that scenic corridors are enhanced throughout the Town and has adopted development standards and guidelines to control site design and setbacks, landscaping, infrastructure locations, grading, and signage.

No scenic resources (ancestral or heritage trees², rock outcroppings, or historic buildings) are located on the project site or in the project vicinity. However, project construction would require the removal of native and orchard trees, which are protected under Chapter 12.12 of the Town of Moraga Municipal Code. Tree removal would be required to comply with the terms of the tree removal permit issued by the Town Planning Director. In addition, all trees and vegetation removed would be replaced with similar landscape resources. Further, implementation of Avoidance and Minimization Measure AES-1 would ensure that the proposed improvements are designed to be attractive and well landscaped, consistent with Town policies related to scenic corridors and tree preservation. Therefore, implementation of the proposed project would result in a less than significant impact related to damaging scenic resources within a State Scenic Highway or a locally designated scenic corridor, and no mitigation is required.

Avoidance and Minimization Measure AES-1: The following measures have been identified to lessen visual impacts associated with the proposed project:

¹ California Department of Transportation, 2011. *California Scenic Highway Mapping System. Contra Costa County.* Available online at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/ (last accessed June 30, 2016).

² Chapter 12.12 of the Town of Moraga Municipal Code defines the classes of trees that are protected under the Town’s Tree Preservation Ordinance. None of the trees in the work area have been designated of historic significance. Therefore, no ancestral or heritage trees would be impacted by the proposed project.

- Context-sensitive aesthetic treatments will be incorporated in the design of the bridge structure, and its associated retaining walls, where feasible.
- Design features, such as railings, and hardscape elements, will incorporate context-sensitive solutions where feasible that meet all Caltrans policies and safety requirements.
- All areas temporarily impacted during project construction will be restored to pre-construction contours and revegetated with native species. Areas with rock slope protection will be revegetated with native seed mix, and locally obtained willow cuttings/poles will be installed within the lower sections of rock slope protection.
- The use of standard best management practices (e.g., screening, good housekeeping, phasing to minimize disturbance) will be implemented to reduce the temporary effects of construction activities.
- Replacement planting will be provided. Such planting will include trees and shrubs as appropriate to the visual setting and project features.
- Trees to be preserved will be protected consistent with the requirements of the Town's Tree Preservation Ordinance. A tree protection zone shall be designated around the trees.

c) *Substantially degrade the existing visual character or quality of the site and its surroundings?*

Less Than Significant Impact. The proposed project includes replacing an existing bridge and associated improvements. The project corridor consists of an existing road and bridge, a small segment of the Lafayette-Moraga Regional Trail, Moraga Creek, and associated vegetation. Surrounding uses include a school, rural residential development, an orchard, and undeveloped land. Due to the topography of the project site (i.e., relatively flat) and the existing riparian vegetation in the project area, views of the project site are limited.

During construction, activities such as excavation, trucks hauling materials, and use of machinery would be visible to some viewers along Canyon Road and adjacent uses. Construction and equipment would be staged in a portion of the pear orchard on the east side of Canyon Road. The construction period would be temporary; therefore, the presence of construction equipment would result in minor short-term changes in the views from the local roadways and adjacent uses.

Implementation of the proposed project would raise the roadway approaches and bridge by approximately 2 feet; however, the grade change is not significant enough to impact the current visual character or quality of the project site. The most noticeable change to viewers in the area (i.e., motorists traveling along Canyon Road and bicyclists and pedestrians) from implementation of the proposed project would be the new, wider single-span bridge and the new retaining walls. However, the architectural style, mass, and form of proposed improvements would be consistent with the existing roadway infrastructure in the project area and viewer sensitivity to these visual changes is expected to be minimal. Temporary visual changes associated with the proposed project include placement of rock slope protection and removal of existing vegetation and trees. However, areas with rock slope protection would be

revegetated and removed vegetation and trees would be replaced. The removal of vegetation and trees would be a temporary visual impact and would gradually diminish over time as replacement vegetation and trees mature. New vegetation and trees can reasonably be expected to reach mature growth within approximately 5 years.

Overall, changes to views to and from the project site would be minimal. Construction of the replacement bridge along with other proposed improvements, including installation of retaining walls, changes to the bridge approaches, and erosion control measures, would preserve the essential character of the views, which consist of urban development/roadway infrastructure and riparian vegetation and oak woodland. Further, implementation of Avoidance and Minimization Measure AES-1 would further minimize visual impacts associated with the proposed project by ensuring that the design of the proposed improvements are attractive and well landscaped. Therefore, implementation of the proposed project would result in a less than significant impact related to substantially degrading the existing visual character or quality of the site and its surroundings, and no mitigation is required.

- d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

No Impact. Streetlights, vehicle headlights and tail lights, and lighting along Canyon Road associated with existing nearby residential development provide the existing sources of light and glare in the project area. The proposed project would replace an existing bridge. No new light standards would be installed as part of the proposed project. Replacement of the bridge structure would not generate any additional traffic (e.g., additional vehicle headlights) or light or glare. Therefore, implementation of the proposed project would not create a new source of light or glare which would adversely affect day or nighttime views. No impact would occur, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURAL AND FOREST 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 forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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 a non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in 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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

A majority of the project site is mapped as “Urban and Built-Up Land” by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). A small portion of the project site

and the off-site staging area are mapped as “Grazing Land.”³ Urban and Built-Up Land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment and water control structures. Grazing Land is land on which the existing vegetation is suited for the grazing of livestock.

The California Land Conservation Act of 1965, commonly 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 related open space use. The project site is not zoned for agricultural use and is not under a Williamson Act contract.

No forest land or timberland is identified on or near the project site, and the project site is not zoned for forest or timber uses.

Discussion:

- 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 a non-agricultural use?*

No Impact. The project site is not used for agricultural production and is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared pursuant to the FMMP of the California Department of Conservation. As stated above, the project site is designated Urban and Built-Up and Grazing Land. Therefore, implementation of the proposed project would not convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or any other type of farmland to a non-agricultural use, and no mitigation is required.

- b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact. The project site is not used for agricultural production, is not zoned for agricultural use, and is not protected by a Williamson Act contract. Therefore, implementation of the proposed project would not result in any impacts related to zoning for an agricultural use, or a Williamson Act contract land, and no mitigation is required.

- 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))?*

No Impact. The project site is currently used for transportation purposes and is not used for timberland production, is not zoned for forest land or timberland, and does not contain forest

³ California Department of Conservation, Division of Land Resource Protection, 2014. *Contra Costa County Important Farmland 2012*. Available online at: <ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/con12.pdf> (last accessed November 24, 2015).

land or timberland. Therefore, implementation of the proposed project would not result in any impacts to forest land or timberland, and no mitigation is required.

d) *Result in the loss of forest land or conversion of forest land to non-forest use?*

No Impact. See Response II (c) above.

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?*

No Impact. Refer to Responses II (a) and II (c) above. Implementation of the project would not convert farmland to a non-agricultural use or forest land to non-forest uses. Likewise the project would not contribute to environmental changes that could result in the conversion of farmland to a non-agricultural use or forest land to non-forest uses. Therefore, implementation of the proposed project would not result in impacts to agricultural or forest resources, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment:

The project site is located in Contra Costa County, within the San Francisco Bay Air Basin (SFBAB), within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD regulates air quality in the San Francisco Bay Area. Air quality conditions in the SFBAB 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. Within the SFBAB, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM₁₀, PM_{2.5}), and lead (Pb) have been set by both the State of California (State) and the federal government. The State has also set standards for sulfate and visibility. As of July 2012, the SFBAB is under non-attainment status for ozone and particulate matter (PM₁₀ and PM_{2.5}) for State standards. The SFBAB is classified as marginal non-attainment for the federal ozone 8-hour standard.

Discussion:

a) *Conflict with or obstruct implementation of the applicable air quality plan?*

Less Than Significant Impact. The air plan applicable to the project site is the BAAQMD Bay Area 2010 Clean Air Plan (Clean Air Plan), which was adopted on September 15, 2010.⁴ The

⁴ Bay Area Air Quality Management District, 2010. *Bay Area 2010 Clean Air Plan*. September 15.

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 emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project does the following: 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. An evaluation of the proposed project's consistency with each of these criteria is provided below.

- (1) **Clean Air Plan Goals.** The primary goals of the 2010 Clean Air Plan are to: attain air quality standards; reduce population exposure to air pollutants and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect the climate. As indicated in the following analysis, the proposed project would not exceed the BAAQMD's significance criteria for air pollutants or greenhouse gas emissions. Therefore, implementation of the proposed project would support the goals outlined in the 2010 Clean Air Plan.
- (2) **Clean Air Plan Control Measures.** Control measures included in the Clean Air Plan include stationary source measures, transportation control measures, mobile source measures, land use and local impact measures, and energy and climate measures to reduce carbon monoxide and ozone precursor emissions. The transportation control measures are designed to reduce emissions from motor vehicles by reducing vehicle trips and vehicles miles traveled (VMT), in addition to vehicle idling and traffic congestion. The proposed project would not increase VMT and thus would not increase regional carbon monoxide and ozone precursor emissions. Therefore, implementation of the proposed would not conflict with applicable control measures described in the 2010 Clean Air Plan.
- (3) **Clean Air Plan Implementation.** Because the proposed project would not increase VMT, the proposed project would not hinder or disrupt implementation of any of the control measures from the Clean Air Plan.

In summary, the proposed project would not conflict with or obstruct implementation of the Clean Air Plan. This impact would be less than significant, and no mitigation is required.

- b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Potentially Significant Unless Mitigation Incorporated. Air pollutant emissions associated with the proposed project would occur in the short term during construction activities, such as vehicle and equipment use. The proposed project would not generate long-term air pollutant emissions during operation as described below.

Short-Term (Construction) Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading,

hauling, and other activities. Construction activities could generate exhaust emissions from utility engines, on-site construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting construction crews. Exhaust emissions during construction would vary daily as construction activity levels change. Although the construction phase of the proposed project would result in a net increase in criteria pollutants such as CO, Ozone (O₃), NO₂, SO₂, and Pb, the emission of these criteria pollutants would be temporary in nature, and would cease when construction is completed. Due to the short duration in construction (1 to 2 years), limited construction area and limited construction equipment usage, emissions associated with the project would not be expected to exceed the BAAQMD daily emission thresholds. Further, the BAAQMD requires the implementation of BMPs to reduce exhaust emissions from construction equipment during construction, as specified in Mitigation Measure AIR-1.

Fugitive dust emissions are associated with excavation, land clearing, exposure, and cut-and-fill operations. Dust generated daily during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. On a limited basis, surrounding land uses and on-site construction workers may be exposed to blowing dust, depending on the prevailing wind. BAAQMD specifies mitigation measures for dust control related to construction projects. These mitigation measures are intended to reduce suspended particulate matter (PM) including PM₁₀ and PM_{2.5} emissions to less than significant levels during the construction period. Implementation of Mitigation Measure AIR-1 which requires the implementation of Best Management Practices (BMPs) would reduce diesel PM exhaust and ROG emissions as well as construct dust PM₁₀ and PM_{2.5} impacts during construction to a less than significant level.

Mitigation Measure AIR 1: Consistent with guidance from the Bay Area Air Quality Management District (BAAQMD), the following BMPs shall be implemented at the construction site to control construction emissions:

- 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 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and contact information for the designated on-site construction manager available to receive and respond to dust complaints. This person shall report all complaints to the Town of Moraga and take immediate corrective action as soon as practical but not more than 48 hours after the complaint is received. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.
- The project contractor shall use low volatile organic compound (i.e., Reactive Organic Gas [ROG]) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
- All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
- All contractors shall use equipment that meets California Air Resources Board's (ARB's) most recent certification standard for off-road heavy duty diesel engines.

The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD's *CEQA Air Quality 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.
- 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).

The proposed project would not conflict with the Contra Costa Transportation Authority's Countywide Transportation Plan⁵ for designated roads or highways, a regional transportation plan, or other agency plans. In addition, the proposed project would consist of reconstruction of an existing bridge to accommodate existing vehicle traffic and to allow for bicycle and pedestrian access. The proposed project would not increase traffic volumes to more than 24,000 vehicles per hour. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards and would not result in localized CO impacts.

⁵ Contra Costa Transportation Authority, 2014. *County Wide Transportation Plan*. August.

Long-Term (Operational) Emissions. Long-term air emission impacts are associated with any change in permanent use of the project site by on-site stationary and off-site mobile sources that substantially increase vehicle trip emissions. No stationary sources are associated with the proposed project. Once completed, the proposed project would not generate significant vehicle or other emissions. In addition, the project would support alternative modes of transportation (i.e., bicycle and pedestrian). Therefore, long-term operation of the proposed project would not contribute substantially to an existing or projected air quality violation.

- c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Potentially Significant Unless Mitigation Incorporated. As discussed in Section III (b), with implementation of Mitigation Measure AIR-1, construction of the proposed project would not result in the generation of significant levels of criteria air pollutants or pollutant precursors.

Operation of the proposed project would not generate long-term air quality emissions that would result in a cumulatively considerable net increase of any criteria pollutant or pollutant precursors, and no mitigation is required.

- d) *Expose sensitive receptors to substantial pollutant concentrations?*

Potentially Significant Unless Mitigation Incorporated. Sensitive receptors include residences, schools, playgrounds, childcare centers, convalescent centers, retirement homes, and athletic fields. The closest sensitive receptors to the project site are located approximately 100 feet from the limits of construction. Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates as well as to a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). These sensitive receptors are not expected to experience a substantial increase in pollutant concentrations during construction due to the implementation of Mitigation Measure AIR-1. Therefore, implementation of Mitigation Measure AIR-1 would reduce potential construction-related impacts to sensitive receptors.

Operation of the proposed project would not generate long-term air quality emissions and therefore would not expose sensitive receptors to substantial pollutant concentrations, and no mitigation is required.

- e) *Create objectionable odors affecting a substantial number of people?*

Less Than Significant Impact. Odors, in contrast to other pollutants, are generally regarded as a nuisance, not a health hazard. Odor impacts arise from siting a new odor source near an existing sensitive receptor (e.g., hospital or residential uses) or siting a new sensitive receptor near an existing odor source. Additionally, construction activity may generate temporary odor impacts. The ability to detect odors depends on the following factors: nature of the odor source (e.g., wastewater treatment plant), frequency of odor generation and intensity of odor, distance

of odor source to sensitive receptors, wind direction, and sensitivity of the receptor (e.g., hospital). The project site would not be considered a sensitive receptor.

During construction of the proposed project, some odors may be present due to diesel-powered construction equipment. However, these odors would be temporary, limited to the construction period, and are not anticipated to be substantial. Operation of the proposed project would not introduce any new permanent sources of odor and is not anticipated to result in objectionable odors in the long term. Therefore, implementation of the proposed project would result in a less than significant impact associated with creating objectionable odors affecting a substantial number of people, and no mitigation is required.

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

Affected Environment:

The following section is summarized from the Natural Environment Study (NES)⁶ prepared for the proposed project. LSA conducted a reconnaissance-level biological resources assessment of the project area⁷ that included background research, reconnaissance-level field surveys, focused plant surveys, and a preliminary jurisdictional delineation. The portion of Canyon Road located within the project area is

⁶ LSA. 2016. *Natural Environment Study*. June.

⁷ For the purpose of the Biological Resources section, the project area encompasses the project footprint and adjacent areas that may be directly or indirectly affected by the project.

adjacent to the eastern bank of Moraga Creek and one of its tributaries. Moraga Creek crosses from west to east under the Canyon Road Bridge to join the tributary immediately east of the project site. To the north of the Canyon Road Bridge, a pear orchard and residential development borders the east and west side of the roadway, respectively. The southern portion of the project area is dominated by woodland riparian vegetation.

Prior to visiting the site, LSA reviewed the following electronic databases for species that could potentially occur within the vicinity of the project area:

- California Natural Diversity Database (CNDDDB) (2015);
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (2015); and
- United States Fish and Wildlife Service (USFWS) Online Special Status Species List (2015).

LSA conducted two site reconnaissance-level surveys on January 21, 2014 and October 15, 2014, a focused plant survey on February 24, 2014, and a preliminary jurisdictional delineation on February 12, 2015 to assess the biological condition of the project area for the presence of various special-status biological resources, including plants, wildlife, habitat, and potential wetlands and jurisdictional waters.

For the purpose of this IS/MND, special-status species are defined as follows:

- Species that are listed, formally proposed, or designated as candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA);
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);
- Plant species assigned to California Rare Plant Ranks 1A, 1B, 2A, 2B, 3, and 4;
- Animal species designated as Species of Special Concern or Fully Protected by the California Department of Fish and Wildlife (CDFW);
- Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines; and
- Species considered to be a taxon of special concern by local agencies.

Vegetation. Two natural vegetation communities are located within the project area, oak woodland and riparian woodland, which are described below. Two land cover types that have been altered by human activity are located within the project area, orchard and developed. Due to the disturbed nature of these land covers, they are not discussed any further.

- **Oak Woodland:** Approximately 0.23 acre of oak woodland is located within the project area, south of the existing Canyon Road Bridge along the west side of Canyon Road. The tree canopy is dominated by coast live oak (*Quercus agrifolia*) and California bay (*Umbellularia californica*). Although coast live oak and California bay are the most common tree species, California buckeye

also occurs (*Aesculus californica*). The understory includes poison oak (*Toxicodendron diversilobum*) and coyote brush.

- **Riparian Woodland:** Approximately 0.60 acre of riparian woodland is located within the project area between the eastern side of Canyon Road and across Moraga Creek. Tree cover in this area is nearly 100 percent and species include Fremont's cottonwood (*Populus fremontii*), California bay, California buckeye, coast live oak, and arroyo willow (*Salix lasiolepis*). Scattered through this habitat are a few very large Monterey pines and a number of domestic plums (*Prunus cerasifera*). Although cottonwood and California buckeye are deciduous trees, they provide dense shade to the creek during the summer months. The understory plants on the upper banks of Moraga Creek consist of coyote brush and poison oak.

