Town of Moraga

St. Mary's Road Double Roundabouts Project
Draft Initial Study and Mitigated Negative Declaration

Prepared by
Town of Moraga
Public Works Department/ Engineering Division
329 Rheem Boulevard, 2nd Floor
Moraga, California 94556
October 2021

Prepared by
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Kimley»Horn

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1.0 INTRODUCTION & PURPOSE

1.1 Purpose and Scope of the Initial Study

In accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] Section 21000 et seq.) and its Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.), this Initial Study has been prepared to evaluate the potential environmental effects associated with the construction and operation of the St. Mary's Road Double Roundabouts Project (proposed project). Pursuant to Section 15367 of the State CEQA Guidelines, the Town of Moraga (Town) is the lead agency for the project. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project.

As set forth in the State CEQA Guidelines Section 15070, an Initial Study leading to a Mitigated Negative Declaration (IS/MND) can be prepared when the Initial Study has identified potentially significant environmental impacts, but revisions have been made to a project, prior to public review of the Initial Study, that would avoid or mitigate the impacts to a level considered less than significant; and there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.

1.2 Summary of Findings

Section 4.0 of this document contains the Environmental Checklist that was prepared for the proposed project pursuant to CEQA requirements. The Environmental Checklist indicates that the proposed project would not result in significant impacts with the implementation of mitigation measures, as identified where applicable throughout this document.

1.3 Initial Study Public Review Process

An Initial Study (IS) is a preliminary analysis which is prepared to determine the relative environmental impacts associated with a proposed project. It is designed as a measuring mechanism to determine if a project will have a significant adverse effect on the environment, thereby triggering the need to prepare a full Environmental Impact Report (EIR). It also functions as an evidentiary document containing information which supports conclusions that the project will not have a significant environmental impact or that the impacts can be mitigated to a "Less Than Significant" or "No Impact" level.

If there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, the agency shall prepare a Negative Declaration (ND). If the IS identifies potentially significant effects, but: (1) revisions in the project plans or proposals would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment, then a Mitigated Negative Declaration (MND) shall be prepared.

The Initial Study and a Notice of Intent (NOI) to adopt an MND will be distributed to responsible and trustee agencies, other affected agencies, and other parties for a 45-day public review period. Written comments regarding this MND should be addressed to:

Mark Summers, PE, Associate Civil Engineer
Public Works Department/Engineering Division
329 Rheem Boulevard, 2nd Floor, Moraga, CA 94556
(925) 888-7038, msummers@moraga.ca.us

After the 45-day review period, consideration of comments raised during the public review period will be considered and addressed prior to adoption of the MND by the Town.

1.4 Report Organization

This document has been organized into the following sections:

Section 1.0 – Introduction. This section provides an introduction and overview describing the conclusions of the Initial Study.

Section 2.0 – Project Description. This section identifies key project characteristics and includes a list of anticipated discretionary actions.

Section 3.0 – Initial Study Checklist. The Environmental Checklist Form provides an overview of the potential impacts that may or may not result from project implementation.

Section 4.0 – Environmental Evaluation. This section contains an analysis of environmental impacts identified in the environmental checklist.

Section 5.0 – References. The section identifies resources used to prepare the Initial Study.

2.0 DESCRIPTION OF PROPOSED PROJECT

2.1 Project Overview and Environmental Setting

The Town of Moraga (Town) proposes to provide improvements to a single-lane roundabout corridor at the intersections of St. Mary's Road / Rheem Boulevard and St. Mary's Road / Bollinger Canyon Road. The St. Mary's Double Roundabouts Project (proposed project) would improve traffic operations and pedestrian and bicycle access and safety. The project would construct two roundabouts on St. Mary's Road at the Rheem Boulevard and Bollinger Canyon Road intersections and create safer pedestrian and bicycle crossings.

The project would be implemented in the Town of Moraga, Contra Costa County, California. *Figure 2.1-1, Regional Location Map*, and *Figure 2.1-2, Vicinity Map*, shows the project vicinity and location, respectively. The Town is the lead agency under the California Environmental Quality Act (CEQA).

The project is included in the Town of Moraga Capital Improvement Project (CIP). The design concept and scope of the project is consistent with the project description in the CIP and is intended to meet the traffic needs in the area based on local land use plans. The project is partially funded through Measure J 2013 Strategic Plan: Major Streets category.