Wildlife. Larger terrestrial mammals such as the mule deer (*Odocoileus hemionus*), bobcat (*Felis rufus*), and coyote (*Canis latrans*) are known to be present in the project vicinity. Smaller mammal species such as pocket gopher (*Thomomys bottae*), California vole (*Microtus californicus*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), and northern raccoon (*Procyon lotor*) are resident in the area. These species likely use the riparian woodland and oak woodland habitat for movement or as foraging/shelter habitat. The riparian woodland and oak woodland areas also provide suitable foraging and/or nesting habitat for a wide variety of resident and migratory bird species, including the American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), California scrub-jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), and turkey vulture (*Cathartes aura*). Wildlife species observed in the project area during the field survey include Anna's hummingbird (*Calypte anna*), dark-eyed junco (*Junco hyemalis*), California towhee (*Pipilo crissalis*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*).

Special-status Species. Based on the results of the database searches and observed habitat conditions, LSA identified 26 special-status species (11 plants and 15 wildlife) as potentially occurring in the project area and site vicinity (Table A and Table B). Species only occurring in alkaline, saline, or serpentine soils, inland dunes, vernal pools, tidal salt marshes, or brackish marshes are not included in the table since the habitat type is not present in the project area.

Of the 11 special-status plant species and 15 special-status wildlife species, only two plant and eight wildlife species have suitable or marginally suitable habitat within the project area. The two plant species include western leatherwood (*Dirca occidentalis*) and oval-leaf viburnum (*Viburnum ellipticum*). The following wildlife species have suitable or marginally suitable habitat within the project area: Central Coast steelhead (*Oncorhynchus mykiss*), foothill yellow-legged frog (*Rana boylei*), California red-legged frog (*Rana draytonii*), western pond turtle (*Actinemys marmorata*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), and San Francisco dusky-footed woodrat.

Table A: Special-status Plant Species Potentially Occurring in the Project Area and Project Vicinity

Scientific Name	Common Name	Status (F/S/CRPR)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
<i>Amsinkia lunaris</i>	Bent-flowered fiddleneck	--/--/Rank 1B.2	Grassland, scrub, and woodlands usually in siliceous shale soils; blooms March–June.	Absent	No siliceous shale soils are within the project area. No species of <i>Amsinkia</i> were observed during site visits.
<i>Balsamorhiza macrolepis</i>	Big-scale balsamroot	--/--/Rank 1B.2	Thin, rocky soil, sometimes on serpentine, grasslands and woodlands; blooms March–June.	Absent	No thin rocky soils are within the project area. No species of <i>Balsamorhiza</i> were observed during site visits.
<i>California macrophylla</i>	Round-leaved filaree	--/--/Rank 1B.2	Valley and foothill grassland. Friable clay soils in open areas. Blooms March–May.	Absent	No undisturbed open grassland areas are within the project area. No <i>California macrophylla</i> was observed during site visits.
<i>Centromadia parryi</i> ssp. <i>congdonii</i>	Congdon’s spikeweed	--/--/Rank 1B.1	Valley and foothill grassland. Typically associated with alkaline soils in open areas. Blooms May–October.	Absent	Not expected or reported from this area.
<i>Dirca occidentalis</i>	Western leatherwood	--/--/Rank 1B.2	Occurs in variety of forest and woodland habitats; blooms January–April.	Present	Suitable woodland and riparian habitats are within the project area. Records exist from Chabot Regional Park and the headwaters of San Leandro Reservoir both just over 2 miles to the south. A botanical survey focused on leatherwood was conducted during the blooming season but the species was not observed.
<i>Fritillaria liliacea</i>	Fragrant fritillary	--/--/Rank 1B.2	Heavy soil, often on serpentine, in grasslands, northern coastal scrub, redwood forest; blooms February–April.	Absent	No heavy or serpentine soils are within the project area. No species of <i>Fritillaria</i> were observed during site visits.

Scientific Name	Common Name	Status (F/S/CRPR)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
<i>Helianthella castanea</i>	Diablo helianthella	--/--/Rank 1B.2	Thin, rocky soil, grassy hillsides, 500–4,000 feet; foothill woodland, chaparral; blooms April–May.	Absent	No thin rocky soils are within the project area. No species of <i>Helianthella</i> or the similar <i>Wyethia</i> were observed during site visits.
<i>Monolopia gracilens</i>	Woodland woolythreads	--/--/Rank 1B.2	Sandy or rocky soil openings in woodland and chaparral habitats; blooms March–July.	Absent	No sandy or rocky soils are within the project area. No species of <i>Monolopia</i> were observed during site visits.
<i>Plagiobothrys diffusus</i>	San Francisco popcorn-flower	--/SE/List 1B.1	Coastal prairie and valley grasslands. Blooms March–June.	Absent	No undisturbed open grassland areas are within the project area. No species of <i>Plagiobothrys</i> were observed during site visits.
<i>Sanicula maritima</i>	Adobe sanicle	--/CR/List 1B.1	Vernally moist, often disturbed sites. Blooms February–May.	Absent	No vernal moist, rocky soils are within the project area. No species of <i>Sanicula</i> were observed during site visits.
<i>Viburnum elipticum</i>	Oval-leaf viburnum	--/--/Rank 2B.3	Chaparral, woodlands, and forests; blooms May–June.	Present	Suitable woodland habitats are within the project area. Records exist from near Rossmoor just over 3.5 miles to the east. A botanical survey focused on oval-leaf viburnum was conducted but the species was not observed.

F = Federally listed status

S = State listed status

SE = State listed as endangered

SR = State listed as rare

CRPR = California Rare Plant Rank

California Rare Plant Ranks:

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

Table B: Special-status Wildlife Species Potentially Occurring in the Project Area and Project Vicinity

Scientific Name	Common Name	Status (F/S/CDFW)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
Invertebrates					
<i>Euphydryas editha bayensis</i>	Bay checkerspot butterfly	FT/--/--	Grasslands in valleys and hillside where there are stands of the larval host plant, <i>Plantago erecta</i> .	Absent	No stands of <i>Plantago erecta</i> are present in the project area.
<i>Speyeria callippe callippe</i>	Callippe silverspot butterfly	FE/--/--	Grasslands in valleys and hillside where there are stands of the larval host plant, <i>Viola pedunculata</i> .	Absent	No stands of <i>Viola pedunculata</i> are present in the project area.
Fish					
<i>Oncorhynchus mykiss</i>	Central California Coast steelhead Central Valley steelhead	FT/--/--	An anadromous form of this species must have an accessible route between the ocean and upstream portions of rivers for breeding. Clear, cool riffles with gravel or cobble substrate are necessary for spawning; clear, cool riffles and pools as rearing habitat.	Present	The species has been documented in Moraga Creek. This population is landlocked, by the Lake Chabot and Upper San Leandro Reservoir dams, and these fish are considered rainbow trout and not steelhead.
<i>Oncorhynchus tshawytscha</i>	Central Valley spring-run Chinook salmon Central Valley winter-run Chinook salmon	FT/ST/--	Clear, cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.	Absent	The Lake Chabot and Upper San Leandro Reservoir dams prohibit anadromous salmonids from moving up or downstream to and from the ocean.

Scientific Name	Common Name	Status (F/S/CDFW)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
Amphibians					
<i>Ambystoma californiense</i>	California tiger salamander – Central Valley DPS	FT/ST/--	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.	Absent	The project area is located well outside of the species known range. California tiger salamanders are not present north of I-580 and west of I-680. The closest verifiable records are from approximately 15 miles to the northeast (Concord Naval Weapons Station) and 14 miles to the southeast (Dougherty Valley). The project area does not contain suitable upland habitat and no suitable seasonal breeding pools are within dispersal distance.
<i>Rana boylei</i>	Foothill yellow-legged frog	--/--/SSC	Streams with rocky or cobbly substrate that flow at least to May.	Present	The project area and vicinity have suitable habitat for this species. A report is in the CNDDDB of foothill yellow-legged frog in Orinda; however, in photos of this observation there is a Pacific treefrog (<i>Pseudacris sierra</i>). The species has not been documented in the Oakland/Berkeley hills since the 1970s and is considered extirpated from Contra Costa County. The nearest known populations are in the upper Alameda Creek watershed in southern Alameda County.

Scientific Name	Common Name	Status (F/S/CDFW)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
<i>Rana draytonii</i>	California red-legged frog	FT/--/SSC	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.	Present	The project area contains potential breeding habitat and suitable movement and upland habitat for this species. The nearest known breeding location is 1.9 miles upstream from the project site. This species can be considered potentially affected by the proposed project.
Reptiles					
<i>Actinemys marmorata</i>	Western pond turtle	--/--/SSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation.	Present	The project area is very shaded but provides aquatic habitat for movement of this species. Pond turtles are present in the Upper San Leandro Reservoir. The proposed project can be considered to potentially have an effect on the movement of this species.
<i>Masticophis lateralis euryxanthus</i>	Alameda whipsnake	FT/ST/--	Chaparral, rocky outcrops, south facing slopes, and ravines within valley-foothill grassland with shrubs and oak trees in Alameda and Contra Costa counties.	Present	Movement habitat is within the project area. The species could pass through the project area during long distance movements. The closest known occurrence of this species was recorded approximately 1.2 miles from the project site.

Scientific Name	Common Name	Status (F/S/CDFW)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
Birds					
<i>Agelaius tricolor</i>	Tricolored blackbird	--/SLC/	Nesting usually occurs in areas of dense cattails and/or tall bulrushes in creeks or ponds, tall mustard (<i>Brassica</i> sp.), grain stalks in fields, or Himalayan blackberry (<i>Rubus discolor</i>).	Absent	Suitable large patches of cattails, bulrushes, dense and tall ruderal plants, and grasses are absent from the project area.
<i>Athene cunicularia</i>	Burrowing owl	--/--/SSC	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.	Absent	No mammal burrows or other features suitable for nesting or roosting were observed in the project area. The project area and project vicinity are too steep and wooded to provide nesting/foraging habitat.
Mammals					
<i>Antrozous pallidus</i>	Pallid bat	--/--/SSC	Usually maternity roosts occur in enclosed areas of buildings, caves, and mines. Forages in a wide variety of open habitats.	Present	The underside of the existing bridge and the other portions of the project area do not provide suitable roosting habitat for this species. No habitat for maternity roosts is within the project area.

Scientific Name	Common Name	Status (F/S/CDFW)	General Habitat Description	Habitat Present /Absent in Project Area	Rationale
<i>Corynorhinus townsendii townsendii</i>	Townsend's big-eared bat	--/SLC/SCC	Usually maternity roosts occur in enclosed areas of buildings, caves, and mines. Forages along habitat edges, often gleaning insects from trees or shrubs.	Present	The underside of the existing bridge and the other portions of the project area do not provide suitable roosting habitat for this species. No habitat for maternity roosts is within the project area.
<i>Taxidea taxus</i>	American badger	--/--/SSC	Large, open grassland areas with plentiful prey such as pocket gophers and ground squirrels.	Absent	No large open expanses of grassland are present within the project area. The nearest known occurrence is 4.21 miles from the project site and was recorded in 2002.
<i>Neotoma fuscipes annectens</i>	San Francisco dusky-footed woodrat	--/--/SSC	Woodlands and riparian forests and thickets.	Present	Suitable habitat is present for this species in the project area. Stick houses are present.

Status: FE = federally endangered; FT = federally threatened; ST = State threatened; SLC = State-listed candidate, SSC = State species of special concern.

Discussion:

- 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 Wildlife or U.S. Fish and Wildlife Service?*

Potentially Significant Unless Mitigation Incorporated. 26 special-status species (11 plants and 15 wildlife) were identified as potentially occurring in the project area and project vicinity. Of the 11 plant species and 15 wildlife species, only two plant and eight wildlife species have suitable or marginally suitable habitat present within the project area. Potential impacts to special-status plant and wildlife species are described below.

Special-status Plant Species. The project area provides suitable habitat for western leatherwood and oval-leaf viburnum. These species were not observed during the general or focused plant surveys of the project area and are therefore considered absent and would not be impacted by implementation of the proposed project. Therefore, implementation of the proposed project would not impact any special-status plant species.

Special-status Wildlife Species. The project area has suitable or marginally suitable habitat for several special-status wildlife species, as described below.

San Francisco Dusky-footed Woodrat. San Francisco dusky-footed woodrat is a California Species of Special Concern and inhabits woodlands and scrub habitats throughout the Bay Area. Numerous dusky-footed woodrat stick houses were observed scattered within and adjacent to the project area during the field surveys. Implementation of the proposed project would result in a direct loss of several woodrat houses located within the project area. Implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-3 would reduce impacts to dusky-footed woodrat to less than significant levels.

Mitigation Measure BIO-1: The proposed project shall implement the following measures to minimize potential construction-related impacts to San Francisco dusky-footed woodrat:

- A CDFW-approved biologist shall survey the project site 60 days before the start of construction activities to locate and map any woodrat houses within the project area.
- At least 48 hours prior to any project activity, the approved biologist shall disassemble all woodrat houses within the project area by hand or using hand held implements such as pitchforks and rakes. The proposed project shall avoid disturbing woodrat houses between March 1 and July 1, when dusky-footed woodrats are most likely nursing and rearing young. To reduce concerns that woodrats might be less active or subject to cold exposure during the period between October 1 and March 1, the relocation program shall be implemented during dry weather when nighttime lows are predicted to remain above 45 degrees Fahrenheit for a period of at least 3 days.

California red-legged frog. California red-legged frog is a federally listed species and is also a California Species of Special Concern. California red-legged frog is known to occur in the Moraga Creek system, upstream of the project site. Additionally, all of Moraga Creek is considered to be suitable aquatic habitat for California red-legged frog. The segment of Moraga Creek that runs through the project area provides both suitable aquatic and aquatic movement habitat. The project area is located outside of California red-legged frog Critical Habitat as designated by the USFWS; however, approximately 1 acre of suitable California red-legged frog upland and aquatic habitat is present within the project area.

Construction activities associated with the bridge replacement would temporarily disturb 0.69 acre of suitable upland/movement habitat of California red-legged frog. In addition, implementation of the proposed project would permanently eliminate 0.02 acre of California red-legged frog aquatic habitat. Implementation of Mitigation Measure BIO-2 would reduce potential impacts to California red-legged frog to less than significant levels.

Mitigation Measure BIO-2: The proposed project shall implement the following measures to minimize impacts to California red-legged frog:

- At least 15 days prior to the start of construction activities, the Town's Public Works Department shall submit the name(s) and credentials of biologists who will conduct activities specified in the following measures. Project activities shall not begin until the Town's Public Works Department has received written approval from the USFWS that the biologists are qualified to conduct the work.
- A USFWS-approved biologist shall survey the project site 48 hours before the start of construction activities. If any life stages of California red-legged frog are found and these individuals are likely to be injured by work activities, the USFWS-approved biologist shall be allowed sufficient time to move them from the site before work activities begin. The USFWS-approved biologist shall relocate the California red-legged frog the shortest distance possible to a location that contains suitable habitat and will not be affected by activities associated with the proposed project. The USFWS-approved biologist shall maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs [digital preferred]) to assist him or her in determining whether translocated animals are returning to the original point of capture.
- Before any activities begin in the work area, the approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and Alameda whipsnake and its habitat, the specific measures that are being implemented to conserve the California red-legged frog and Alameda whipsnake for the current project, and the boundaries. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
- Ninety (90) days prior to any construction activities, a temporary silt fence or other wildlife exclusion fencing suitable for amphibians and reptiles shall be erected along the perimeter of the construction area (which includes proposed staging areas), to prevent entry of amphibians and reptiles into the construction area and to deter construction personnel from accessing adjacent habitat (4 foot for barrier fencing and

24 inch for silt/exclusion fencing). The bottom 6 inches of exclusion fence must be buried and 36 inches must remain above ground level. The approved biologist shall verify appropriate placement of the construction fencing prior to the start of construction. The fence shall be inspected on a daily basis to ensure that it remains in place without any breaks or openings. If any amphibians or reptiles are found trapped within the exclusion fencing, the species shall be removed and released upstream or downstream of the project area by the approved biologist.

- A USFWS-approved biologist shall be present at the work site until all California red-legged frogs and Alameda whipsnakes have been removed, workers have been instructed, and disturbance of habitat has been completed. After this time, the Town's Public Works Department shall designate a person to monitor on-site compliance with all conservation measures. The resume of the designated monitor shall be sent to the USFWS for approval prior to monitoring. The USFWS-approved biologist shall ensure that this monitor receives the necessary training in the identification of California red-legged frog and Alameda whipsnake. If the monitor or the USFWS-approved biologist recommends that work be stopped because these species would be affected to a degree that exceeds the levels anticipated by the Town's Public Works Department and the USFWS during review of the proposed action, they shall notify the resident engineer (the engineer that is directly overseeing and responsible for construction activities) immediately. The resident engineer shall either resolve the situation by eliminating the effect immediately or require that all actions which are causing these effects be halted. If work is stopped, the USFWS shall be notified as soon as is reasonably possible.
- During project activities, all trash that may attract predators shall be properly stored in a container with a tightly fitted lid, removed from the work site, and disposed of on a regular basis. Following construction, all trash and construction debris shall be removed from the construction site.
- All refueling, maintenance, and staging of equipment and vehicles shall occur at least 60 feet from riparian habitat or water bodies and not in a location where a spill would drain directly toward aquatic habitat. The monitor shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the Town's Public Works Department shall prepare a plan for prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- The number of access routes, size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. An environmentally sensitive area (ESA) shall be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to special-status species aquatic and upland habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
- The Town's Public Works Department shall attempt to schedule work activities for times of the year when impacts to California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November

through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year shall be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and informal consultation between the Town's Public Works Department and the USFWS during project planning shall be used to assist in scheduling work activities to avoid sensitive habitats during key times of the year.

- To control sedimentation during and after project implementation, the Town's Public Works Department shall implement BMPs outlined in any authorizations or permits, issued under the authority of the CWA that it receives for the specific project. If BMPs are ineffective, the Town's Public Works Department shall attempt to remedy the situation immediately, in consultation with the USFWS.
- During dewatering by pumping, intakes shall be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. The methods and materials used in any dewatering shall be determined by the Town's Public Works Department in consultation with the USFWS on a site-specific basis. Upon completion of construction activities, any diversions or barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed shall be minimized to the maximum extent possible; any imported material shall be removed from the stream bed upon completion of the project.
- Unless approved by the USFWS, water shall not be impounded in a manner that may attract California red-legged frogs.
- A USFWS-approved biologist shall permanently remove any individuals of exotic species such as bullfrogs (*Lithobates catesbeiana*), crayfish (*Pasfastacus leniusculus* or *Procambaris clarki*), and centrarchid fishes (including *Lepomis* and *Macropterus*) from the project area, to the maximum extent possible. The USFWS-approved biologist shall be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.
- To ensure that diseases are not conveyed between work sites by the USFWS-approved biologists, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force shall be followed at all times.
- The project site shall be revegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials shall be used to the extent practicable. Invasive exotic plants shall be controlled to the maximum extent practicable. This measure shall be implemented in all areas disturbed by activities associated with the proposed project, unless the USFWS and Town's Public Works Department determine that it is not feasible or practical. (For example, an area disturbed by construction that would be used for future activities need not be revegetated.)
- Habitat contours shall be returned to their original configuration at the end of project activities. This measure shall be implemented in all areas disturbed by activities associated with the proposed project, unless the USFWS and Town's Public Works

Department determine that it is not feasible or modification of original contours would benefit California red-legged frogs or Alameda whipsnakes.

Alameda whipsnake. Alameda whipsnake is a federally and State-listed threatened species. The riparian and developed habitats within the project area are not suitable to support this species; however, suitable habitat is within a mile to the south and west of the project area. Alameda whipsnake may use the oak woodland and riparian woodland habitats within the project area as movement and foraging habitat.

The project area is located along a portion of the boundary of Alameda whipsnake Critical Habitat as designated by the USFWS. Moraga Creek at the bridge forms the critical habitat boundary. Land north and northeast of the creek is outside of the boundary. The area to the south and southwest of the creek is within the critical habitat boundary; however, Alameda whipsnake habitat does not exist within the project area. Habitat within and adjacent to the project area at the southern end of the bridge is riparian or oak woodland. Therefore, the project area does not meet the criteria for federally designated Critical Habitat. Implementation of the proposed project would not adversely modify federally designated Critical Habitat.

Construction activities would result in temporary impacts of up to 0.54 acre of Alameda whipsnake movement habitat within the project area. Implementation of Mitigation Measure BIO-2 and Mitigation Measure BIO-3 would reduce impacts to Alameda whipsnake to less than significant levels.

Mitigation Measure BIO-3: At least 120 days prior to the start of construction activities, the Town's Public Works Department shall submit the name(s) and credentials of biologists who will conduct activities specified in the following measures. No Project activities shall begin until the Town's Public Works Department has received written approval from the USFWS and CDFW that the biologists are qualified to conduct the work.

Western Pond Turtle. Western pond turtle is a California Species of Special Concern and occurs in a wide variety of aquatic habitats, including ponds, lakes, marshes, rivers, streams, and irrigation ditches. No western pond turtles were observed in the project area during the field surveys; however, Moraga Creek could serve as a movement corridor for pond turtles.

Construction activities within Moraga Creek would temporarily prevent western pond turtle migration by blocking movement up and down Moraga Creek. Construction activities would result in 0.15 acre of temporary impacts to potential migration habitat due to placement of temporary falsework and temporary water detours of Moraga Creek. Implementation of the proposed project would result in 0.02 acre of permanent impacts to potential migration habitat due to the installation of the new bridge abutments and bank protection. Implementation of Mitigation Measure BIO-2 would reduce potential impacts to western pond turtle to less than significant levels.

Steelhead/rainbow trout. The distinct population segment (DPS) of steelhead is federally listed as threatened. Two recognized forms of this salmonid fish exist: (1) steelhead, which is the name given to the anadromous form that spends most of their adult life in saltwater habitats, but

returns to freshwater habitats to spawn; and (2) rainbow trout, which is the name given to individuals of this species that remain in freshwater systems for their entire lives. Populations that were formerly anadromous but now trapped behind dams and other obstructions are now recognized as rainbow trout. Populations of non-anadromous rainbow trout are not recognized as endangered species and receive no protection. Any fish upstream of the Upper San Leandro Reservoir are landlocked; therefore, any formerly anadromous steelhead trapped in the Upper San Leandro Reservoir are now considered rainbow trout. Rainbow trout in the reservoir have been documented to swim up Moraga Creek to spawn. However, because rainbow trout are not considered a special-status species, they are discussed in further detail under Response IV (d). Central Coast steelhead are not present with the project area; therefore, no impact to this species would occur with development of the proposed project.

Special-status Bat Species. Two special-status bat species could occur within or in the vicinity of the project area; the pallid bat and the Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*). Both bat species are listed as California Species of Special Concern; however, the Townsend's big-eared bat has recently been elevated to a California State Candidate for Listing. Pallid bat day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees, and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings. In addition, pallid bats can roost in trees. Townsend's western big-eared bats inhabit a wide variety of habitats and prefer to roost in open caverns and structures, typically hanging from walls and ceilings of buildings, caves, and mines although they have been occasionally reported to utilize bridges, rock crevices, and hollow trees as roost sites. Neither bat species nor any evidence of possible roosting sites was observed during the field surveys. The potential for the bat species to occur within or adjacent to the project area is low; however, the bats could roost in the large trees or buildings adjacent to the project area and are likely to forage over the project area. Therefore, implementation of the proposed project could affect bat roosts occurring in large trees and buildings adjacent to the project area. Implementation of Mitigation Measure BIO-4 would reduce impacts to pallid bats and Townsend's western big-eared bats to less than significant levels.

Mitigation Measure BIO-4: If roosting bats are discovered or if evidence of recent prior occupation is established, a buffer shall be established around the roost site. The size of the buffer shall be determined by the project biologist in consultation with the CDFW. No activity shall take place within the buffer.

- 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, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

Potentially Significant Unless Mitigation Incorporated. Riparian woodland is located along Moraga Creek within the project area. Riparian plant communities are considered "special-status natural communities" by the California Department of Fish and Wildlife (CDFW) due to their habitat value for native wildlife and the limited distribution of native riparian plant communities in California.

Riparian vegetation along streams and rivers in California is also under CDFW jurisdiction pursuant to Section 1602 of the Fish and Game Code. Typically, CDFW's jurisdiction under Section 1602 of the Fish and Game Code extends to the top-of-bank of a given channel or outer dripline of riparian vegetation, whichever is farthest from the channel centerline. The portion of Moraga Creek within the project area is under CDFW Section 1602 jurisdiction because it has a defined bed and bank (approximately 0.17 acre).

Implementation of the proposed project would result in 0.43 acre of temporary and 0.17 acre of permanent impacts to riparian woodland. Additionally, implementation of the proposed project would result in 0.15 acre of temporary and 0.02 acre of permanent impacts to Moraga Creek under CDFW jurisdiction. Implementation of Mitigation Measure BIO-5, described below, would reduce impacts to riparian habitat under CDFW jurisdiction to less than significant levels.

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

Potentially Significant Unless Mitigation Incorporated. No wetlands were identified in the project area. The project area includes a total of 0.17 acre of potential U.S. Army Corps of Engineers (ACOE) non-wetland waters of the United States (U.S.), within the Moraga Creek ordinary high water mark (OHWM). As a perennial stream hydrologically connected to traditional navigable waters of the United States (San Leandro Bay and San Francisco Bay), Moraga Creek is designated as "other waters" of the U.S. and is under ACOE and San Francisco Bay Regional Water Quality Control Board (RWQCB) jurisdiction.

Implementation of the proposed project would result in approximately 0.15 ac (180 linear ft.) of direct temporary impacts to ACOE non-wetland waters and approximately 0.02 ac (45 linear ft.) of direct permanent impacts to ACOE non-wetland waters for a total of 0.17 ac of direct impacts, consisting of 225 linear ft. of Moraga Creek. Construction activities within Moraga Creek include constructing bridge abutments on the upper banks of Moraga Creek and placing rock slope protection to prevent erosion along the lower creek banks. Placement of rock slope protection would require excavation for a keyway extending below the creek bed. In addition, indirect temporary impacts due to construction-related runoff and increased sedimentation could occur during construction activities. With the implementation of Mitigation Measure BIO-5, impacts to ACOE waters of the U.S. would be reduced to less than significant and the Moraga Creek bed would be restored to its pre-construction condition. Furthermore, the proposed project would be required to obtain an ACOE Section 404 Permit and RWQCB Section 401 Permit for the bridge replacement. Refer to Section IX, Hydrology and Water Quality, for further discussion of Section 401 Permit requirements.

Mitigation Measure BIO-5: The proposed project shall implement the following measures to minimize impacts to potentially jurisdictional waters:

- A Water Pollution Control Plan (WPCP) shall be prepared by the contractor in accordance with typical provisions associated with a Regional General Permit for Construction Activities (on file with the RWQCB). The WPCP shall contain a Spill

Response Plan with instructions and procedures for reporting spills, the use and location of spill containment equipment, and the use and location of spill collection materials.

- Prior to the start of construction, all portions of the stream to be avoided by the project shall be temporarily staked in the field by a qualified biologist.
- Prior to the start of construction, temporary construction fencing shall be placed between the edge of the construction disturbance zone and the banks of the avoided creek segments upstream and downstream of the project area to prevent entry of persons or deposition of construction materials or debris into the stream throughout the construction period.
- Prior to the start of construction, temporary silt fencing shall be placed along the exterior base of the temporary construction fencing to prevent discharge of silt or sediment into the stream throughout the construction period.
- The work area shall be dewatered prior to the start of work. Dewatering shall consist of installation of a flow diversion to separate the live channel from the area where in-stream work will occur. The flow diversion shall be placed along the low-flow invert of the natural creek and a small earthen berm (coffer dam) shall be installed at each end of the pipe to direct water into the pipe. Clean sand and gravel shall be used at the base of the berm to protect the existing creek channel. After the berms are completed, temporary fencing shall be placed across the berms to prevent entry of persons or deposition of construction materials or debris into the creek bed segments upstream and downstream of the project area throughout the construction period. Both berms and the flow diversion shall be completely removed at the completion of project construction. A qualified biologist shall be on site during installation and removal of the flow diversion.
- The temporary construction and temporary silt fencing shall be maintained throughout the construction period and shall be inspected by the project biological monitor or the Town of Moraga Public Works Department representative on a daily basis.
- Trash generated by the project shall be promptly and properly removed from the site.
- No construction or maintenance vehicles shall be refueled within 100 feet of the stream unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.
- Appropriate erosion control measures (e.g., fiber rolls, filter fences) shall be used on site to reduce siltation and runoff of contaminants into the stream. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and to trap reptiles and amphibians.
- Fiber rolls used for erosion control shall be certified as free of noxious weed seed and shall not contain plastics of any kind.
- Seed mixtures applied for erosion control shall not contain invasive nonnative species.

- Herbicide shall not be applied within 100 feet of the stream, or riparian woodland/scrub. Herbicide drift should be minimized by applying the herbicide as close to the target area as possible.
- 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?*

Potentially Significant Unless Mitigation Incorporated. Moraga Creek and its associated habitat in the project area provide for local and regional wildlife movement. Moraga Creek is likely utilized by a variety of animals including mammals and birds. Additionally, Moraga Creek is a perennial stream that could provide native resident and migratory fish habitat.

Rainbow Trout. Rainbow trout in the Upper San Leandro reservoir have been documented to swim up Moraga Creek to spawn. While no spawning habitat exists within the project area, trout swimming up Moraga Creek to reach spawning habitat would pass through the project area. In addition, young fish moving into the reservoir from upstream would also pass through the project area.

Construction of the proposed project would result in 0.15 acre of temporary impacts of potential migration habitat due to placement of temporary falsework and temporary water detours of Moraga Creek. Implementation of the proposed project would result in 0.02 acre of permanent impacts of potential migration habitat for rainbow trout due to installation of the new bridge abutments and bank protection. Implementation of Mitigation Measure BIO-5 and Mitigation Measure BIO-6 would reduce temporary and permanent impacts to migratory fish to less than significant levels.

Mitigation Measure BIO-6: The proposed project shall implement the following measures to reduce impacts to rainbow trout:

- Work in the Moraga Creek channel (consisting of placement of dewatering material, bridge removal, and rock slope protection) shall be limited to the period of May 15 through October 15. Revegetation activities shall be excluded from this requirement with the stipulation that no heavy equipment shall be used in the channel.
- Prior to installation of the flow diversion, a qualified fisheries biologist shall determine the need for a temporary fish seine around the area to be isolated. If a seine is needed, the qualified biologist shall oversee the installation. A weighted fish seine shall be stretched across the length of the bank where work will be conducted, and shall extend a minimum of 3.3 feet beyond the upstream and downstream limits of the work. With the upstream and downstream ends of the seine remaining on the bank, the remainder of the seine shall be extended into the channel to approximately 3.3 feet beyond the limits of the area to be dewatered. The seine shall be temporarily staked into place in such a way that no fish may enter the isolated area. The purpose of this method is to direct the fish out of the area to be dewatered.
- After the seine is in place, the qualified fisheries biologist shall visually survey the waters isolated behind the seine for the presence of any fish. If any fish are

encountered within the isolated area, the fish seining process must be repeated until all fish are driven from the area to be isolated, as determined by the fisheries biologist. The qualified fisheries biologist shall capture any fish that remain in the area to be dewatered. Electrofishing may be implemented to ensure that all of the fish are removed from the work area.

- Once all of the fish have been removed from the work area, the flow diversion shall be installed in the isolated area. The qualified biologist shall be on site during installation and removal of the flow diversion.
- During removal of the existing bridge, a tarp or other approved method shall be used below the bridge to prevent debris from falling into Moraga Creek. The tarp shall be left in place until the bridge is removed and all debris cleaned out of the creek.
- Contract specifications shall include the BMPs, where applicable, to reduce erosion during construction.
- All areas temporarily impacted during project construction shall be restored to pre-construction contours and revegetated with native species.
- During placement of rock slope protection (RSP), native topsoil from the channel shall be incorporated within the RSP to provide a seeding and planting medium. Areas of RSP above the ordinary high water mark (OHWM) and outside the bridge footprint shall be revegetated with a native seed mix recommended by the qualified biologist. In addition, locally obtained willow cuttings/poles shall be installed within the lower sections of the RSP near the OHWM.
- All construction shall be conducted during daylight hours.

Nesting Birds. The project area provides habitat for nesting raptors and other birds that are protected under the Migratory Bird Treaty Act (MBTA). These birds could nest within or adjacent to the project area. Most existing vegetation within the project area has a potential to support breeding activities by native birds protected under the federal MBTA and California Fish and Game Code. Implementation of Mitigation Measure BIO-7 would ensure that the proposed project avoids direct impacts to nesting birds. Therefore with implementation of Mitigation Measure BIO-7, impacts to nesting birds would be reduced to less than significant levels.

Mitigation Measure BIO-7: If feasible, all vegetation removal activities shall be conducted during the non-breeding season (i.e., September through February) to avoid direct impacts to nesting birds. If such work is scheduled during the breeding season (March through August), a qualified biologist shall conduct a pre-construction survey of the work area to determine if any birds are nesting in or in the vicinity of vegetation to be removed. The pre-construction survey shall be conducted within 15 days prior to the start of work from March through May (since there is higher potential for birds to initiate nesting during this period), and within 30 days prior to the start of work from June through August. If active nests are found in the work area, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer shall be determined by the

biologist in consultation with the CDFW, and will be based to a large extent on the nesting species and its sensitivity to disturbance.

- 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 Impact. The proposed bridge replacement is subject to the local policies and ordinances of the Town of Moraga. The Town established a tree preservation ordinance in the Town's Municipal Code, Chapter 12.12, Tree Preservation, that "recognizes the importance of planting trees, preserving trees, and controlling destruction of trees" (Subsection 12.12.010). The primary goal of the Town is to protect native trees, orchard trees, and trees of historic significance within the Town's jurisdiction on public or private property. The Town's Tree Preservation Ordinance requires that a permit be obtained from the Town for all trees proposed for removal.

Oak woodland habitat is located south of the existing Canyon Road Bridge along the west side of the roadway. Riparian woodland habitat is located along the eastern side of Canyon Road and across Moraga Creek. Implementation of the proposed project would result in 0.11 acre of temporary and 0.12 acre of permanent impacts to oak woodland and 0.43 acre of temporary and 0.17 acre of permanent impacts to riparian woodland. The construction staging area would impact approximately 0.17 ac of the pear orchard. Approximately 20 trees would be removed as part of the proposed project. Since trees within these natural communities and pear orchard would be removed, the Project Applicant would be required to obtain a tree removal permit under the provisions of the Town's Tree Preservation Ordinance. Therefore, the proposed project would not conflict with the provisions of the adopted Tree Preservation Ordinance. The proposed project would not result in a significant impact related to local policies or ordinances protecting biological resources, and no mitigation is required.