2.2 Project Description

Project Purpose and Need

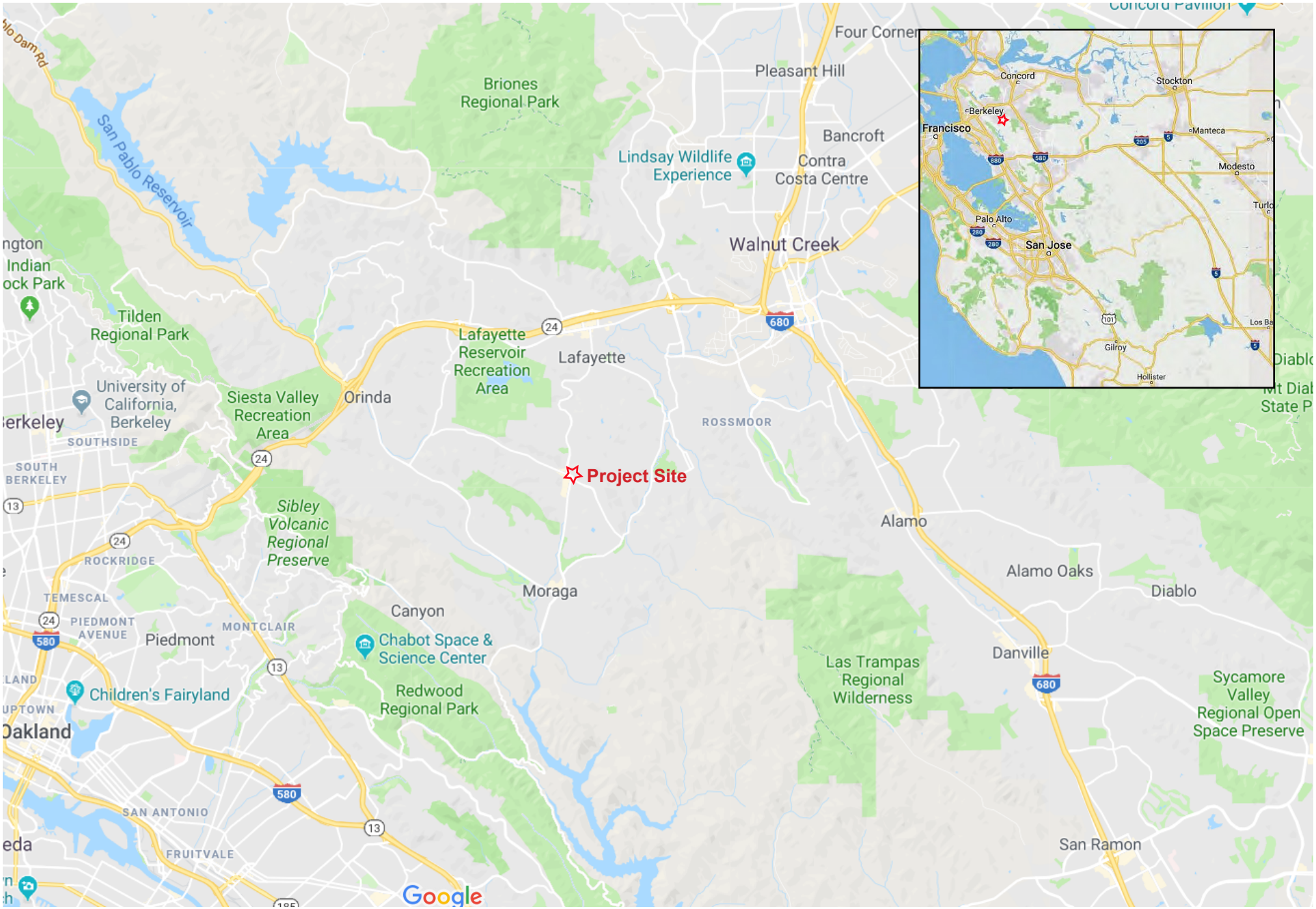
Project Purpose

The purpose of the proposed project is to provide congestion relief at the St. Mary's Road and Rheem Boulevard and to improve stopping sight distance and visibility at the Rheem Boulevard and Bollinger Canyon Road intersections. The project is proposed to alleviate the current congestion, reduce intersection delays and queues, improve multimodal safety and to better accommodate pedestrian and bicycle traffic.

Project Need

The proposed project is needed because the roadway presently experiences inadequate intersection level of service (LOS) under cumulative build-out conditions with traffic queue lengths exceeding existing intersection geometry. Improvements at this intersection are also needed to accommodate projected growth of the St. Mary's College campus, and to address safety issues at the intersection. Additionally, the roadway geometry and topography at these closely spaced intersections has insufficient stopping sight distance with visibility issues approaching the Rheem Boulevard and Bollinger Canyon Road intersections which in turn result in high accident rates and decreased safety.

Traffic collision data from 2010 through 2015 for the Rheem Boulevard and Bollinger Canyon Road intersections were provided by the Town of Moraga Police Department. Eight traffic related incidents were reported involving minor injuries and property damage. A majority of reported accidents occurred at the St. Mary's Road/ Rheem Boulevard stop controlled intersection with rear end and side impact collisions between motor vehicles due to limited visibility and sight distance. Two collisions involving bicyclists were also reported, one resulting in an injury. There was also report of an overturned truck on



Source: Google Maps, 2019

Figure 2.1-1: Regional Location Map

St. Mary's Road Double Roundabouts Project

Not to scale

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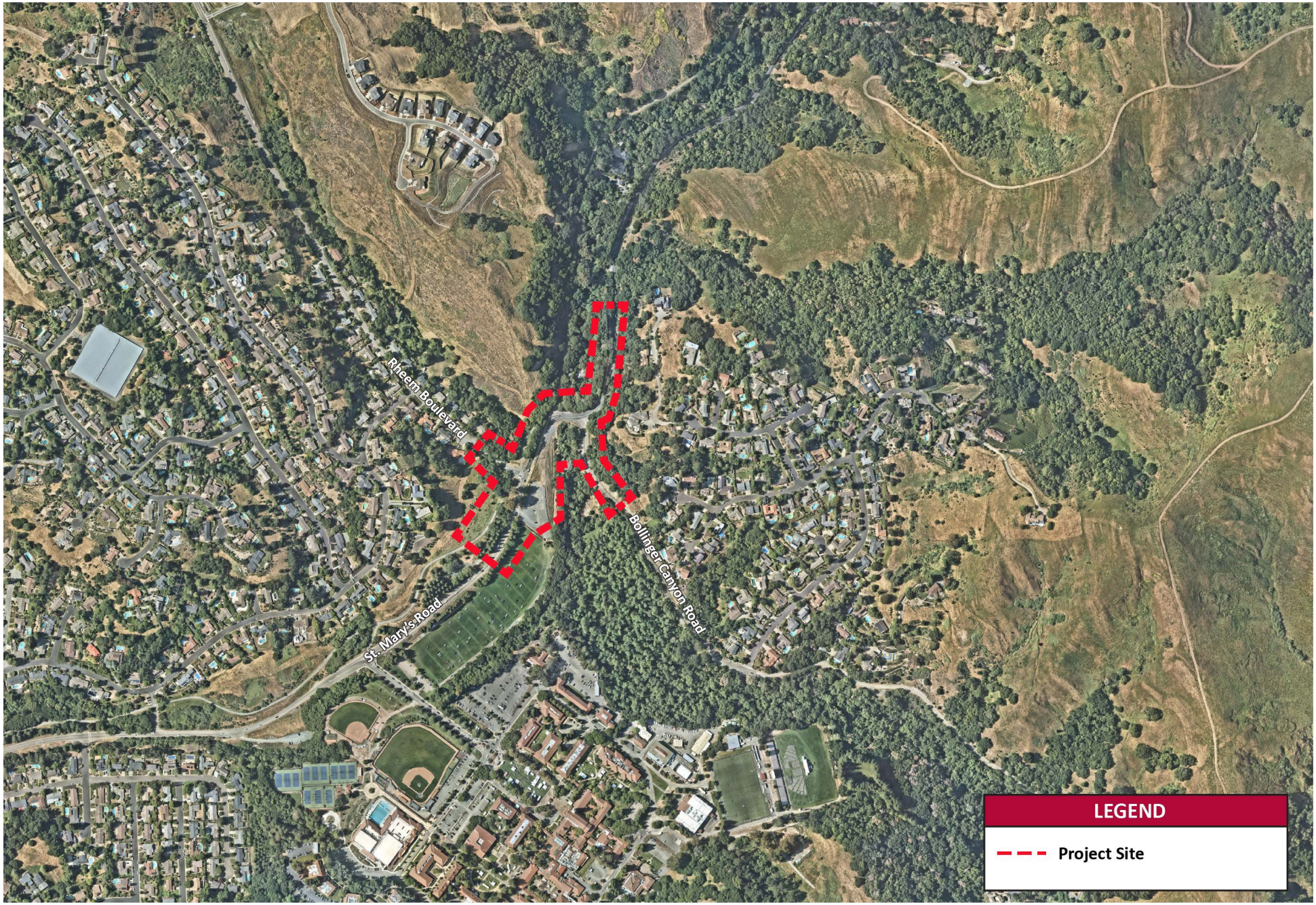

Source: NearMap, 2019

Figure 2.1-2: Vicinity Map

St. Mary's Road Double Roundabouts Project

Not to scale

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the curve in between the intersections in 2012.