- 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?*

No Impact. No habitat conservation plans or natural community conservation plans apply to the project site. Therefore, the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. No impact would occur, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code §21074 as either:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1) 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, that is listed or eligible for listing on the California Register of Historical Resources, or on a local register of historical resources as defined in Public Resources Code §5020.1(k), or				
2) a resource determined by a lead agency, in its discretion and supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code §5024.1 (c) and considering the significance of the resource to a California Native American tribe?				

Affected Environment:

LSA conducted a cultural resources study,^{8,9} including archival and background research, contact with potentially interested parties, and field surveys to document cultural resource identification efforts of the Area of Potential Effects (APE).¹⁰ Background research consisted of a records search of State of California inventories and a review of maps for information about potential archaeological

⁸ LSA. 2016. *Historic Property Survey Report*. July.

⁹ LSA. 2016. *Archaeological Survey Report*. June.

¹⁰ The project area for cultural resources is the APE, which is the area where ground-disturbing activities would occur, and extends around the entirety of the parcels where the built environment may be directly or indirectly affected.

cultural resources occurring within 0.5 miles of the APE. On October 25, 2014, LSA staff conducted a records search (NWIC File #14-0542) for the APE, at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and reports for Contra Costa County.

No archaeological cultural resources were identified in or within 0.5 miles of the APE as a result of the records search. A review of topographic maps identified that the Oakland, Antioch, and Eastern Railway at one time passed through the west side of the APE and through the southern staging area. The tracks and rails have been removed, and the railway right-of-way is currently a paved bicycle and pedestrian trail. In the southern staging area, the tracks and rails have been removed, but the berm is still intact. Field surveys conducted by LSA archaeologists in September 2015 and October 2015 identified wooden piles or piers in the creek bed under the current bridge and large timbers at the north end of the bridge that may be associated with the bridge abutment. The current bridge (28C0164) was built in 1954 and is listed on the Caltrans Historic Bridges Inventory as not eligible for listing on the National Register of Historic Places (NRHP) and is therefore not discussed any further.

The project site is located in the central part of the Coast Ranges Geomorphic Province which is categorized by mountain ranges and valleys that stretch for 600 miles from the Oregon border to the Santa Ynez River. Geologic mapping indicates that the project area contains Holocene (less than 11,700 years ago) Surficial Sediments, which consist of alluvial gravel, sand, and clay and extend from the surface to a depth of approximately 20 feet. Holocene Surficial Sediments have no paleontological sensitivity rating because generally not enough time has passed for remains to become fossilized in these deposits. Older, Pleistocene (240,000 to 11,000 years ago) alluvial deposits are located beneath these Holocene sediments at depths of approximately 20 feet. Pleistocene deposits have produced scientifically important fossils elsewhere in the County and the region and therefore have a high paleontological sensitivity rating. According to the locality search through the University of California Museum of Paleontology (UCMP) at the University of California, Berkeley, online collections database there are 72 known localities from Pleistocene deposits within the County.

Discussion:

- a) *Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

No Impact. CEQA defines a “historical resource” as a resource that meets one or more of the following criteria: (1) listed in, or determined eligible for listing in, the California Register of Historical Resources (California Register); (2) listed in a local register of historical resources as defined in California Public Resources Code (PRC) Section 5020.1(k); (3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) determined to be a historical resource by a project’s Lead Agency (PRC Section 21084.1 and State CEQA Guidelines Section 15064.5(a)). The bridge piles and timber under the bridge and the Oakland, Antioch, and Eastern Railroad right-of-way were identified within the APE as potential historical resources. However, these resources are exempt from evaluation per the Section 106 Programmatic Agreement. Therefore, implementation of the proposed project would not result in any impacts associated with changing the significance of a historical resource as identified in Section 15064.5, and no mitigation is required.

- b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

Less Than Significant Impact. Based on the background research and field surveys, no archaeological resources were identified within the APE. The project site is not located in an area identified as sensitive for subsurface archaeological cultural resources. The majority of the APE has been disturbed due to the existing roadway and bridge. Therefore, the potential for unknown subsurface resources to be encountered during construction activities is remote. However, if archaeological resources are discovered during grading and construction activities, work in the area would be required to cease and deposits would be treated in accordance with federal, State, and local guidelines, including those set forth in PRC Section 21083.2, as specified in Standard Measure CULT-1. Compliance with existing regulations as specified in Standard Measure CULT-1 would reduce the potential for impacts to unknown archaeological resources to a less than significant level, and no mitigation is required.

Standard Measure CULT-1: During construction, if archaeological materials are encountered, the Construction Contractor shall immediately cease work in the vicinity of the find and a qualified archaeologist shall be consulted to determine the appropriate treatment of the discovery (California Code of Regulations [CCR], Title 14, Chapter 3, Section 15064.5(f)).

- c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Potentially Significant Unless Mitigation Incorporated. Holocene Surficial Sediments extend from the surface to a depth of 20 feet and have no paleontological sensitivity. Below 20 feet, sediments have a high paleontological sensitivity. As such, there may be potential to impact scientifically significant paleontological resources during project development depending on the nature and the depth of ground-disturbing activities associated with the proposed project.

The majority of construction activities involve traditional excavation methods and equipment (excavating with scrapers, trackhoes, bulldozers, etc.). Traditional excavation and equipment would be used for construction of the new retaining walls, the section of the new trail, the temporary bypass culvert, the new utility locations, and roadway approach work. Traditional excavation is not anticipated to extend deeper than 20 feet. Therefore, there is a very little potential for paleontological resources to be encountered during traditional excavation activities.

Construction activities associated with the new bridge include drilling CIDH piles which would involve excavations deeper than 20 feet, and could extend into sediments where there is a potential for fossils to be encountered. However, drilling activities generally grind up and destroy any fossils, making them unrecoverable. In addition, the fossils would be removed from their stratigraphic context, making them less useful for scientific study. Pile-driving techniques do not allow the direct observation of sediments at depth, which makes monitoring for and the recovery of fossils impossible. Therefore, any fossils present would not have a scientific

significance based on them being out of context or damaged. Therefore, the potential for encountering fossils during drilling activities would be less than significant.

If during final design it is determined that traditional excavation work would extend deeper than 20 feet below the surface or in the event that paleontological resources are discovered at a shallower depth during construction activities associated with road widening, implementation of Mitigation Measure CULT-1 would reduce potential impacts to less than significant.

Therefore, with implementation of Mitigation Measure CULT-1, impacts to paleontological resources would be reduced to less than significant levels.

Mitigation Measure CULT-1: If excavation activities extend deeper than 20 feet below the surface, the Applicant shall retain a qualified paleontologist to prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP should be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP) and include, but not be limited to, the following:

1. The paleontologist, or his/her representative, shall attend a pre-construction meeting.
2. Excavation and grading activities in deposits with high paleontological sensitivity (Surficial Sediments beginning at a depth of 20 feet below the existing ground surface) shall be monitored by a paleontological monitor following a PRIMP.
3. No monitoring is required for excavations in rocks with no paleontological sensitivity (Surficial Sediments from the surface to a depth of 20 feet), for drilling the CIDH piles, or for driving/vibrating the temporary shoring.
4. If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to assess its significance.
5. Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a scientific institution.
6. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.
7. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and a paleontologist should be contacted to assess the find for significance. If determined to be significant, the fossil shall be collected from the field.

d) *Disturb any human remains, including those interred outside of formal cemeteries?*

Less Than Significant Impact. No human remains are present on the project site, and there are no facts or evidence to support the idea that Native Americans or people of European descent are buried on the project site. However, ground-disturbing activities associated with the proposed project have the potential to disturb previously unknown human remains. In the unlikely event that human remains are encountered during construction activities, the proper authorities would be notified, and standard procedures for the respectful handling of human remains during the earthmoving activities would be implemented, as specified by Standard

Measure CULT-2. Therefore, adherence to Standard Measure CULT-2 would reduce potential project impacts related to unknown buried human remains to a less than significant level, and no mitigation is required.

Standard Measure CULT-2: Consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e), if human remains are encountered, work within 25 feet of the discovery shall be redirected and the County of Contra Costa (County) Coroner notified immediately by the Construction Contractor. State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a most likely descendant (MLD). With the permission of the Town of Moraga, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

e) *Cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code §21074 as either:*

1) 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, that is listed or eligible for listing on the California Register of Historical Resources, or on a local register of historical resources as defined in Public Resources Code § 5020.1(k), or,

2) A resource determined by a lead agency, in its discretion and supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code § 5024.1 (c), and considering the significance of the resource to a California Native American tribe?

Less Than Significant Impact. No resources in the vicinity of the project site are listed or eligible for listing on the California Register of Historical Resources or on a local register of historical resources. Additionally, the project site is not located in an area identified as sensitive for subsurface archaeological cultural resources. However, unknown archaeological resources may be encountered during construction activities and may qualify as tribal cultural resources under §21074. All work in the area would be required to cease and deposits would be treated in accordance with federal, State, and local guidelines, as specified in Standard Measure CULT-1. Compliance with Standard Measure CULT-1, which requires compliance with existing regulations, would reduce potential impacts to undiscovered tribal cultural resources to a less than significant level, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

A Preliminary Foundation Report¹¹ was prepared, which included subsurface investigation, laboratory soils testing, engineering analysis, and preliminary foundation design recommendations for the proposed project. The following summarizes the results of the preliminary foundation report.

¹¹ Parikh Consultants, Inc. 2014. Preliminary Foundation Report (Draft) Canyon Road Bridge Over West Branch San Leandro Creek (Moraga Creek) Bridge Replacement Project (Bridge No. 28C0137), Town of Moraga, Contra Costa County, California. 31 October.

The project site is located in the central part of the Coast Ranges Geomorphic Province of California, which is characterized by mountain ranges and valleys. Within the province, basement rocks consist of Jurassic and Cretaceous age (66-200 million years ago) igneous, metamorphic, and marine sedimentary rocks. These basement rocks are overlain by Cenozoic (less than 66 million years ago) sedimentary rocks that accumulated in deep to shallow and eventually continental environments.

Based on available geologic maps and borings performed at the project site, the site and vicinity are generally underlain by native alluvial soils consisting of very stiff to hard lean clays/gravelly lean clays, which are underlain by sedimentary rock (claystone). Groundwater was encountered at approximately 20 feet and 35 feet in the recent borings conducted as part of the geotechnical investigation. The groundwater level is anticipated to vary due to seasonal groundwater fluctuations, variations in yearly rainfall, water elevations of Moraga Creek, surface and subsurface flows, ground surface runoff, and other environmental factors.

An “active” fault is one that shows displacement within the last 11,000 years and, therefore, is considered more likely to generate a future earthquake than a fault that shows no sign of recent rupture. The California Geologic Survey has mapped various active and inactive faults in the region. Five active faults are located within Contra Costa County – the San Andreas, the Hayward, the Concord, the Greenville-Marsh Creek, and the Antioch faults. However, no known active faults run directly through the Town of Moraga.¹²

Discussion:

- a) *Expose people or structures to 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.*

Less Than Significant Impact. As with the entire San Francisco Bay Area, the project site is subject to strong ground motion resulting from earthquakes on nearby faults. The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. The nearest Alquist-Priolo Earthquake Fault Zone is the Hayward Fault, located approximately 3.7 miles to the west of the project site. Ground rupture could occur at the project site during a major earthquake on the Hayward Fault.

Implementation of the proposed project would replace the existing bridge over Moraga Creek. The proposed project would not result in the construction of habitable structures consistent with the Alquist-Priolo Earthquake Zoning Act (1972). Therefore, implementation of the proposed project would not increase the risks to human health or safety related to fault rupture compared to the existing conditions. A less than significant impact would occur related to this topic, and no mitigation is required.

¹² Contra Costa County Department of Conservation and Development. 2005, Reprint 2010. Contra Costa County General Plan 2005-2020.

ii) *Strong seismic ground shaking?*

Less Than Significant Impact. The project site is located in a seismically active region that has historically been affected by strong seismic ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking associated with an earthquake depends on the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. Major active faults in the region that could cause ground shaking at the project site include the Hayward Fault, the Mount Diablo Thrust, the Calaveras Fault, and the Pleasanton Fault. According to the Preliminary Foundation Report, it is likely that the project site would be subject to severe seismic ground shaking during an earthquake based on the available geological and seismic data. The most significant impact associated with strong seismic shaking is potential damage to structures and improvements. No habitable structures would be constructed as part of the proposed project. The geotechnical investigation includes recommendations for vertical pile driving, lateral pile driving, and retaining wall foundation design. In addition, the proposed project would be designed and constructed consistent with the most current version of the California Building Code (CBC), which includes specifications for site preparation, such as compaction requirements for foundations. With incorporation of the preliminary foundation recommendations and compliance with building code requirements, the potential impacts associated with ground shaking would be less than significant, and no mitigation is required.

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

Less Than Significant Impact. Liquefaction is the transformation of saturated, loose, fine-grained sediment to a fluid-like state because of earthquake shaking or other rapid loading. Soils most susceptible to liquefaction are loose to medium dense, saturated sands, silty sands, sandy silts, non-plastic silts and gravels with poor drainage, or those capped by or containing seams of impermeable sediment. The project site is at the intersection of very low, moderate, and very high liquefaction susceptibility¹³; therefore, the liquefaction potential as identified in this publication is considered uncertain. Based on the borings, the liquefaction potential at the project site is anticipated to be relatively low due to the presence of predominantly plastic clayey soils. The geotechnical investigation prepared for the proposed project provides recommendations for design and construction of the project. In addition, the proposed project would comply with the most current version of the CBC. Therefore, the potential impacts associated with seismic-related ground failure, including liquefaction, would be less than significant, and no mitigation is required.

iv) *Landslides?*

No Impact. Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes in areas with significant ground slopes. The

¹³ Association of Bay Area Governments, 2016. Earthquake and Hazards Program, Liquefaction Susceptibility Map. Available online at: <http://resilience.abag.ca.gov/earthquakes/> (accessed July 13, 2016).

geotechnical investigation did not identify landslides as a potential hazard at the project site. The project site is located in a relatively flat area and consists primarily of impervious surface (i.e., existing roadway and bridge). No substantial natural slopes exist on the project site. However, the project site does include the Moraga Creek, a pervious area, which consists of an earthen channel. The creek slopes would be stabilized with rock slope protection which would prevent landslides from occurring within Moraga Creek that could put the new bridge or people traveling on the new bridge at risk. Therefore, no potential for seismically induced landsliding occurs at the project site, and no mitigation is required.

b) *Result in substantial soil erosion or the loss of topsoil?*

Less Than Significant Impact. During construction activities, soil would be exposed and there would be an increased potential for soil erosion compared to the existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. The increased erosion potential could result in short-term water quality impacts as identified in Section IX, Hydrology and Water Quality. Under the Construction General Permit, a SWPPP and construction BMPs detailed in the SWPPP would be required during construction activities. Construction BMPs would include Erosion Control BMPs designed to minimize erosion. With incorporation of Erosion Control BMPs, as required by Standard Measure WQ-1, impacts related to erosion during construction would be less than significant.

The project would result in a minimal increase in impervious surface of approximately 0.05 acre due to the bridge replacement. An increase in impervious surface could increase the volume of runoff during a storm, which has the potential to increase soil erosion. However, because the proposed project would result in a nominal increase in impervious surface area, the volume and rate of runoff would be similar to the existing condition. All stormwater runoff would continue to drain into the storm drain system prior to discharge to Moraga Creek. Moraga Creek has the capacity to handle the minimal increase in runoff volume from the project area. Rock slope protection would be installed on the creek banks to prevent scour under the bridge abutments. Therefore, because the proposed project would not substantially change the volume and velocity of stormwater runoff and would incorporate rock slope protection along the creek banks, impacts related to erosion during operation would be less than significant, and no mitigation is required.

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?*

Less Than Significant Impact. The project site is not located on Karst formations and has not been subjected to mining activities; thus, the risk of subsidence or collapse is expected to be low. The creek banks may be susceptible to minor creep and localized bank instability, especially during heavy winter rains and peak channel flow. The proposed bridge would be designed and constructed with adequate foundations in accordance with the recommendations in the geotechnical investigation and the CBC to address the possible effects of unstable soils. No significant geologic hazards to the proposed project from landslide, lateral spreading,

subsidence, liquefaction, or collapse would occur. This impact would be less than significant, and no mitigation is required.

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

Less Than Significant Impact. Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction. The soils that underlay the majority of the project site consist of Clear Lake clay, 0 to 15 percent slopes and Conejo clay loam, 0 to 2 percent slopes, located at the southern edge of the project site. Due to the high clay content and strength of the clayey soils, the soils would be considered expansive (i.e., shrink-swell). The proposed project would be designed and constructed with adequate foundations in accordance with the recommendations in the geotechnical investigation and the CBC. Therefore, this impact would be less than significant, and no mitigation is required.

- 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?*

No Impact. Septic tanks and alternative wastewater disposal systems would not be installed on the project site. Therefore, implementation of the proposed project would not result in impacts to soils associated with the use of such wastewater treatment systems, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

Unlike emissions of criteria and toxic air pollutants, which have local or regional impacts, emissions of greenhouse gases (GHGs) contribute to global climate change and have a broader global impact. Global climate change is a process whereby GHGs accumulating in the atmosphere contribute to an increase in the temperature of the earth’s atmosphere. The principal GHGs contributing to global climate change are CO₂, methane (CH₄), nitrous oxide (N₂O), and fluorinated compounds. These gases allow visible and ultraviolet light from the sun to pass through the atmosphere, but they prevent heat from escaping back out into space. Among the potential implications of global climate change are rising sea levels and adverse impacts to water supply, water quality, agriculture, forestry, and habitats. In addition, global warming may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health. Like most criteria and toxic air pollutants, much of the GHG production comes from motor vehicles. GHG emissions can be reduced to some degree by improved coordination of land use and transportation planning on the city, county, and subregional level, and other measures to reduce automobile use. Energy conservation measures can also contribute to reductions in GHG emissions.