In December 2008 Fehr & Peers prepared a report titled *St. Mary's Road Improvement Evaluation at Rheem Boulevard and Bollinger Canyon Road,* which evaluated the physical and operation characteristics of the St. Mary's intersections at Rheem Boulevard and Bollinger Canyon Road to recommend near-term and long-term improvements. In May 2015, Omni-means prepared the *St. Mary's Road Roundabout Feasibility Study,* which analyzes of the design features and safety assessment of a proposed single-lane roundabout corridor at the intersections of St. Mary's Road / Rheem Boulevard and St. Mary's Road / Bollinger Canyon Road in the Town of Moraga.

The heavy congestion along this roadway can be attributed to several regional destinations having access from St. Mary's Road, including the St. Mary's College campus, the shopping center on Moraga Way, and existing residential development.

In addition to vehicle traffic, the project site contains pedestrian and bicycle traffic. The Lafayette/Moraga Regional Trail runs parallel to St. Mary's Road and crosses the intersection of St. Mary's Road / Rheem Boulevard via an at-grade cross walk. The crossing is marked with white striping and does not have any lighting or sign features. Currently, there are gaps in the pedestrian network, with limited sidewalks along most of the project corridor. This results in unsafe pedestrian movements through the project site.

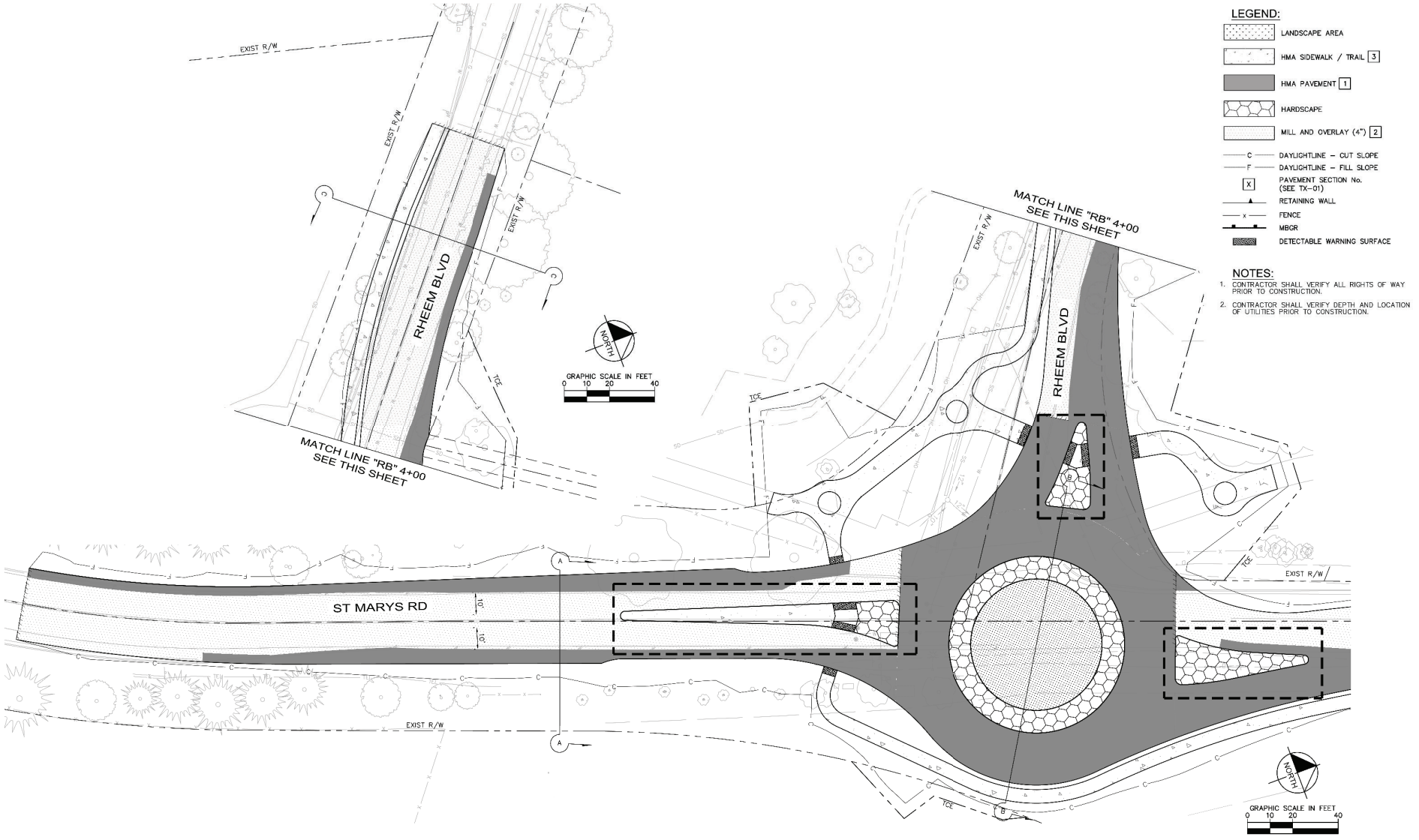
Project Components

The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, provide designated facilities separated from the vehicular traffic for pedestrians and bicycles, improve intersection capacity, and reduce overall delays and improve safety.

Roadway Facilities

The project would widen St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road to accommodate two new roundabouts and the approaches to the roundabouts. The existing two-lane roadways would remain as two-lane roadways. The roundabout geometry will be designed in a way to decrease approaching speeds at these intersections and improve visibility, subsequently improving traffic operations and safety. These improvements would require the roadway to be relocated, partially outside the existing right-of-way. The amount of potential cut and fill is included in the ranges of excavation provided for the various project components described below.

As shown in *Figure 2.2-1a through Figure 2.2-1c, Proposed Roadway Design*, the vehicle travel lanes would be 12 feet wide. The proposed roundabouts would have single-lane entries on all intersection approaches and the central islands would be circular in shape with a symmetric diameter. The St. Mary's Road / Rheem Boulevard roundabout would be approximately 120 feet in diameter, with landscaping in the center. The St. Mary's Road / Bollinger Canyon roundabout would be a mini-roundabout, approximately 80 feet in diameter. The existing roadway would be excavated from between 4 to 16 inches where pavement would be replaced. The new relocated segments of roadway would require excavation of depths up to 2 feet. The two directions of traffic would be separated by road striping and medians approaching the roundabouts. The medians would be excavated to a maximum depth of six feet, measured from existing roadway surface, to provide room for import soil and roadway signs.



Source: Kimley-Horn, 2019

Figure 2.2-1a: Proposed Roadway Design

St. Mary's Road Double Roundabouts Project

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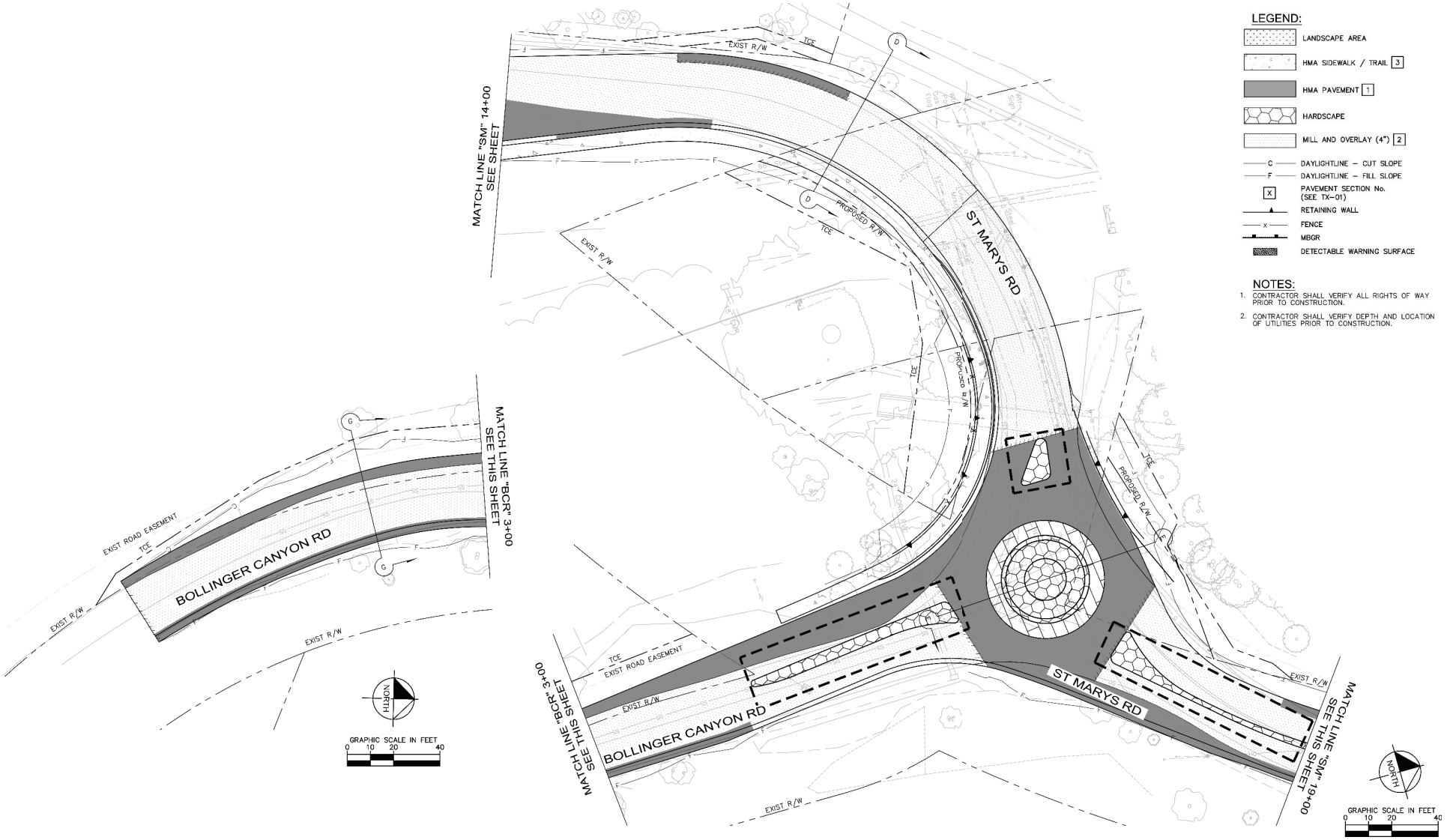

Source: Kimley-Horn, 2019

Figure 2.2-1b: Proposed Roadway Design

St. Mary's Road Double Roundabouts Project

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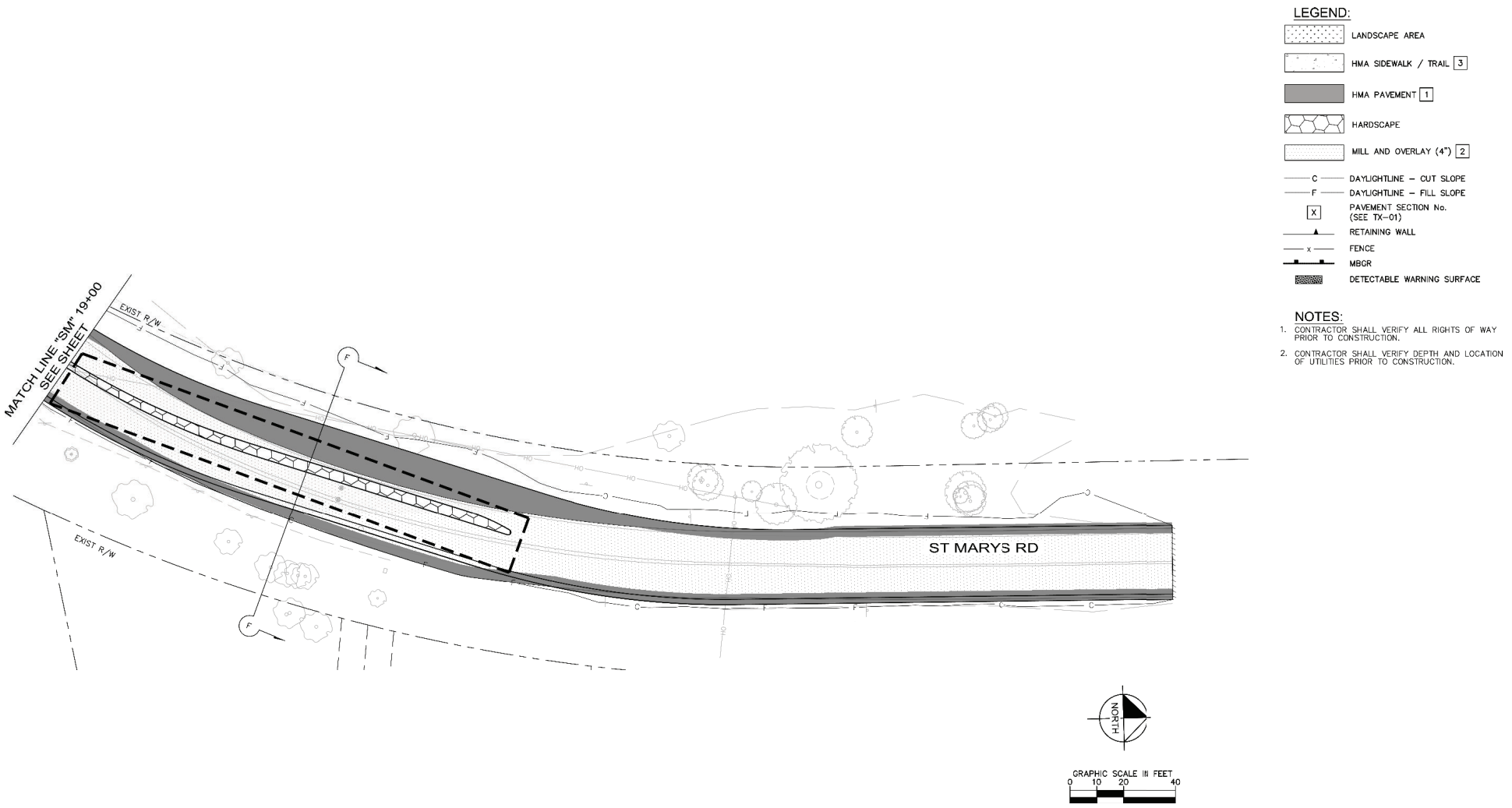