The *BAAQMD CEQA Guidelines* recommend that all GHG emissions from a project be estimated, including a project’s direct and indirect GHG emissions from operations. Because the proposed project is an infrastructure replacement project and would not generate any vehicle trips, the proposed project would not generate GHG emissions and would not conflict with any plan related to the reduction of greenhouse gas emissions. Therefore, the GHG emissions for the proposed project were not estimated.

The BAAQMD does not have an adopted Threshold of Significance for construction-related GHG emissions. However, BAAQMD recommends that the Lead Agency quantify and disclose GHG emissions that would occur during construction, and make a determination on the significance of these construction generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals. The Lead Agency is encouraged to incorporate BMPs, such as recycling at least 50 percent of construction waste or demolition materials, to reduce GHG emissions during construction, as applicable.

GHG emissions associated with implementation of the proposed project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. The proposed project would not result in significant, long-term, GHG emissions, as the proposed project consists of replacing an existing bridge that would not generate an increase in vehicle trips and/or source emissions. The primary existing sources of human-caused GHGs in the project area are vehicle emissions.

Discussion:

- a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?*

Less Than Significant Impact. GHG emissions associated with implementation of the proposed project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust.

Short-Term (Construction) GHG Emissions. Construction activities, such as site preparation, site grading, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The proposed project would replace an existing bridge. The new bridge would be wider to accommodate two bike lanes and one pedestrian sidewalk. Construction activities would generate GHG emissions during construction activities on site as well as from the transportation of material between the construction site and the temporary staging area. Construction is anticipated to be completed within 1 to 2 years. These potential impacts would be limited to the duration of construction activities and GHG generation would halt once the proposed project is completed. Therefore, the generation of GHG emissions during construction would be less than significant, and no mitigation is required.

Long-Term (Operational) GHG Emissions. Long-term operation of the proposed project would not result in the generation of GHG emissions. The proposed project would replace an existing bridge to accommodate existing traffic volumes and bicyclists and pedestrians. The proposed project would not include sources that would generate GHG emissions. The proposed project would contribute to an overall reduction in GHG emissions by providing facilities that support alternative modes of transportation for recreationists, residents, and commuters in the surrounding area. Therefore, the generation of GHGs during operation would be less than significant, and no mitigation is required.

- b) *Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

No Impact. The Town Council adopted the Town’s Climate Action Plan (CAP) on October 22, 2014, which includes strategies and recommendations aimed at reducing GHG emissions from daily activities of residents and local businesses.¹⁴ The proposed project would replace an existing bridge to accommodate existing vehicular traffic and bicyclists and pedestrians. The additional bicycle lanes and pedestrian sidewalk would be consistent with Land Use and Transportation Strategy LU&T.2 of the Town’s CAP, which emphasizes improved bicycle and pedestrian facilities through roadway design improvements. In addition, as discussed in Response VIII (a), the proposed project’s short-term construction and long-term operational GHG emissions would not result in significant impacts. Therefore, because the proposed project is consistent with the Town’s CAP, no impacts would occur, and no mitigation is required.

¹⁴ Moraga, Town of, 2014. *Moraga Climate Action Plan*. October 22.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment:

Land uses in the project area include an existing road and bridge, Moraga Creek, a school, an orchard, rural residential development, a small segment of the Lafayette-Moraga Trail, and undeveloped land.

The project site is not on a state-listed hazardous materials clean-up site. According to the California State Water Resources Control Board (SWRCB) Geotracker website¹⁵ and the California Department of Toxic Substances Control (DTSC) EnviroStor website¹⁶, no state-listed hazardous materials clean-up sites are located within 1,000 feet of the project site. A property located at 1039 Camino Pablo, approximately 1,100 feet east of the project site, was identified as an underground storage tank site on the Contra Costa County Site List; however, no information was found indicating that a release of hazardous materials has occurred at this property.

Historically, the area surrounding the project site contained orchards from approximately 1939 to 1968, and a section of these orchards remains northeast of the project site. Railroad tracks were located immediately west of the project site, in the current location of the Lafayette-Moraga Regional Trail, from at least 1915 to 1949. Therefore, hazardous materials/chemicals may be present in shallow soils and in creek sediments within the project site from the historical uses, such as from pesticide applications and former railroad operations. A hazardous materials survey was conducted on April 15, 2016 to determine if asbestos-containing materials, lead-containing materials, and polychlorinated biphenyls-containing materials are present on site. The survey indicated that asbestos is not present on site; however, lead, naturally occurring asbestos, and polychlorinated biphenyls-containing materials may be present in structures proposed for demolition.

Discussion:

- a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Potentially Significant Unless Mitigation Incorporated. Hazardous materials are chemicals that could potentially cause harm during an accidental release and are defined as being toxic, corrosive, flammable, reactive, an irritant, or strong sensitizer. Hazardous substances include all chemicals regulated under the United States Department of Transportation¹⁷ “hazardous materials” regulations and the Environmental Protection Agency (EPA)¹⁸ “hazardous waste” regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment.

Exposure to hazardous materials during the construction and operation of the proposed on-site uses could result from (1) the improper handling or use of hazardous substances; (2) a transportation accident; or (3) inadvertent release resulting from an unforeseen event (e.g., fire, flood, or earthquake). The severity of any such exposure is dependent upon the type, amount, and characteristics of the hazardous material involved; the timing, location, and nature of the event; and the sensitivity of the individual or environment affected.

¹⁵ State Water Resources Control Board. 2016. Geotracker website. Available online at: <https://geotracker.waterboards.ca.gov/> (accessed August 22, 2016).

¹⁶ Department of Toxic Substances Control. 2007. EnviroStor website. Available online at: <http://www.envirostor.dtsc.ca.gov/public/> (accessed August 22, 2016).

¹⁷ United States Department of Transportation. 2016. Regulations. Website: <http://phmsa.dot.gov/regulations> (accessed July 1, 2016).

¹⁸ Environmental Protection Agency. 2016. Hazardous Waste Regulations. Website: <http://www.epa.gov/osw/laws-regs/regs-haz.htm> (accessed July 4, 2016).

Construction activities as part of the proposed project would result in ground-disturbing activities along the existing roadway. Agricultural chemicals, such as organochlorine pesticides and inorganic compounds, may have been applied to the former and existing orchards surrounding the project site. Prior to 1950, inorganic pesticides that contained elevated concentrations of metals, such as arsenic, were commonly used in California agriculture. After 1950, organochlorine pesticides were commonly used in California agriculture until the mid-1970s. Due to the close proximity of the project site to former and existing orchards, potential application of pesticides and arsenic on these orchards in the past may have resulted in the deposition of pesticides and arsenic in shallow soil within the project site. Additionally, pesticides and arsenic may have been carried by stormwater runoff from the orchards and deposited in soil and creek sediments within the project site. Pollutants associated with former operation of the railroad may have deposited in shallow soils or creek sediments within the project site, particularly in the vicinity of the Lafayette-Moraga Regional Trail. Pollutants associated with railroads typically include metals (including arsenic, which was commonly used as an herbicide along railroad corridors) and organic compounds including polycyclic aromatic hydrocarbons, diesel, and motor oil. Implementation of Mitigation Measure HAZ-1 requires sampling of shallow soil and creek sediments within the project site to evaluate potential impacts from historical and existing orchards and operation of the former railroad.

Construction of the proposed project would result in the demolition of the existing bridge and asphalt and concrete pavement, including yellow striping paint. The wooden guard rails and structure steel beams of the bridge and the yellow striping paint on the roadway were tested for lead as part of the Initial Site Assessment (ISA) prepared for the proposed project. It was determined that the paint on the wooden guard rails and structural steel beams and piers of the bridge has elevated levels of lead and is classified as a California hazardous waste. The paint coatings on the structural steel beams and piping under the bridge were not able to be tested for lead due to lack of accessibility. However, lead is assumed to be present in these paint coatings. Paint from the bridge structure would be handled in compliance with applicable hazardous waste and worker safety regulations and would be contained in steel drums for further testing, as required by Mitigation Measure HAZ-2. The yellow striping paint contains elevated levels of lead but at concentrations that are inconclusive for a hazardous waste characterization. Either the paint would be further tested to make a hazardous waste characterization determination or the paint would be treated and disposed of with the paint removed from other parts of the bridge structure, as required by Mitigation Measure HAZ-3.

Caulking or flexible joints associated with the bridge are usually found at joints between concrete. Caulking and flexible joints may consist of polychlorinated biphenyls-containing materials. No exposed caulking or flexible joints were observed during the survey; however, flexible expansion joints concealed by concrete are assumed to be present on the existing bridge. Therefore, demolition of the existing bridge could release polychlorinated biphenyls-containing materials. Implementation of Mitigation Measure HAZ-4 requires sampling of caulking and flexible joints to determine if handling and disposal as polychlorinated biphenyls-containing materials waste would be required.

Sampling and testing for naturally occurring asbestos in native soil, fill soil placed during construction of the existing bridge, or base rock under the asphalt roadway was not performed as this type of testing would require destructive coring of the road surface. Therefore, it is assumed

that naturally occurring asbestos is present in these materials at the project site. Implementation of Mitigation Measure HAZ-5 requires sampling of native soil, fill soil, and base rock for the presence of naturally occurring asbestos.

All work involved in the transport and disposal of demolition waste off site would be performed in accordance with current federal and State laws, rules, and regulations. Since demolition waste would be considered hazardous, demolition waste would be required to be disposed of at a permitted hazardous waste facility.

Potentially hazardous materials such as dry construction materials, fuels, lubricants, and solvents would be used during site grading and construction of the proposed bridge. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low and, even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials associated with construction vehicles. In addition, in order to prevent hazardous runoff in the event of a fuel or oil spill, all equipment maintenance and refueling would be conducted outside of Moraga Creek. Compliance with Mitigation Measure HAZ-6, described below, would require the Construction Contractor to adhere to procedures for construction equipment maintenance, refueling, and washing activities. Therefore, implementation of Mitigation Measure HAZ-6 would reduce potential impacts associated with the use of hazardous materials to Moraga Creek during construction to less than significant levels.

The project would modify an existing transportation facility. Potentially hazardous materials such as fuels and solvents may be used during routine maintenance activities during operation of the proposed project. However, routine maintenance activities would be similar to the existing conditions and would be in compliance with existing government regulations. Operation of the proposed project would not produce hazardous emissions or require handling of acutely hazardous materials, substances, or waste. Therefore, operation of the proposed project would result in less than significant impacts related to the routine transport, use, or disposal of hazardous materials, and no mitigation is required.

Mitigation Measure HAZ-1: Prior to the start of grading and excavation activities, sampling of shallow soil and creek sediments within the project site shall be performed by a licensed hazardous waste worker to evaluate potential impacts from pesticides and arsenic from former and existing orchards, and potential impacts from metals, polycyclic aromatic hydrocarbons, diesel, and motor oil from the former railroad. If hazardous materials are detected in shallow soil or creek sediments, the hazardous materials shall be removed and disposed of according to applicable laws and regulations.

Mitigation Measure HAZ-2: Prior to commencement of demolition activities, loose, chipping, and flaking paint shall be removed from the bridge structure in compliance with applicable hazardous waste and worker safety regulations. The paint shall be contained in a steel drum and analyzed for soluble lead using the Toxicity Characteristic Leaching Procedure method for waste characterization and to determine disposal requirements.

Mitigation Measure HAZ-3: The yellow striping paint on the roadway of the bridge and approaches shall be either re-sampled and analyzed for soluble lead using the Waste Extraction Test method to determine its waste classification and handling/disposal requirements; or the yellow striping paint shall be assumed to be a hazardous waste and removed, contained, characterized, and disposed of with the paint removed from other parts of the bridge structure.

Mitigation Measure HAZ-4: Prior to commencement of demolition activities, caulking or flexible joints associated with the existing bridge shall be sampled by a licensed hazardous waste worker to determine if the caulking or flexible joints contain polychlorinated biphenyls-containing materials. If polychlorinated biphenyls-containing materials are present, the handling and disposal of polychlorinated biphenyls-containing materials shall be required in compliance with applicable laws and regulations.

Mitigation Measure HAZ-5: Prior to commencement of demolition activities, sampling of native soil, fill soil placed during construction of the existing bridge, and base rock under the asphalt roadway shall be performed by a licensed hazardous waste worker to evaluate the potential presence of naturally occurring asbestos. If naturally occurring asbestos is present, the affected soils or base rock shall be removed and disposed of according to applicable laws and regulations.

Mitigation Measure HAZ-6: During construction, the Construction Contractor shall ensure that all equipment maintenance and refueling is conducted outside of Moraga Creek, on level ground, away from concentrated flows of storm water and drainage courses. Drip pans or absorbent pads shall be used during equipment refueling and maintenance activities. Adequate quantities of absorbent spill clean-up material and spill kits shall be kept in the refueling and maintenance area and on fuel trucks. Spill clean-up materials shall be disposed of immediately after use.

- 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?*

Potentially Significant Unless Mitigation Incorporated. As stated above, transport, use, and disposal of hazardous materials during construction and operation would be conducted in compliance with applicable laws and regulations, as required by Mitigation Measures HAZ-1 through HAZ-5. Potentially hazardous materials such as dry construction materials, fuels, lubricants, and solvents would be used during site grading and construction of the proposed bridge. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low and, even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials associated with construction vehicles. In addition, construction equipment maintenance, refueling, and washing activities would not be permitted within Moraga Creek. To prevent hazardous runoff in the event of a fuel or oil spill, all equipment maintenance and refueling would be conducted outside of the channel. Compliance with Mitigation Measure HAZ-6 would require the Construction Contractor to adhere to

procedures for construction equipment maintenance, refueling, and washing activities. Therefore, implementation of Mitigation Measure HAZ-6 would reduce potential impacts associated with hazards from a reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction to less than significant levels.

The proposed project involves replacing the existing bridge over Moraga Creek. As a transportation project, the potential for releasing hazardous materials into the environment would be limited to vehicles on the roadway. This potential exists today and would exist with implementation of the proposed project. However, traffic volumes would remain the same; therefore, implementation of the proposed project would not increase the potential for release of hazardous materials into the environment. In addition, vehicles and trucks may transport hazardous substances that could spill and impact the roadway, adjacent properties, or resources. However, transport of hazardous materials is subject to strict regulations established by State and federal agencies. Therefore, operation of the proposed project would result in less than significant impacts associated with hazards from a reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, and no mitigation is required.

- c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school?*

Potentially Significant Unless Mitigation Incorporated. Joaquin Moraga Intermediate School is located on the east side of Canyon Road, adjacent to Canyon Road Bridge. Construction of the proposed project would involve handling acutely hazardous materials; however, implementation of Mitigation Measures HAZ-1 through HAZ-6 would reduce potential impacts to schools. In addition, construction activities have the potential to emit hazardous emissions; however, all construction activities would be conducted in accordance with applicable laws and regulations. Therefore, with the implementation of Mitigation Measures HAZ-1 through HAZ-6, impacts related to emitting hazardous emissions or handling acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school would be reduced to less than significant levels.

Potentially hazardous materials such as fuels and solvents may be used during routine maintenance activities during operation of the proposed project. However, routine maintenance activities would be similar to the existing conditions and would be in compliance with existing government regulations. Operation of the proposed project would not emit hazardous emissions or require handling of acutely hazardous materials, substances, or waste. Therefore, operation of the proposed project would result in less than significant impacts related to emitting hazardous emissions or handling acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school, and no mitigation is required.

- 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?*

No Impact. The project site is not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and therefore would not create a hazard to the public or environment. No mitigation is required.

- 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 for people residing or working in the project area?*

No Impact. The project site is not located within an airport land use plan, or within 2 miles of a public airport or public use airport. The closest airport to the project site is the Oakland International Airport, located approximately 9.5 miles to the southwest. Due to the distance from the Oakland International Airport, the proposed project would not result in a hazard for people residing or working in the project area, and no mitigation is required.

- f) *For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The project site is not located within the vicinity of a private airstrip. Therefore, implementation of the proposed project would not result in a safety hazard for people residing or working in the project area, and no mitigation is required.

- g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Less Than Significant Impact. Canyon Road is not an identified evacuation route within the County. Construction would require closure of the bridge in two phases (i.e., one side at a time); however, emergency access across the creek would be maintained during the entire construction period. Implementation of the proposed project would improve safety across Moraga Creek by replacing a structurally deficient bridge with a wider, clear-span bridge, allowing for improved emergency access. Therefore, the proposed project would not impair or interfere with an adopted emergency response plan or evacuation plan, and no mitigation is required.

- h) *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Less Than Significant Impact. The project site is located in an area of wildland urban interface fire threat.¹⁹ However, the proposed project is a bridge replacement project and would not include flammable materials or any structures for human occupation. Therefore, the proposed project would result in a less than significant impact related to exposure of people or structures to significant risk of loss, injury, or death involving wildland fires, and no mitigation is required.

¹⁹ Association of Bay Area Governments (ABAG). 2015. *Wildfire Threat Map*. Website: <http://gis.abag.ca.gov/website/Hazards/?hlyr=wildfireThreat> (accessed June 6, 2016).

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The existing bridge is located over Moraga Creek within the lower portion of the San Leandro Creek Watershed. Moraga Creek at Canyon Road drains a 7.31-square-mile area. According to the State Water Resources Control Board (SWRCB) 2012 Integrated Report (CWA Section 303(d) List), Moraga Creek is not listed for any impairments. Because Moraga Creek is not listed on the CWA Section 303(d) List, no Total Maximum Daily Loads (TMDLs)²⁰ have been identified for Moraga Creek.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06013C0409F, the Canyon Road Bridge is located within Zone AE of the Moraga Creek floodway. Areas designated as Zone AE include the channel of the stream and any adjacent floodplain areas that must be kept free of encroachment so the 100-year flood can be carried without substantial increase in floodplain elevation. In addition, areas designated as Zone AE have a defined base flood elevation. The Moraga Creek floodway has a base flood elevation of 470 feet. The portion of the project site north of the existing bridge is located within Zone X. Zone X is an area that is subject to 500-year flooding; an area of 100-year flooding with average flood depths of less than 1 foot, or with a drainage area less than 1 square mile; and an area protected by levees from 100-year flooding.