Source: Kimley-Horn, 2019

Figure 2.2-1c: Proposed Roadway Design

St. Mary's Road Double Roundabouts Project

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To accommodate the roadway widening, existing slopes would need to be excavated and laid back. This may result in a vertical difference between the existing slope surface and the new slope surface. Retaining walls would be needed at north and south sides of the St. Mary's Road/Bollinger Canyon Road intersection to avoid impacts to the creek. Retaining walls would range in height up to a maximum of 8 feet. Retaining walls would require excavation up to ten feet from existing surface.

Native material from the project site would be used to construct the proposed roadway embankment. Up to 480 cubic yards (CY) of native materials would need to be imported to the site during construction.

As shown in *Figure 2.2-2a* and *Figure 2.2-2b, Proposed Roundabout Sections*, the existing intersections of St. Mary's Road / Rheem Boulevard and St. Mary's Road / Bollinger Canyon Road would be converted to roundabouts. The existing side-street stop-controlled (SSSC) intersections of St. Mary's Road / Rheem Boulevard and St. Mary's Road / Bollinger Canyon Road would be converted to 'yield' approaches. New yield sign pole foundations may be necessary at both intersections, requiring excavation of up to 6 feet deep.

Bicycle and Pedestrian Facilities

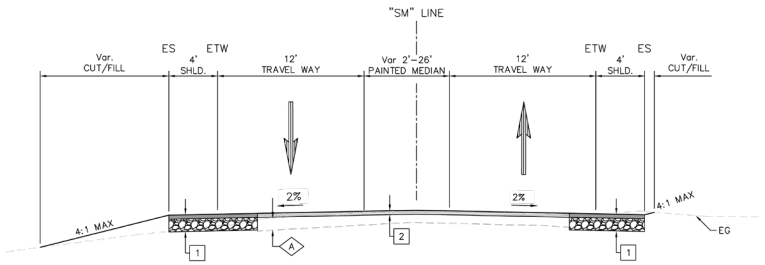
The Lafayette/Moraga Regional Trail runs parallel and west of St. Mary's Road, crossing Rheem Boulevard via a crosswalk in front of the SSSC intersection. A new trail crossing at Rheem Boulevard would realign the trail crossing to be located approximately 40 feet west of the existing trail crossing. The new crossing would connect to the existing trail. The new trail crossing would allow for safe pedestrian and bicycle crossings west of the proposed roundabout by improving visibility and with decreased approaching vehicular speeds. Cyclists who have experience and confidence riding on the roadway can travel through the facility as a vehicle by merging with other vehicular traffic and occupying the lane within the roundabout itself.

A new sidewalk is proposed along the east side of St. Mary's road, starting near the Bollinger Canyon Road intersection and connecting to the regional trail on the south side of the proposed roundabout at the Rheem Boulevard intersection. The new sidewalk installation would allow for safe pedestrian crossings for the users on Bollinger Canyon Road. Pedestrian improvements would also include a pedestrian refuge island separating the inbound and outbound vehicles on the Rheem Boulevard leg of the intersection, making it safer for pedestrians to cross one direction of travel at a time.

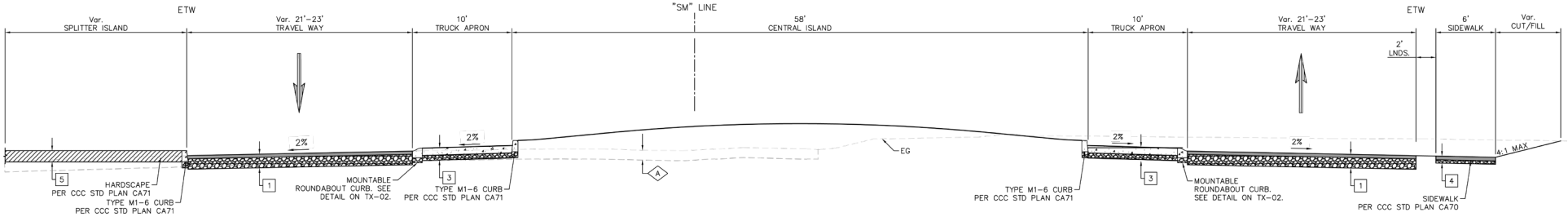
Utilities

There are existing streetlights within the project area along the St. Mary's Road, which would be relocated. Five existing utility poles would be relocated, of which two of them consist of streetlights: one is a regular streetlight and the other is an electric pole with a streetlight attached. These would require excavation up to 6 feet in depth.

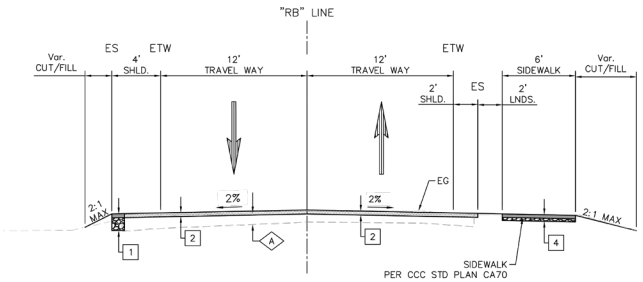
Existing telephone and electrical poles and boxes are located along St. Mary's Road. These telephone and electrical poles and boxes would be relocated outside the proposed roadway. These would require excavation up to 6 feet in depth.