Water quality is regulated by the United States Environmental Protection Agency's National Pollution Discharge Elimination System (NPDES), which controls the discharge of pollutants to water bodies from point and non-point sources. In the Bay Area, this federal regulatory program is administered by the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Discussion:

a) *Violate any water quality standards or waste discharge requirements?*

Less Than Significant Impact. Pollutants of concern during construction include sediment, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked during construction. Any of these pollutants have the potential to be transported via storm water runoff into receiving waters (i.e., Moraga Creek).

During construction, the total disturbed area would be approximately 2 acres. Because the proposed project disturbs greater than 1 acre of soil, the project is subject to the requirements of the State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWG and

²⁰ A listing of a water body as "impaired" triggers development of standards and implementation plans known as TMDLs for each water quality pollutant, and these standards and implementation plans are ultimately codified in amendments to the Water Quality Control Plan.

2012-0006-DWQ, NPDES No. CAS000002) (Construction General Permit), as specified in Standard Measure WQ-1.

Under the Construction General Permit, the Construction Contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement construction BMPs detailed in the SWPPP during construction activities. Construction BMPs would include, but not be limited to, erosion and sediment control, designed to minimize erosion and retain sediment on site, and good housekeeping practices to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Therefore, adherence to Standard Measure WQ-1 would ensure that construction of the proposed project would result in a less than significant impact associated with the violation of water quality standards or waste discharge requirements, and no mitigation is required.

Since construction of the proposed project would occur within Moraga Creek, a CWA Section 401 Water Quality Certification from the RWQCB would be required for impacts to Moraga Creek. Permit requirements and avoidance measures that may be required by the RWQCB are described in Standard Measure WQ-2. The results of water quality monitoring would be compared to performance standards established by the SWRCB in the CWA Section 401 Water Quality Certification. If water quality monitoring indicates that performance standards are not being achieved, additional avoidance measures (e.g., installation of additional silt curtains) would be implemented until water quality monitoring indicates that performance standards are being achieved. Therefore, compliance with the Standard Measure WQ-2 would ensure that water quality impacts associated with construction of the proposed bridge are less than significant, and no mitigation is required.

During operation, anticipated pollutants of concern associated with a transportation facility include sediments, oil and grease, trash and debris, and heavy metals. Implementation of the proposed project would replace the existing bridge and would result in a minimal increase in impervious surface of 0.05 acre. An increase in impervious surface would increase the volume of runoff during a storm, thereby increasing pollutant loading to receiving waters. In addition, there is a potential for increased erosion due to increased runoff that could increase sediment in storm water runoff.

During operation, the proposed project would be subject to the requirements of the SWRCB's NPDES Municipal Regional Stormwater Permit (Order No. R2-2015-0049, NPDES No. CAS612008) (Municipal Regional Permit), as specified in Standard Measure WQ-3. Municipal Regional Permit Provision C.2.e requires implementation of BMPs for erosion and sediment control during maintenance of the proposed project, and Provision C.2.e.ii.(g) requires that the bridge design incorporate measures to reduce erosion. The proposed bridge design includes rock slope stabilization of creek banks beneath the proposed bridge to reduce erosion. No other post-construction stormwater treatment measures would be required for the bridge and roadway. In addition, post-construction stormwater treatment measures would not be required for the staging area as it would only be temporarily used for staging activities and would be returned to its original condition following the completion of construction, as required by the Construction General Permit. Therefore, adherence to Standard Measure WQ-3 would ensure that operation and maintenance activities associated with the proposed project would result in a

less than significant impact related to the violation of water quality standards or waste discharge requirements, and no mitigation is required.

Standard Measure WQ-1: The proposed project shall comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, as amended by 2010-0014-DWG and 2012-0006-DWQ, NPDES No. CAS000002, or any other subsequent permit. The proposed project shall comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level. The SWPPP shall identify the sources of pollutants that may affect the quality of storm water and include Best Management Practices (BMPs) to control the pollutants. These include, but are not limited to, temporary sediment control, temporary soil stabilization, concrete waste management, street sweeping and vacuuming, wind erosion control, and other non-storm water BMPs.

Standard Measure WQ-2: The proposed project shall comply with the following requirements and avoidance measures of the CWA Section 401 Water Quality Certification from the RWQCB:

- Installation of temporary physical barriers (e.g., coffer dams and/or silt curtains) in water around construction activities to prevent potential localized impacts to water quality (e.g., increase in turbidity) from spreading within the surface water.
- Installation of temporary physical barriers (e.g., platforms or netting) beneath elevated construction activities to prevent demolition and construction materials from being released into the surface water below.
- Performing water quality monitoring including sampling and analysis for constituents required by the RWQCB which may include total suspended solids, pH, temperature, conductivity, and potential pollutants of concern identified in soil and sediments during pre-construction sampling and analysis.

Standard Measure WQ-3: The proposed project shall comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Municipal Regional Stormwater Permit (Municipal Regional Permit) Order No. R2-2015-0049, NPDES No. CAS612008, or any other subsequent permit. The proposed project shall comply with the Municipal Regional Permit by implementing BMPs to control erosion and sediment during operation and maintenance, including rock slope stabilization of creek banks beneath the new bridge.

- b) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Less Than Significant Impact. The project site is not located within a groundwater basin. The nearest groundwater basin is the Santa Clara Valley: East Bay Plain Groundwater Basin, located approximately 3.5 miles to the west. No information regarding groundwater elevations or flow directions at the project site were available at the time of this IS/MND. Groundwater data from a well located approximately 0.65 mile north of the project site was found to have an average depth to groundwater of approximately 6.5 feet below ground surface (bgs). A majority of the construction activities would take place on the surface. Excavation for piles would extend to greater depths; however, because the project site is not located within a groundwater basin and groundwater information at the site is not currently available, groundwater dewatering is not anticipated to be required during construction activities. However, if groundwater is encountered during construction, dewatering activities would be conducted in compliance with requirements of the Groundwater General Permit, as specified in Standard Measure WQ-4.

Grading and construction activities would compact soil, which can decrease infiltration during construction. However, construction activities would be temporary, and the reduction in infiltration would not be substantial. Therefore, construction of the proposed project would not substantially deplete groundwater supplies or interfere with groundwater recharge, and no mitigation is required.

Implementation of the proposed project would result in a similar amount of impervious surface area as the existing condition and would not result in the construction of large areas of impervious surfaces that would prevent water from infiltrating into the groundwater nor would it result in direct additions or withdrawals to existing groundwater. Therefore, implementation of the proposed project would result in a less than significant impact related to substantially depleting groundwater supplies or interfering substantially with groundwater recharge, and no mitigation is required.

Standard Measure WQ-4: The proposed project shall comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Waste Discharge Requirements for Discharge or Reuse of Extracted Brackish Groundwater, Reverse Osmosis Concentrate Resulting from Treated Brackish Groundwater, and Extracted Groundwater from Structure Dewatering Requiring Treatment (Groundwater General Permit, Order No. R2-2012-0060, NPDES No. CAG912004), or any other subsequent permit.

- c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

Less Than Significant Impact. During construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. As discussed above in Response IX (a), the Construction General Permit requires preparation of a SWPPP and implementation of construction BMPs to reduce impacts

to water quality during construction, including those impacts associated with soil erosion and siltation, as specified in Standard Measure WQ-1.

As outlined in the project description, during construction temporary dams would be installed in the creek upstream and downstream of the construction site and would connect with a temporary bypass culvert to maintain the flow pattern of the creek and to protect the quality of the water during construction. The temporary dams and bypass culvert would be removed after project construction is complete, and the flow of the creek would be returned to its preexisting condition. Therefore, through adherence to Standard Measure WQ-1 and the use of temporary dams and bypass culverts in the creek during construction, construction of the proposed project would result in a less than significant impact related to altering the existing drainage pattern of the project site in a manner that would result in substantial erosion or siltation on- or off-site, and no mitigation is required.

In the existing condition, stormwater runoff drains through small drain holes through the deck of the existing bridge, which discharge directly into Moraga Creek along the east and west sides of the bridge. Stormwater runoff along both sides of the bridge either infiltrates into the adjacent vegetated areas or is collected via storm drains that discharge directly into Moraga Creek. Implementation of the proposed project would replace the existing bridge; however, the drainage pattern would be maintained to the maximum extent practicable and stormwater runoff would continue to drain to storm drains along the project alignment that discharge directly into Moraga Creek. In addition, rock slope protection would be required on the creek banks to prevent erosion and scour. Further, the proposed project would not alter the course of a stream or river as the new bridge would be constructed outside of Moraga Creek. Therefore, implementation of the proposed project would result in a less than significant impact related to altering the existing drainage pattern of the project site in a manner that would result in substantial erosion or siltation on- or off-site, and no mitigation is required.

- d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

Less Than Significant Impact. Construction activities would temporarily alter on-site drainage patterns and compact soil, which can increase the volume and velocity of storm water runoff. However, construction activities would be temporary, and the increase in runoff would not be substantial. As discussed in Response IX (a) above, the Construction General Permit requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts to water quality during construction, including those impacts associated with flooding. Therefore, adherence to Standard Measure WQ-1 would ensure that construction activities would result in a less than significant impact related to altering the existing drainage pattern of the site or area or increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, and no mitigation is required.

As discussed above, the proposed project would result in a minimal increase in impervious surface area of 0.05 acre. An increase in impervious surface area could result in an increase in the volume of runoff from the project site compared to existing conditions. However, because the proposed project would result in a nominal increase in impervious surface area, the volume

of runoff would be similar to the existing condition. Stormwater runoff along the alignment would continue to be collected by the storm drain system and discharged directly into Moraga Creek, similar to the existing condition. Moraga Creek has the capacity to handle the minimal increase in runoff volume from the project area. Because the proposed project would maintain the existing drainage pattern to the maximum extent practicable, the minimal increase in the rate or amount of runoff would not result in flooding on- or off-site. Furthermore, implementation of the proposed project would reduce the risk of flooding on- and off-site in Moraga Creek. Finally, the proposed project would not alter the course of a stream or river as the new bridge would be constructed outside of Moraga Creek. Therefore, the proposed project would result in a less than significant impact related to altering the existing drainage pattern of the site or area or increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, and no mitigation is required.

- e) *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?*

Less Than Significant Impact. Refer to Responses IX (a), (c), and (d), above.

- f) *Otherwise substantially degrade water quality?*

Less Than Significant Impact. Refer to Response IX (a), above.

- g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No Impact. No housing units are proposed as part of the proposed project. Therefore, implementation of the proposed project would not place housing within a 100-year flood hazard area, and no mitigation is required.

- h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows?*

Less Than Significant Impact. The Canyon Road Bridge is located within FEMA Zone AE. Areas designated as Zone AE are within the 100-year flood hazard area. The replacement bridge would be a single-span bridge that would be raised approximately 2 feet higher than the existing bridge to accommodate design flood elevations. The foundations of the new bridge would be located outside of the 100-year floodplain. The replacement bridge would contain the 100-year flood without overtopping and would not raise the base flood elevation, per FEMA requirements. Therefore, impacts related to flood hazards would be less than significant, and no mitigation is required.

- i) *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

Less Than Significant Impact. Dam failure is defined as the structural collapse of a dam that releases the water stored in a reservoir behind the dam. A dam failure is usually the result of the age of the structure, inadequate spillway capacity, or structural damage caused by an

earthquake or flood. According to Map 10-1, Dam Inundation Zone of the Draft Contra Costa County Hazard Mitigation Plan Update, the project site is not located within a dam inundation zone. Additionally, dam safety is regulated by the State Department of Water Resources, Division of Safety of Dams. All large reservoirs in the County have been investigated and many have been strengthened.

The proposed project would replace the existing bridge over Moraga Creek. No habitable structures would be constructed as part of the proposed project. While construction of the proposed project would increase use of the area, such use would be intermittent and temporary. Therefore, implementation of the proposed project would result in a less than significant impact related to exposing people or structures to significant risk of loss, injury or death involving flooding, and no mitigation is required.

j) *Inundation by seiche, tsunami, or mudflow?*

No Impact. Seiches are caused when earthquake ground motions cause water to oscillate from one side to the other of a closed or partially closed body of water such as a lake, bay, or channel. Such waves can cause retention structures to fail and flood downstream properties. No occurrences have been recorded in the Bay Area. In addition, the project site is not located within a dam inundation zone. Therefore, no risk of inundation by seiche exists at the project site, and no mitigation is required.

Tsunami are generated wave trains generally caused by tectonic displacement of the seafloor associated with shallow earthquakes, seafloor landslides, rock falls, and exploding volcanic islands. The project site is located approximately 9 miles to the east of the ocean and is not located within a tsunami inundation area as identified by the State of California Department of Conservation Tsunami Inundation Maps. Due to the distance of the project site from the ocean, no risk of inundation by tsunami exists at the project site, and no mitigation is required.

Mudflows typically occur in mountainous or hilly terrain and are described as a shallower type of slope failure, usually affecting the upper soil mantle or weathered bedrock underlying natural slopes. The project site consists primarily of impervious surfaces (i.e., roads and bridge). However, the project site includes Moraga Creek, a pervious area, with an earthen bottom. The soil in the area surrounding the bridge may be unstable and susceptible to erosion; therefore, the creek banks underneath the proposed bridge would be stabilized with rock slope protection, which would prevent mudslides from occurring within Moraga Creek. Therefore, no risk of mudflows exists at the project site, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The project site is located within the Town of Moraga in Contra Costa County. The project site includes the Canyon Road Bridge over Moraga Creek. From north to south, the project extends for approximately 900 feet along Canyon Road from just north of Constance Place, across Moraga Creek, to approximately 200 feet south of Canyon Road Bridge. The Lafayette-Moraga Regional Trail is located adjacent to and west of the project site in a residential area and connects to Canyon Road just south of the bridge. Joaquin Moraga Intermediate School and a pear orchard owned by the Moraga School District are located adjacent to and east of the project site. A temporary staging area would be located in a portion of the pear orchard along the eastern side of Canyon Road north of the bridge. The project area is surrounded by residential uses to the north, east, and west and public right-of-way to the south. Open space is located southwest of the bridge, west of the Lafayette-Moraga Regional Trail.

Discussion:

a) *Physically divide an established community?*

No 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 outlying areas. Implementation of the proposed project would not divide an established community because the proposed bridge would replace and upgrade existing infrastructure. Therefore, implementation of the proposed project would not physically divide an established community, and no mitigation is required.

b) *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

Less Than Significant Impact. The plans, policies, and regulations applicable to the proposed project include the Moraga 2002 General Plan²¹ and the Moraga Code of Ordinances.²² Canyon Road is designated as a 2-lane arterial street from Camino Pablo to the Town's southern limits in the Town's General Plan. Canyon Road is designated as public right-of-way in the Town's Zoning Map in the Moraga Code of Ordinances.

In the existing condition, the Canyon Road Bridge is structurally deficient and is therefore inconsistent with current design standards. Implementation of the proposed project would replace the existing, structurally deficient bridge over the Moraga Creek with a new multi-span bridge, improving and upgrading existing infrastructure within the Town to meet current design standards. Replacement of the bridge would mostly occur within public right-of-way; however, a temporary construction easement or agreement from Moraga School District would be required to use the pear orchard as a temporary staging area. In addition, temporary and permanent rights-of-way would be required from the parcels adjacent to Moraga Creek that are owned by EBMUD. However, no private right-of-way acquisitions or easements would be required for the proposed project. Furthermore, implementation of the proposed project would not result in any changes in land use to the adjacent properties.

Implementation of the proposed project would improve the safety for bicyclists and pedestrians who use the Canyon Road Bridge to access the Lafayette-Moraga Regional Trail. The proposed project would further implement and be consistent with the following goals and policies from the Circulation Element of the Town's General Plan related to improving roadway safety and access within the Town:

- **Goal C1 Traffic Circulation and Safety:** A circulation system that provides reasonable and safe access to the Town, egress from the Town, and internal movement.
 - **Policy C1.1 Roadway Engineering Maintenance:** Apply standard engineering principles in the design, construction and maintenance of all roadways to make them safe for all users, including bicyclists, pedestrians and equestrians. In support of community design and environmental goals, consider allowing narrower street widths, consistent with Town standards, when it can be demonstrated that public safety concerns are adequately addressed.
 - **Policy C1.11 Emergency Vehicle Access:** Maintain and improve critical transportation facilities for emergency vehicle access and emergency evacuation needs.
- **Goal C4 Pedestrians, Bicycles, and Transit:** Encourage Moragans to walk, bike, take transit or rideshare as a means of reducing traffic trips, improving environmental quality, and maintaining a healthy lifestyle.
 - **Policy C4.1 Pedestrian Circulation:** Provide a safe, continuous and connected system of pedestrian pathways through the Town, including sidewalks, paths,

²¹ Town of Moraga Planning Department. Adopted June 4, 2002. *Moraga 2002 General Plan*.

²² Town of Moraga. 2013. Moraga Code of Ordinances. May. Available online at: https://www.municode.com/library/ca/moraga/codes/code_of_ordinances (last accessed December 1, 2015).

trails and appropriate crosswalks along all principal streets, to link residential neighborhoods, commercial areas, community facilities such as schools and parks, and other important destinations. Link this network as appropriate with the regional trails system.

Therefore, implementation of the proposed project would not conflict with any applicable land use plan, policy, or regulation from the Town's General Plan or Code of Ordinances, and no mitigation is required.

- c) *Conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact. No habitat conservation plans or natural community conservation plans apply to the project site. Therefore, the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The State Mining and Reclamation Act of 1975 (SMARA) identifies and protects California’s mineral resources. State mineral resource zone (MRZ) maps do not exist for the bulk of Contra Costa County. According to the Contra Costa County General Plan, the most important mineral resources that are currently mined in the County include crushed rock on the north side of Mount Diablo, in the Concord area; shale in the Port Costa area; and sand and sandstone deposits, mined in several locations in the southeast portion of the County.²³ None of these mining locations are located in the vicinity of the proposed project.

Discussion:

- 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?*

No Impact. No known mineral resources are located within the project site, and no evidence exists indicating that there could be mineral resources in the project vicinity. Implementation of the proposed project would not result in the loss of known mineral resources of value to the State or the region, and no mitigation is required.

- 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?*

No Impact. Refer to Response XI (a), above. Implementation of the proposed project would not result in the loss of availability of any locally important mineral resource recovery site, and no mitigation is required.

²³ Contra Costa County General Plan 2005-2020. *Conservation Element*. January 18, 2005 (reprint July 2010). Last accessed on November 24, 2015 from <http://www.co.contra-costa.ca.us/DocumentCenter/View/30918>.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The following section is summarized from the Technical Noise Memorandum.²⁴ 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. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3.0 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3.0 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. 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. 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.

²⁴ LSA. 2016. *Canyon Road Bridge Replacement Project Technical Noise Memorandum*. April.

The primary existing noise source in the project area is vehicle traffic, including cars, trucks, buses, and motorcycles on Canyon Road and on additional roadways near or in the project vicinity. The level of vehicular noise generally varies with the volume of traffic, the number of trucks or buses, the speed of traffic, and the distance from the roadway. The project area is surrounded by residential uses to the north, east, and west. The closest residential uses are approximately 100 feet from the project site.

Discussion:

- a) *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Less Than Significant Impact. Short-term noise associated with construction and long-term noise associated with operation is described below.

Short-Term (Construction) Impacts. Short-term noise impacts would occur during demolition, excavation, and grading for the proposed project. Construction-related, short-term noise levels would be higher than existing ambient noise levels in the project area, but would cease once project construction is completed.

Two types of short-term noise impacts would occur during the construction period. The first type would be from construction crew commutes and the transport of construction equipment and materials to the project site, which would incrementally raise noise levels on roads accessing the project site. A temporary staging area would be located in the pear orchard adjacent to the bridge. Trucks moving between the staging area and construction site along Canyon Road could generate a high single-event noise exposure at a maximum level of 87 dBA L_{max} at 50 feet. However, construction-related worker commutes and equipment transport noise impacts would be short term and would not be substantial.

The second type of short-term noise impact is related to noise generated during bridge construction. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. As construction progresses, these various sequential phases would change the character of the noise generated and the noise levels within the project area. 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 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.

Table C: Typical Construction Equipment Noise Levels

Equipment Description	Spec 721.560 ¹ L _{max} at 50 Ft	Actual Measured ² L _{max} at 50 Ft
Backhoes	80	78
Compactor (ground)	80	83
Cranes	85	81
Dozers	85	82
Dump Trucks	84	76
Excavators	85	81
Flat Bed Trucks	84	74
Front-end Loaders	80	79
Graders	85	N/A
Impact Pile Drivers	95	101
Jackhammers	85	89
Pick-up Truck	55	75
Pneumatic Tools	85	85
Pumps	77	81
Rock Drills	85	81
Rollers	85	80
Scrapers	85	84
Tractors	84	N/A

Source: LSA. 2016. *Canyon Road Bridge Replacement Project Technical Noise Memorandum*. April.

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's Noise Code for the "Big Dig" project.

² The maximum noise level was developed based on the average noise level measured of each piece of equipment during the CA/T program in Boston, Massachusetts.

Note: Noise levels reported in this table are rounded to the nearest whole number.

ft = foot/feet

L_{max} = maximum instantaneous sound level

N/A = Not Applicable

Typical maximum noise levels range up to 88 dBA L_{max} at 50 feet during the noisiest construction phases. Site preparation, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes backfillers, bulldozers, 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.

Construction of the proposed project is expected to require the use of front-end loaders, bulldozers, water trucks, and pickup trucks. Typical maximum noise levels range from 55 to 85 dBA L_{max} at a distance of 50 feet from the active construction area during grading. As shown in Table C, the maximum noise level generated by each front-end loader in full operation is assumed to be approximately 80 dBA L_{max} at 50 feet from the front-end loader in operation. Each bulldozer would generate approximately 85 dBA L_{max} at 50 feet from the bulldozer in operation. The maximum noise level generated by water trucks and pickup trucks would be approximately 55 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. Assuming each piece of construction equipment operates at some distance away from the other equipment, the predicted combined noise level during site

preparation construction is 86 dBA L_{max} at a distance of 50 feet from an active construction area.

Pile driving would not be required for construction of the bridge; pile construction for the CIDH piles would be considered a drilling operation. CIDH pile installation produces substantially less vibration and noise compared to piles driven with an impact hammer and would have the least impact to the adjacent houses and school. Noise levels associated with CIDH would not be substantial when operating concurrently with other construction phases.

The closest residential uses to the project site are on Augusta Drive and Constance Place and are located approximately 100 feet from the construction site. Based on distance attenuation, these receptors may be subject to short-term noise reaching 80 dBA L_{max} generated by normal construction activities along the project alignment. The project construction area is within 500 feet of a residential zone and therefore would be required to comply with the construction hours specified in the Town's Code of Ordinances and the Caltrans Standard Specifications. Specifically, Title 7.12.090 of the Town's Code of Ordinances addresses construction noise within residential zones and limits construction in the Town to between 8:00 a.m. and 5:00 p.m. on weekdays and weekends, as specified in Standard Measure NOI-1.²⁵ Additionally, construction noise is regulated by the Caltrans Standard Specifications in Section 14-8.02. According to the provisions in Section 14-8.02, the noise level from the Construction Contractor's operations between the hours of 9:00 p.m. and 6:00 a.m. will not exceed 86 dBA at a distance of 50 feet, as specified in Standard Measure NOI-2. Compliance with the Town's Code of Ordinances would conform to Caltrans Standard Specifications. Therefore, with adherence to Standard Measures NOI-1 and NOI-2, short-term noise impacts related to construction of the proposed project would be less than significant.

Standard Measure NOI-1: During construction, the Construction Contractor shall ensure that construction activities are restricted to the hours between 8:00 a.m. and 5:00 p.m. on weekdays and weekends, as specified in the Town of Moraga's Code of Ordinances.

Standard Measure NOI-2: The Construction Contractor shall ensure that construction noise is regulated by the California Department of Transportation (Caltrans) Standard Specifications in Section 14-8.02. According to the provisions in Section 14-8.02, noise levels generated during construction of the project shall not exceed 86 A-weighted decibels (dBA) at a distance of 50 feet between the hours of 9:00 p.m. and 6:00 a.m.

Long-Term (Operational) Impacts. The primary purpose of the proposed project is to replace an existing, structurally deficient bridge over Moraga Creek. The proposed project would not increase vehicular traffic but would accommodate existing traffic volumes. Noise generated from vehicular traffic would be similar to the existing conditions and would therefore not disturb surrounding land uses in the project vicinity or expose persons to or generate noise levels in excess of standards in the local general plan or noise ordinance. No mitigation is required.

²⁵ Moraga, Town of. *Moraga Municipal Code, Title 8: Planning and Zoning.*

- b) *Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?*

Less Than Significant Impact. Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings on soil near an active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibration does not reach vibration levels that would result in damage to nearby structures.

The proposed bridge would be supported by CIDH piles. CIDH pile installation produces substantially less vibration and noise compared to piles driven with an impact hammer. The closest sensitive receptors are located approximately 100 feet from the project site; however, groundborne vibration dissipates quickly. Therefore, no substantial groundborne vibration levels from the CIDH piles would occur. Short-term construction impacts related to groundborne vibration would be less than significant, and no mitigation is required.

Roads are not typically major sources of ground-borne noise or vibration. Ground-borne vibration is mostly associated with passenger vehicles and trucks traveling on roads with poor conditions, such as potholes, bumps, expansion joints, or other discontinuities in the road surface. Passenger vehicles and trucks would cause effects such as the rattling of windows, and the source is almost always airborne noise. The proposed project would include new asphalt pavement and construction of a new bridge. As a result, there would be no potholes, bumps, or other discontinuities in the road surface that would generate ground-borne vibration or noise impacts from vehicular traffic traveling on the project segment of Canyon Road. Therefore, ground-borne vibration and noise impacts generated by vehicles traveling on Canyon Road under the proposed project would be less than significant, and no mitigation is required.

- c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

No Impact. The primary existing noise sources in the vicinity of the project site include vehicle traffic, including cars, trucks, buses, and motorcycles. The proposed project includes replacing an existing bridge and associated improvements. The proposed project would not increase vehicular traffic but would accommodate existing traffic volumes. Therefore, noise generated from vehicular traffic would be similar to the existing conditions and would not generate a substantial increase in ambient noise levels above those already within the project area. Therefore, no permanent impact on existing noise levels would occur as a result of project implementation, and no mitigation is required.

- d) *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less Than Significant Impact. Refer to Response XII (a) above. Adherence to Standard Measures NOI-1 and NOI-2 would ensure that potential short-term increases in ambient noise

levels due to construction activities would be less than significant, and no mitigation is required.

- 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 expose people residing or working in the project area to excessive noise levels?*

No Impact. The project is not located within an airport land use plan, or within 2 miles of a public or public use airport. The closest airport to the project site is the Oakland International Airport, located approximately 9.5 miles to the southwest. Due to the distance from the Oakland International Airport, implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels, and no mitigation is required.

- f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The project site is not located within the vicinity of a private airstrip. Therefore, implementation of the project would not expose people residing or working in the project area to excessive noise levels, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The project site consists of a two-lane roadway over Moraga Creek. Moraga Creek flows underneath the existing Canyon Road Bridge from north to south. Surrounding land uses include residential development, a pear orchard, Joaquin Moraga Intermediate School, vacant land, and the Lafayette-Moraga Regional Trail. A construction staging area is located on Canyon Road, approximately 0.75 miles south of the existing bridge.

Discussion:

- a) *Induce substantial 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 purpose of the project is to provide a safe, structurally sound bridge over Moraga Creek. The bridge replacement would improve the safety for bicyclists and pedestrians who use the Canyon Road Bridge to access the Lafayette-Moraga Regional Trail and would be designed to accommodate flood elevations within Moraga Creek. The project would address an existing condition and would not expand the capacity of the road (e.g., increase traffic volumes along Canyon Road) or provide additional major infrastructure so as to encourage population growth or new development. The project would not include any new housing, commercial, or industrial space. Therefore, the proposed project would not generate an increase in population or substantially influence growth in the project area. Therefore, implementation of the proposed project would not result in substantial growth in the area, either directly or indirectly, and no mitigation is required.

- b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact. No residences would be acquired for the implementation of the proposed project. Therefore, implementation of the proposed project would not displace housing and no replacement housing would be required. No mitigation is required.

- c) *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No Impact. As described in Response XIII (b), implementation of the proposed project would not displace any residents necessitating the construction of replacement housing elsewhere. Therefore, implementation of the proposed project would not result in any impacts associated with the construction of replacement housing, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIV. PUBLIC SERVICES.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The project site is located within the Town of Moraga. Public services provided to the project area are described below.

Fire Protection and Emergency Services. The Moraga-Orinda Fire District provides fire protection, rescue, and emergency medical services to the City of Orinda, Town of Moraga, and some unincorporated areas of the County. The closest fire station to the project site is Fire Station 41, which is located approximately 1 mile north of the project site and is located at 1280 Moraga Way near the intersection of Canyon Road.

Police Protection. The Moraga Police Department provides law enforcement to the Town of Moraga. The Moraga Police Department is located at 329 Rheem Boulevard, which is located approximately 3 miles to the north of the project site.

Schools. The project area is served by the Moraga School District.

Parks. Refer to Section XV, *Recreation*, regarding information about parks and recreation facilities.

Discussion:

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)-ii) Fire and Police protection?

Potentially Significant Unless Mitigation Incorporated. Construction activities associated with the proposed project would be staged in order to maintain emergency vehicle access across Moraga Creek. During the first stage of construction, a portion of the existing bridge would be demolished to allow construction of a portion of the new bridge. Vehicles and bicyclists would be required to cross the bridge one direction at a time with temporary traffic signal controls at each end. During the second stage of construction of the new bridge, vehicles would be shifted to the new bridge, and the remaining portions of the old, existing bridge would be demolished to allow construction of the second half of the new bridge. This construction staging could incrementally increase fire and police response times along Canyon Road. Implementation of Mitigation Measure TR-1 includes traffic control measures during construction to ensure that emergency access will be provided during construction. Therefore, with the implementation of Mitigation Measure TR-1, temporary impacts to fire and police protection services would be reduced to less than significant levels.

The proposed project does not include the construction of structures that would increase population in the area or that would generate a higher demand for fire and police services. The project involves replacing an existing, structurally deficient bridge over Moraga Creek with a new multi-span bridge. The purpose of the proposed project is to provide a safe, structurally sound bridge over Moraga Creek. Therefore, the proposed project operation would not result in any impacts to fire or police services, and no mitigation is required.

iii) Schools?

No Impact. The proposed project involves replacing an existing, structurally deficient bridge over Moraga Creek with a new multi-span bridge. The proposed project does not include the construction of new residential units that would generate additional population in the area. The proposed project does not include any changes to existing school facilities, nor would the proposed project increase demand for school facilities. Therefore, the proposed project would not result in any impacts to school facilities, and no mitigation is required.

iv) Parks?

Less Than Significant Impact. Implementation of the proposed project involves replacing the existing, structurally deficient bridge over Moraga Creek with a new multi-span bridge that would be designed to accommodate flood elevations with the creek. In addition, implementation of the proposed project would rebuild a portion of the existing Lafayette-Moraga Regional Trail, improving safety for bicyclists and pedestrians that use the bridge to access the trail or residents that walk to Joaquin Moraga Intermediate School. The project improvements would improve the safety along Canyon Road and across the Canyon Road Bridge. By improving bicycle and pedestrian safety, there is a potential that bicycle and pedestrian use of the trail in this area would slightly increase. However, the slight increase in the use of the trail would not be substantial and would not require the construction of other recreation facilities. Therefore, impacts to recreation facilities or the availability of recreation resources within the Town would be less than significant, and no mitigation is required.

v) *Other public facilities?*

No Impact. The proposed project involves replacing an existing, structurally deficient bridge over Moraga Creek with a new multi-span bridge. The bridge replacement would improve the safety for bicyclists and pedestrians who use the Canyon Road Bridge to access the Lafayette-Moraga Regional Trail and would be designed to accommodate flood elevations within Moraga Creek; therefore, the proposed project would not induce population growth that would generate an increased demand for public facilities such as libraries and hospitals. No impact to public facilities would occur, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XV. RECREATION.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Affected Environment:

The Town of Moraga Parks and Recreation Commission is responsible for reviewing the Master Plan for the parks and trails and making any necessary recommendations to the Town Council. The Town currently manages 307.5 acres of existing parkland, numerous recreation facilities, and approximately 2 miles of pedestrian and multi-use trail. In addition, a portion of the Lafayette-Moraga Regional Trail runs through the Town of Moraga and is maintained by the East Bay Regional Park District. The Lafayette-Moraga Regional Trail is a 7.65-mile multi-use trail connecting the City of Lafayette to the Town of Moraga. The trail starts at a staging area at Olympic Boulevard and Pleasant Hill Road in the City of Lafayette and ends at EMBUD’s Valle Vista staging area outside of the Town of Moraga.

Discussion:

- 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. Implementation of the proposed project involves replacing the existing, structurally deficient bridge over Moraga Creek and rebuilding a portion of the existing Lafayette-Moraga Regional Trail, improving safety for bicyclists and pedestrians that use the bridge to access the trail or residents that walk to Joaquin Moraga Intermediate School. Because the trail serves as a fire access trail, it would remain open during construction. The project improvements would improve the safety along Canyon Road and across the Canyon Road Bridge. By improving bicycle and pedestrian safety, there is a potential that bicycle and pedestrian use of the trail in this area would slightly increase. However, it is not anticipated that this slight increase in use of the trail would result in a physical deterioration of the existing trail facilities. In addition, implementation of the proposed project would not be growth-inducing. Therefore, impacts associated with increasing the use of existing neighborhood and regional parks or other recreational facilities would be less than significant, and no mitigation is required.

- 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. Implementation of the proposed project would not induce population growth that would require the construction or expansion of recreational facilities. The trail modifications would improve bicycle and pedestrian safety in the area and would not have an adverse physical effect on the environment. Therefore, impacts would be less than significant, and no mitigation is required.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

The existing Canyon Road Bridge over Moraga Creek is a two-lane bridge which provides north-south access to local neighborhoods and the EBMUD Valle Vista Staging Area and Redwood Regional Park. The lane width across the bridge is approximately 11 feet. The Lafayette- Moraga Regional Trail, located along the west side of Canyon Road, serves recreational cyclists as well as nearby residents that walk to Joaquin Moraga Intermediate School adjacent to the northeast approach to the bridge. Sidewalks are not provided on Canyon Road Bridge or south of the bridge. Sidewalks are provided on both sides of Canyon Road, north of the intersection with Constance Place. No County Connection transit routes or school buses travel across Canyon Road Bridge.

Discussion:

- a) *Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation*

system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Potentially Significant Unless Mitigation Incorporated. The potential for the proposed project to conflict with established transportation system performance measures is described below.

Existing Conditions. A Construction Project Transportation Assessment Memorandum (Fehr and Peers, 2014) was prepared for the proposed project. The description of existing conditions in the project area provided below is summarized from that memorandum.