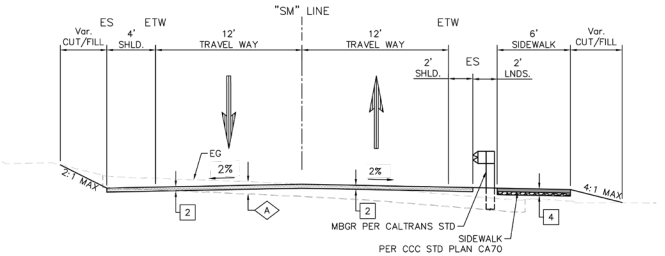
TYPICAL CROSS SECTIONS
ST MARYS RD, WEST OF RHEEM BLVD INTERSECTION



TYPICAL CROSS SECTIONS
CIRCULATORY ROADWAY AT RHEEM BLVD



TYPICAL CROSS SECTIONS
RHEEM BLVD



TYPICAL CROSS SECTIONS
ST MARYS RD BETWEEN RHEEM BLVD AND BOLLINGER CANYON RD

Source: Kimley-Horn, 2019

Figure 2.2-2a: Proposed Roundabout Sections

St. Mary's Road Double Roundabouts Project

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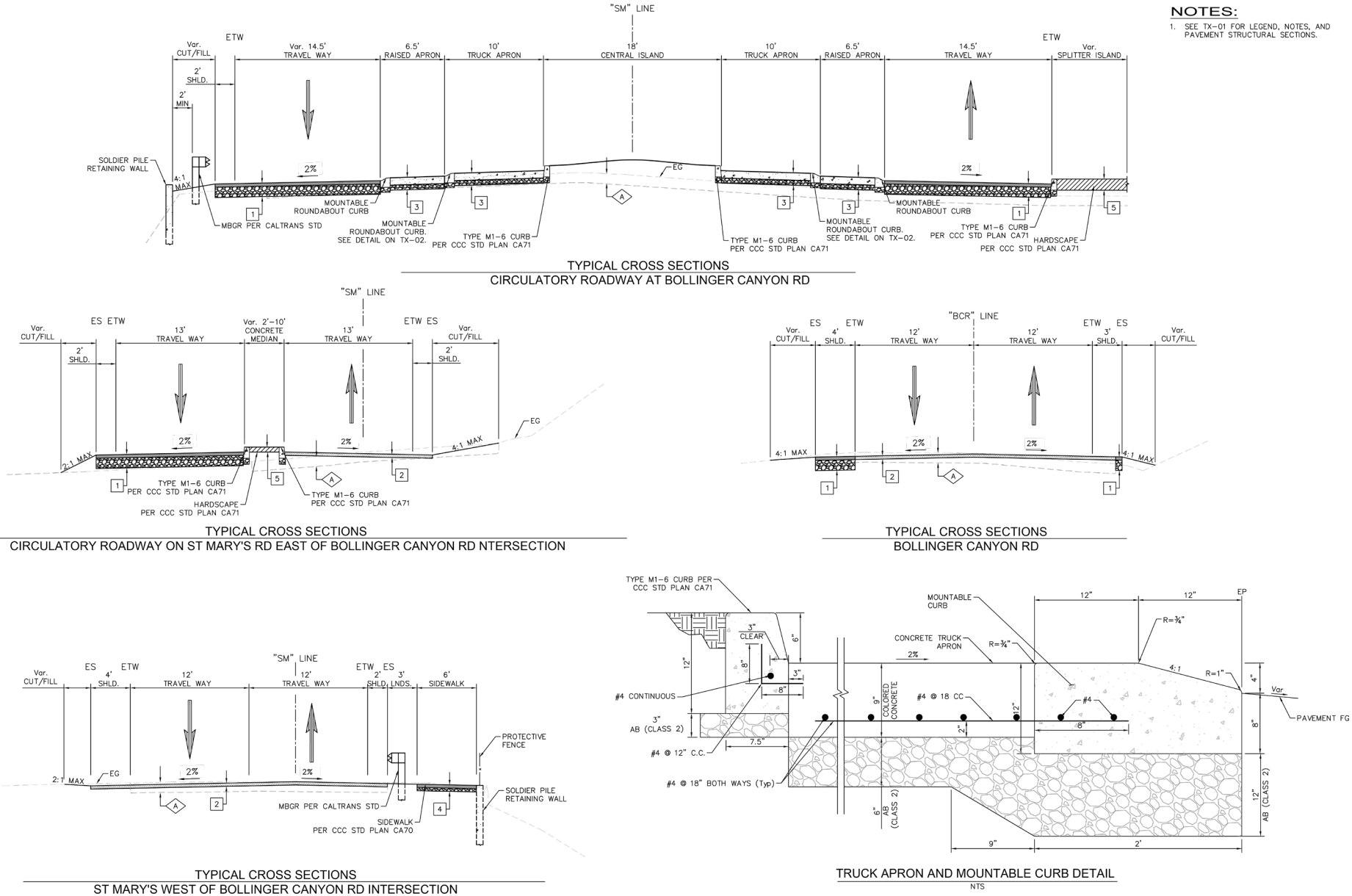

Source: Kimley-Horn, 2019

Figure 2.2-2b: Proposed Roundabout Sections

St. Mary's Road Double Roundabouts Project

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Several sanitary sewer manholes exist along St. Mary's Road and one, located at the St. Mary's Road / Bollinger Canyon Road intersection, would require relocation. The new sanitary sewer manhole will require excavation with maximum depths of ten feet.

There are existing water lines within the proposed project limits. It is intended that the water valves be adjusted to the proposed grade. An existing culvert crosses Theem Boulevard, just north of the St. Mary's Road/Rheem Boulevard intersection. The project would realign and extend a portion of the culvert, requiring excavation up to 2 feet in depth.

Construction Activities

Construction of the proposed project is anticipated to take 12 months. St. Mary's Road would remain open during construction; however, there may be temporary lane closures on St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road during non-commute times, and there may be one-way traffic control at night during stage construction switchovers. Access to adjacent and adjoining properties would be maintained during the duration of construction activities. Bus access would also be maintained. Construction methods would include excavator trenching, pipe, valve and fitting installation, backfill and compaction of native fill.

Construction limits are the limits of the proposed project. A staging area would be located on the east side of St. Mary's Road, between Rheem Boulevard and Bollinger Canyon Road intersections.

2.3 Surrounding Land Uses and Environmental Setting

Project Location and Setting

St. Mary's Boulevard is located in the Town of Moraga within Contra Costa County. St. Mary's Road and Rheem Boulevard are two of the major arterials in the Town of Moraga, providing access to the St. Mary's College and connection to the surrounding Cities of Orinda and Lafayette. St. Mary's Road is currently a two-lane undivided roadway with stop-signalized intersections at Rheem Boulevard and Bollinger Canyon Road.

The project area is undeveloped, apart from the roadways, and is characterized by roadside vegetation. The Lafayette/Moraga Regional Trail runs parallel and approximately 30 feet northwest of St. Mary's Road. There is a gravel pull-out immediately west of the Bollinger Canyon Road/ St. Mary's Road intersection, with gate access to the Lafayette/Moraga Regional Trail and a private, gated residential road that provides access to two single family dwellings.

Single family residential dwellings are located immediately northwest of the Rheem Boulevard/ St. Mary's Road intersection on Rheem Boulevard. The St. Mary's College is located approximately 0.25 miles southwest of the Rheem Boulevard/ St. Mary's Road intersection, with access along St. Mary's Road.

The project site is bordered by properties with the following land use designations in the Town of Moraga General Plan: Institutional, Residential (1 du/acre), Residential (2 du/acre), and MOSO Open Space.

Existing Facility and Operations

St. Mary's Road is currently a two-lane undivided roadway with stop-signalized intersections at Rheem Boulevard and Bollinger Canyon Road. *Table 2.3-1, Existing (2017) Conditions– Intersection Level of*

Service, provides the existing traffic conditions at the intersections on Rheem Boulevard and Bollinger Canyon Road.

Table 2.3-1: Existing (2017) Conditions – Intersection Level of Service

ID	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	St. Mary's Road / Rheem Boulevard	SSSC	3.6	A	3.9	A
	Worst Approach		18.5	C	20.4	C
2	St. Mary's Road / Bollinger Canyon Road	SSSC	1.5	A	0.9	A
	Worst Approach		16.5	C	16.2	B

According to the Town of Moraga General Plan (2002), the Town endeavors to maintain a target level of service (LOS) no worse than LOS C for all intersections. Therefore, LOS C or better for the study intersections on St. Mary's Road is considered acceptable.

2.4 Discretionary Approvals

The Initial Study and proposed Mitigated Negative Declaration (IS/MND) are intended to serve as the primary environmental document for all actions associated with the project and all discretionary approvals requested or required to implement the project. In addition, this is the primary reference document for the formulation and implementation of the Mitigation Monitoring and Reporting Program (MMRP). This document is also intended to provide sufficient information to allow permitting agencies to evaluate the potential impacts from construction and operation of the project. Anticipated discretionary approvals including the approving agencies are identified below.

Town of Moraga

- Adoption of the Initial Study/Mitigated Negative Declaration
- Approval of Roadway Design

California Department of Fish and Wildlife

- Incidental Take Permit for Alameda whipsnake
- 1602 Streambed Alteration Agreement

U.S. Fish and Wildlife Service

- Letter of Concurrence or Biological Opinion for Alameda whipsnake, and California red-legged frog

San Francisco Bay Regional Water Quality Control Board

- Section 401 Water Quality Certification and compliance with NPDES Permit

U.S. Army Corps of Engineers (USACE)

- Section 404 Permit

3.0 INITIAL STUDY CHECKLIST

1. **Project title:**

   St. Mary's Road Double Roundabouts Project

2. **Lead agency name and address:**

   Town of Moraga

3. **Contact person and phone number:**

   Mark Summers, Associate Civil Engineer, (925) 888-7038

4. **Project location:**

   St. Mary's Boulevard is located in the Town of Moraga within Contra Costa County. St. Mary's Road and Rheem Boulevard are two of the major arterials in the Town of Moraga, providing access to the St. Mary's College and connection to the surrounding Cities of Orinda and Lafayette. St. Mary's Road is currently a two-lane undivided roadway with stop-signalized intersections at Rheem Boulevard and Bollinger Canyon Road.

5. **Project sponsor's name and address:**

   Shawn Knapp, Public Works Director/ Town Engineer
   Public Works Department/Engineering Division
   329 Rheem Boulevard, 2nd Floor
   Moraga, CA 94556
   Phone: (925) 888-7026 Email: sknapp@moraga.ca.us

6. **General plan designation:**

   South of St. Mary's Road: Institutional, 1-DUA (Residential, One Dwelling Unit Per Acre)
   North of St. Mary's Road: MOSO Open Space, 2-DUA (Residential, Two Dwelling Units Per Acre)
   West of Rheem Boulevard: MOSO Open Space, 2-DUA
   East of Rheem Boulevard: MOSO Open Space, 2-DUA

7. **Zoning:**

   South of St. Mary's Road: College, 1-DUA
   North of St. Mary's Road: MOSO Open Space, 2-DUA
   West of Rheem Boulevard: MOSO Open Space, 2-DUA
   East of Rheem Boulevard: MOSO Open Space, 2-DUA

8. **Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)**

   The Town of Moraga (Town) proposes to provide improvements to a single-lane roundabout corridor at the intersections of St. Mary's Road / Rheem Boulevard and St. Mary's Road / Bollinger Canyon Road. The St. Mary's Double Roundabouts Project (proposed project) would improve traffic operations and pedestrian and bicycle access and safety. The project would construct two roundabouts on St. Mary's Road at the Rheem Boulevard and Bollinger Canyon Road intersections

and create safer pedestrian and bicycle crossings. For more details, please see the detailed project description in Section 2.5 above.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The project site is bordered by properties with the following land use designations in the Town of Moraga General Plan: Institutional, Residential (1 du/acre), Residential (2 du/acre), and MOSO Open Space. Single family residential dwellings are located immediately northwest of the Rheem Boulevard/ St. Mary's Road intersection on Rheem Boulevard. The St. Mary's College is located approximately 0.25 miles southwest of the Rheem Boulevard/ St. Mary's Road intersection, with access along St. Mary's Road.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

Town of Moraga

- Adoption of the Initial Study/Mitigated Negative Declaration
- Approval of Roadway Design

California Department of Fish and Wildlife

- Incidental Take Permit for Alameda whipsnake
- 1602 Streambed Alteration Agreement

U.S. Fish and Wildlife Service

- Letter of Concurrence or Biological Opinion for Alameda whipsnake, and California red-legged frog

San Francisco Bay Regional Water Quality Control Board

- Section 401 Water Quality Certification and compliance with NPDES Permit

U.S. Army Corps of Engineers (USACE)

- Section 404 Permit

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

The Town of Morago has received request for consultation on November 16th, 2021 from Corrina Gould, the Tribal Chair for the Confederated Villages of Lisjan Tribe.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

4.0 ENVIRONMENTAL ANALYSIS

Environmental Factors Potentially Affected by the Project

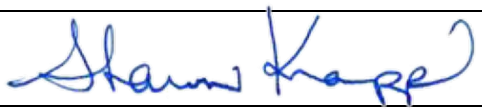
The environmental factors checked below would be potentially affected by this project, involving impacts identified as "Less Than Significant With Mitigation Incorporated" as indicated by the checklist on the following pages.

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

Determination

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	X
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 or a 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.	