Study Area Intersections. Canyon Road is currently a two-lane residential collector street that crosses over Moraga Creek. The study area intersections were selected in consultation with Town staff. The following study area intersections were analyzed for the proposed project:

- Canyon Road/Camino Pablo (un-signalized 3-way side-street-stop-controlled)
- Canyon Road/Constance Place (un-signalized 3-way side-street-stop-controlled)
- Canyon Road/Pinehurst Road (un-signalized 3-way side-street-stop-controlled)

Weekday morning (7:00 to 9:00 AM) and afternoon/evening (4:00 to 6:00 PM) peak period intersection turning movement counts of vehicles, pedestrians, and bicycles were conducted in June 2014 as part of the Construction Project Transportation Assessment Memorandum (Fehr and Peers, 2014) using Synchro software. All study intersections are currently side street stop controlled and operate at satisfactory (with maximum delay corresponding to Level of Service [LOS] C) levels during the AM and PM peak hours.²⁶

Roadway Segments. Roadway segments were selected in consultation with Town staff because these roadways provide access to the Canyon residential community from Interstate 580 and State Route 13. The following roadway segments were analyzed for the proposed project:

- Canyon Road, south of Constance Place (before Canyon Road Bridge)
- Canyon Road, north of Camino Pablo and south of De La Cruz Way

Traffic counts were conducted from Wednesday through Sunday on the study roadway segments in June 2014 as part of the Construction Project Transportation Assessment Memorandum (Fehr and Peers, 2014). Approximately 100 vehicles cross the Canyon Road Bridge in the northbound direction and 120 vehicles cross in the southbound direction during the AM peak hour. In the afternoon/evening, approximately 240 vehicles cross the Canyon Road Bridge in the northbound direction and 85 vehicles cross in the southbound direction during the PM peak hour. Outside of the peak hours, approximately 100 to 300 vehicles per

²⁶ Level of Service (LOS) is a measure of a roadway's operating performance and is a tool used in defining thresholds of significance. It is described with a letter designation from A to F, with LOS A representing the best operating conditions and LOS F the worst conditions. LOS E represents "at-capacity" operations.

hour use the bridge. In addition, weekend activity across the bridge is lower than weekday activity.

Construction. During construction, the bridge would be closed in two phases (i.e., one side at a time) in order to maintain vehicle access across Moraga Creek during the entire length of construction (approximately 2 years). 24-hour temporary traffic signals would be used at both ends of the bridge to control right-of-way over one lane of the bridge for alternating northbound and southbound travel. The temporary traffic control signals would be placed on both the north and south ends of the bridge and would operate with dynamic signal timings. Dynamic signal operations would adjust to accommodate peak direction of travel. The northern approach south of Canyon Road Bridge would have a limit line of 290 feet south of the bridge, and the southern approach north of Canyon Road Bridge would have a limit line just north of the Canyon Road/Constance Place intersection. For purposes of the traffic analysis, it was assumed that traffic demand over the bridge would not change due to the proposed project.

Study Area Intersections. During construction, the study area intersections would operate at LOS D and LOS E at both temporary signal locations (north of Canyon Road/Constance Place and south of Canyon Road Bridge). No change would occur at the intersection of Canyon Road/Pinehurst Road (the intersection would remain operating at an acceptable LOS). Vehicle queues were evaluated using SimTraffic simulation software for the through movements across Canyon Road Bridge and are presented in Table D.

Table D: Queue Lengths Across Canyon Road Bridge

Intersection	Control	Movement	Storage (feet)	Peak Hour	Maximum Vehicle Queue Length with Temporary Signals (feet) ³
Southbound approach north of Canyon Road/Constance Place ¹	Temporary Signal	Through	320	AM PM	230 180
Northbound approach south of Canyon Road Bridge ²	Temporary Signal	Through	>500	AM PM	240 420

Source: Fehr and Peers, 2014.

¹ Queues do not spill back through this intersection. “Do Not Block Intersection” signs would discourage traffic from queueing through the Canyon Road/Camino Pablo intersection, as specified in Mitigation Measure TR-1.

² Storage space extends back to the Canyon Road/Pinehurst Road intersection.

³ 20 feet per vehicle was used for average vehicle queueing space.

As shown in Table D, under dynamic traffic control conditions with coordination in the AM peak hour, the southbound approach at the Canyon Road/Constance Place intersection would have a maximum queue length of 230 feet (approximately 12 vehicles). However, the vehicles would not extend back into the Camino Pablo/Canyon Road intersection. “Do Not Block Intersection” signs would be installed at the intersection to discourage traffic from queueing at this intersection, as specified in Mitigation Measure TR-1. During the PM peak hour, the Canyon Road/Constance Place intersection would have a maximum queue length of 180 feet (approximately 9 vehicles). At the northbound approach south of Canyon Road Bridge during the AM peak hour, the maximum queue length would be 240 feet (approximately 12 vehicles).

During the PM peak hour, the northbound approach would have a maximum queue length of 420 feet (approximately 21 vehicles). In order to avoid vehicle queue lengths spilling over and impacting other intersections, a traffic control system that allows for time of day signal plans shall be installed, as specified in Mitigation Measure TR-1.

Overall, travelers across Canyon Road Bridge during construction would experience traffic delays associated with one travel lane and temporary traffic signals. However, these impacts would be short term, occurring only during the construction period (1-2 years). Implementation of Mitigation Measure TR-1 includes the implementation of traffic control measures during construction, which would reduce temporary traffic-related impacts to less than significant levels.

Operation. The proposed project would be similar to the existing condition and would not generate additional vehicle trips, but would increase the effectiveness of the circulation system by replacing a structurally deficient bridge. In addition, operation of the proposed bridge would have negligible impacts on the area's transportation system as only inspection and maintenance activities would generate vehicular traffic. Therefore, operation of the proposed project would not result in any significant impacts related to traffic, and no mitigation is required.

Mitigation Measure TR-1: During construction, the Construction Contractor shall implement the following traffic control measures:

- Provide one-lane, two-way traffic control over Canyon Road Bridge with the use of a temporary traffic signal system with time of day plans.
- Monitor the operations of the one-lane, two-way traffic signals and adjust signal timings as needed to accommodate demand.
- Maintain 150 feet of staging area as shown on the preliminary plans to maximize the vehicle storage between Camino Pablo and the limit line. In addition, provide 50 feet of taper on each side of the staging area to transition vehicles into one travel lane.
- Provide "Do Not Block Intersection" signs and "KEEP CLEAR" pavement markings at the Canyon Road/Clemens Road intersection for both the northbound and westbound approach.
- Keep at least one sidewalk open and accessible on the west side for pedestrian use.
- Notify Joaquin Moraga Intermediate School about the lane closure on Canyon Road Bridge and inform the school that construction is expected to add up to 2 minutes of travel time to cross the bridge.

- b) *Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*

No Impact. The proposed Canyon Bridge Replacement Project is included in the Seven-Year Capital Improvement Program for the 2013 Update to the Contra Costa Congestion Management Program.²⁷ In addition, replacement of the bridge would not increase traffic volumes in the project area. Therefore, the proposed project would be consistent with the applicable congestion management program. No impact would occur, and no mitigation is required.

- c) *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

No Impact. The closest airport to the project is the Oakland International Airport, located approximately 9.5 miles to the southwest. The proposed project does not propose any structures that would interfere with air traffic patterns; nor would it increase traffic levels. Therefore, no impact related to air traffic would occur, and no mitigation is required.

- d) *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

No Impact. The proposed project would not introduce any new sharp curves or intersections that would conflict with existing land uses in the surrounding area. The existing bridge is structurally deficient, and the existing geometry of the bridge is a safety issue for bicyclists and pedestrians who use the bridge to access the Lafayette-Moraga Regional Trail. Replacing the existing, structurally deficient bridge and providing bicycle lanes and a sidewalk along Canyon Road would result in a beneficial impact by reducing hazards associated with the current design of the bridge. Therefore, the proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or introduce an incompatible use (e.g., farm equipment), and no mitigation is required.

- e) *Result in inadequate emergency access?*

Potentially Significant Unless Mitigation Incorporated. Construction of the new bridge would be staged in order to maintain emergency vehicle access across the creek. Construction would require closure of the bridge in two phases (i.e., one side at a time). The closure of the bridge would result in slight delays to emergency access. However, implementation of Mitigation Measure TR-1, which includes traffic control measures during construction, would reduce temporary impacts to emergency access. In addition, the project's effects on emergency access would be limited to the construction period (i.e., approximately 2 years). Once completed, the proposed project would not result in inadequate emergency access. Therefore, with the implementation of Mitigation Measure TR-1, implementation of the proposed project would not result in a significant impact to emergency access.

- f) *Conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?*

²⁷ Contra Costa Transportation Authority. 2013. Update of the Contra Costa Congestion Management Program. Website: <http://www.ccta.net/uploads/55b15a1cb6662.pdf> (last accessed August 4, 2016).

No Impact. The proposed project does not include public transit activities. The existing bridge consists of two lanes of traffic (one lane in each direction) and currently presents a safety issue for bicyclists and pedestrians who use the bridge to access the heavily used Lafayette-Moraga Regional Trail. No bicycle lanes or sidewalks are located along Canyon Road. Therefore, currently Canyon Road fails to accommodate bicyclists and pedestrians. Implementation of the proposed project would provide bicycle lanes along both sides of the bridge and a sidewalk along the west side of the bridge for bicyclist and pedestrian use. The bicycle lanes would be 8 feet in width, and the sidewalk would be 5 feet in width; both would be consistent with Town standards. The proposed project would be consistent with the adopted policies in the Town General Plan, specifically Policy C1.1 and Policy C4.1. Policy C1.1 requires that the Town design roadways to be safe for all users, including bicyclists and pedestrians. Policy C4.1 requires the Town to provide safe pedestrian pathways through the Town, including sidewalks, paths, trails, and appropriate crosswalks. The provision of bicycle lanes and a sidewalk along Canyon Road would improve the safety of bicyclists and pedestrians. Therefore, implementation of the proposed project would have a beneficial effect to cyclists and pedestrians and would not conflict with any adopted policies, plans, or programs regarding bicycle or pedestrian facilities, and no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, State, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment:

A variety of local and regional purveyors in this area provide and maintain utility and service system facilities associated with electricity, water, stormwater, wastewater, solid waste, communications, and natural gas. Underground and overhead utilities including water, electricity, and communications would be relocated for the bridge replacement.

Discussion:

- a) *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact. The proposed project is characterized as an infrastructure improvement project and involves replacing the existing bridge over Moraga Creek. Therefore, the proposed project would not generate wastewater and would not require wastewater treatment at a wastewater facility. Therefore, implementation of the proposed project would not exceed wastewater treatment requirements of the applicable RWQCB, and no mitigation is required.

- b) *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No Impact. Implementation of the proposed project would modify an existing transportation facility by replacing a structurally deficient bridge with a new bridge over Moraga Creek. Water would be used during construction to reduce fugitive dust in compliance with Mitigation Measure AIR-1. The amount of water used during construction would be minimal and would cease when construction is completed. Any vegetation removed would be replaced with native vegetation to mimic the existing condition, and no irrigation systems would be required. Therefore, the total water demand for the proposed project would be similar to existing conditions. As noted above in Response XVII (a), the project would not generate wastewater or require wastewater treatment. Implementation of the proposed project would not require or result in construction of new water, wastewater treatment, or collection facilities or require the expansion of existing facilities. Therefore, implementation of the proposed project would not result in any impacts related to the construction of water and wastewater treatment and collection facilities, and no mitigation is required.

- c) *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less Than Significant Impact. Existing storm drain facilities would be maintained as part of the proposed project. Stormwater runoff along the alignment would continue to be collected by the storm drain system and discharged directly into Moraga Creek, similar to the existing condition. Moraga Creek has the capacity to handle the minimal increase in runoff volume from the project area. Because the proposed project would maintain the existing drainage pattern to the maximum extent practicable, the proposed project would not require or result in the construction of new stormwater drainage facilities that could cause significant environmental effects. This impact would be less than significant, and no mitigation is required.

- d) *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

Less Than Significant Impact. Construction of the proposed project would require the use of a small amount of water on a temporary basis for such activities as fugitive dust control and clean-up activities. These uses would cease when construction of the project is completed. Construction activities would require nominal water and would not have significant impacts on the existing water system or available water supplies. Therefore, there would be sufficient water supplies available to address water needs during construction. Impacts associated with the need for new or expanded water entitlements would be less than significant, and no mitigation is required.

As discussed in Response XVII (b) above, implementation of the proposed project would modify an existing transportation facility. Since landscaping would mimic the existing condition, irrigation systems would not be required. Total water demand for the proposed project would be similar to existing conditions, and there would be no need to seek new or expanded entitlements during operation. Therefore, there would be sufficient water supplies

available to serve the proposed project, and no impacts associated with the need for new or expanded water entitlements would occur. No mitigation is required.

- e) *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. Refer to Response XVII (b). Implementation of the proposed project would modify an existing transportation facility. No wastewater would be generated as a result of construction or operation of the proposed project. Therefore, the proposed project would not exceed the existing capacity of the sanitary sewer delivery system or the existing capacity of treatment facilities in the Town. Therefore, implementation of the proposed project would not result in impacts related to the provision of wastewater services, and no mitigation is required.

- f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Less Than Significant Impact. The project site is located within the Central Contra Costa Solid Waste Authority (CCCSWA) service area. CCCSWA owns and operates 15 solid waste facilities and disposal sites throughout the service area in Contra Costa County.

Construction of the proposed project would require demolition of the existing bridge and construction of the new bridge. Waste generated during demolition and construction activities would need to be disposed of in local or regional facilities. Waste generated from construction would include: non-hazardous metal waste, non-hazardous non-metal waste (organic waste [vegetation], soil, and refuse from construction workers), and paving materials (asphalt, bricks, concrete). Non-hazardous metal and non-metal waste would be hauled to local disposal centers for recycling or taken to landfills. Materials from excavation activities would be reused to the maximum extent possible. A majority of the debris generated during demolition and construction activities would be recycled at any of the six construction and demolition debris recycling and disposal locations within Contra Costa County. The two closest facilities are the Acme Landfill and Contra Costa Transfer and Recovery located in the City of Martinez, approximately 20 miles north of the project site.²⁸ In addition, these facilities would dispose of any demolition or construction materials that cannot be recycled. The disposal demand would be reasonable relative to the solid waste disposal capacities of these facilities. Therefore, construction of the proposed project would result in a less than significant impact to solid waste and landfill facilities, and no mitigation is required.

Waste collected during road maintenance and operation of the proposed project would be limited and would be similar to existing conditions. The proposed project would not generate a substantial amount of waste during operation that would exceed the capacity of the Acme Landfill or Contra Costa Transfer and Recovery facility. Therefore, implementation of the

²⁸ Contra Costa Environmental Health. 2015. *Construction & Demolition Debris Disposal & Recycling*. Last accessed November 25, 2015 from <http://cchealth.org/eh/solid-waste/pdf/construction-waste-trifold-brochure.pdf>.

proposed project would result in a less than significant impact to solid waste and landfill facilities, and no mitigation is required.

g) *Comply with federal, State, and local statutes and regulations related to solid waste?*

No Impact. The California Integrated Waste Management Act (AB 939) changed the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000, and to maintain the 50 percent diversion rate thereafter. The Town has created a Waste Tracking system to track the Town's diversion rate, carbon footprint, and materials that are recycled, reused, and disposed of. According to the Town's Waste Tracking system, the Town has achieved a 68.7 percent diversion rate for construction and demolition debris for the past 4 years, exceeding the State's mandate²⁹. The proposed project would comply with existing or future statutes and regulations, including waste diversion programs mandated by federal, State, and local law. Therefore, the proposed project would not result in an impact related to federal, State, and local statutes and regulations related to solid wastes, and no mitigation is required.

²⁹ Green Halo Systems. 2015. Town of Moraga Construction & Demolition Waste Diversion Central. Last accessed November 25, 2015 from <http://moraga.wastetracking.com/>.

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.

- | | | | | |
|---|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| a) Does the project have the potential to 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, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? (Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- a) *Does the project have the potential to 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, 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?*

Potentially Significant Unless Mitigation Incorporated. As described in this IS/MND, implementation of the proposed project would have the potential to adversely impact special-status animal species, wetlands, riparian habitat, and previously undiscovered cultural and paleontological resources and/or human remains. Implementation of Mitigation Measures BIO-1 through BIO-7 in Section IV, Biological Resources, and Mitigation Measure CULT-1 and Standard Measures CULT-1 and CULT-2 in Section V, Cultural Resources, would ensure that construction and operation of the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce the habitat of a fish or wildlife species; 3) cause a fish or wildlife population to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) 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.)*

Less Than Significant Impact. The Town proposes to replace an existing, structurally deficient bridge over Moraga Creek. All environmental impacts that could occur as a result of implementation of the proposed project would be reduced to less than significant levels through implementation of mitigation measures recommended in this IS/MND. Additionally, the impacts relevant to the proposed project are localized and confined to the immediate project area. Given that the potential project-related impacts are less than significant and limited, implementation of the proposed project would not result in impacts that are cumulatively considerable when evaluated with the impacts of other current projects, or the effects of probable future projects. Therefore, implementation of the proposed project would not result in cumulatively considerable impacts, 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?*

Potentially Significant Unless Mitigation Incorporated. This document evaluates the proposed project's potential impacts to aesthetics, air quality, agricultural and forestry resources, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services and recreation, traffic, and utilities and service systems. Implementation of Mitigation Measures HAZ-1 through HAZ-6 in Section VIII, Hazards and Hazardous Materials, would protect human beings from adverse effects associated with the routine transport, use, disposal, or release of hazardous materials. Therefore, impacts to human beings from implementation of the proposed project would be mitigated to less than significant levels.

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