12/6/2021

Shawn Knapp, Public Works Director / Town Engineer — Date

4.1 Aesthetics

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

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

Less Than Significant Impact. The proposed project site is located on St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road, which are designated as Scenic Corridors in the Moraga 2002 General Plan and Chapter 8.132 Scenic Corridors of the Moraga Planning and Zoning Ordinance. Chapter 8.132 of the Moraga Planning and Zoning Ordinance also places height restrictions for development within a major scenic corridor so that proposed structures create a complementary relationship with the natural landscape and topography and not create a walled effect. No elements of the proposed project would block any scenic vistas. The existing profile of St. Mary's Road would be re-graded to conform with the Caltrans Highway Design Manual to ensure sufficient stopping sight distance and visibility approaching the Rheem Boulevard and Bollinger Canyon Road intersections. In addition, the proposed project site is not located within a Hillside Area or any major or minor ridgelines within the Town. Thus, implementation of the proposed project would not have a substantial adverse effect on a scenic vista. Impacts would be less than significant, 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. There are no state-designated scenic highways located within the vicinity of the project site. The nearest state-designated scenic highway is approximately 3.28 miles north of the proposed project site (Department of Transportation, 2011). While the project site is not within a state-designated highway, it is within a Scenic Corridor as designated by the Town of Moraga. The proposed project would comply with the development guidelines stated in Chapter 8.132 of the Town's Scenic Corridor Planning and Zoning Ordinance to retain and incorporate existing topography, vegetation and scenic features of the site wherever possible. According to the Moraga 2002 General Plan, Hillside Areas and Ridgelines are a core component of Moraga's unique character and are highly valued as important scenic and environmental resources (Town of Moraga, 2002). The proposed project site is not within any major or minor ridgelines within the Town. Furthermore, there are no structures or historically significant buildings located on the project site. The project site does not contain any rock outcrops but does consist of roadside vegetation, including minor landscaped areas and trees. All trees removed by the proposed project would be subject to the Town's Tree Preservation Guidelines (Moraga Planning and Zoning Ordinance Chapter 12.12), as applicable. Additionally, the trees located on the project site provide visual character to the site, but do not constitute a significant scenic or visual resource. The proposed project would comply with the Town's regulations and policies governing protection of scenic resources and tree preservation guidelines. Therefore, the proposed project would retain and enhance the visual aesthetic of the site, without resulting in damage to any scenic resources, including trees, rock outcroppings, or historic buildings and is not located within the vicinity of a state-designated scenic highway. Impacts would be less than significant, and no mitigation is required.

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

Less Than Significant Impact. Policy CD3.5 of the Moraga 2002 General Plan Community Development Element recognizes the importance of enhancing the visual continuity along the Town's Scenic Corridors and requires appropriate landscaping and the use of native and drought tolerant species, to preserve the visual character. The Town's Municipal Code includes specific development guidelines and regulations to ensure development and improvements of land located within scenic corridors is consistent with General Plan goals and policies. Additionally, the proposed project is included in the Town of Moraga Capital Improvement Project (CIP). The design concept and scope of the project is consistent with the project description in the CIP and is intended to meet the traffic needs in the area based on local land use plans. The project is partially funded through Measure J 2013 Strategic Plan: Major Streets category. The proposed project would bring the roadway into conformance and would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which is consistent with the Town's General Plan Circulation Element Policy C1.1 to ensure public safety for all roadway users through roadway design, construction, and maintenance of all roadways in the Town. Furthermore, the proposed project site is not located within a Hillside Area or any major or minor ridgelines within the Town considered a scenic vista.

The proposed project is consistent with the Town's policies, applicable zoning and regulations governing scenic quality as the project's transit and infrastructure improvements have been identified in local land use plans and are consistent with General Plan policies. The proposed project would enhance the visual character by providing roadway improvements to an existing roadway network. The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, provide designated facilities separated from the vehicular traffic for pedestrians and bicycles, improve intersection capacity, reduce overall delays and improve safety. The proposed improvements are designed to balance the needs of the pedestrian with vehicular and bicycle traffic to achieve traffic calming, flow management and reduce the risk of traffic-related accidents. The design of the proposed roundabouts, roadway network, and streetscape improvements would be a consistent urban design that would be compatible with the appearance and features of the existing visual character of the site. Therefore, although the visual characteristics of the site would change, the proposed project would be consistent with the surrounding areas and with the Town's adopted development regulations governing scenic quality. The proposed project would not substantially impact or degrade the visual quality of the project site or its surroundings. Impacts would be less than significant, and no mitigation is required.

Construction of the proposed project may create temporary aesthetic nuisances associated with construction activities including demolition, grading, and construction and the presence of debris, equipment, and truck traffic. The visual impact associated with the construction of the proposed project would be characteristic of a typical construction site of this scale. These activities are temporary, and would cease upon completion of construction, and would not result in a substantial degradation to the project site or surrounding area. In addition, no significant aesthetic resources would be altered or destroyed as a result of construction-related activities. For these reasons, the short-term construction impacts of the proposed project would be a less than significant impact in relation to changing the visual character of the project site and its surroundings.

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

Less Than Significant Impact. The existing sources of light and glare within the project site and from the surrounding areas are consistent with a predominately trafficked zone. The heavy congestion along this roadway can be attributed to several regional destinations having access from St. Mary's Road, including the St. Mary's College campus, the shopping center on Moraga Road, and existing residential development. Sources of glare during the day come from vehicle windshields; and nighttime light comes from sources in the surrounding such as, homes, street infrastructure (light poles), and vehicles. The proposed project would introduce new sources of light in conjunction with pedestrian and bicycle improvements. The design of the proposed roundabouts, roadway network, and streetscape improvements would be a consistent urban design that would be compatible with the appearance and features of the existing visual character of the site. There are existing street lights within the project area along the St. Mary's Road, which would be relocated. As part of the streetscape improvements, existing streetlights would be relocated along St. Mary's Road. The proposed project would provide street lighting and lighting within the roundabouts or other features that would be balanced for brightness. The proposed lighting sources will be considered at scale for pedestrians, cyclists, and vehicles. The proposed light sources will be diffused or indirect to avoid glare for pedestrians and motorists. Furthermore, the project would be subject to the Town's development approval process prior to submittal of construction

drawings. The proposed design, construction materials, and lighting would be reviewed for consistency with the Town's standards.

As discussed above, the proposed project would provide roadway improvements, as well as introduce additional lighting on the project site. The lighting used for the proposed project would be consistent with the existing sources of lighting in the area from the surrounding uses and street lighting along the St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road. The proposed project would be designed in accordance with the Town's Municipal Code and would comply with all applicable development standards. In addition, the proposed project would not use building materials (i.e., reflective glass) or lighting that would cause a substantial new source of glare. Incorporation of these design features would ensure that the introduction of the new sources of light and glare associated within the proposed project would be less than significant, and no mitigation is required.

Cumulative Impacts

The potential aesthetic impacts related to views and aesthetics are generally site specific. As discussed above, project-related impacts to scenic vistas would be less than significant, and the proposed project would not result in any impacts to on-site visual resources because the project would retain and enhance the visual characteristic of the site. In addition, the proposed project would also be consistent and comply with the Town's land use, scenic quality and development regulations contained in the Town's Municipal Code and General Plan. Lighting and sources of glare, while not always site-specific, would be consistent with the majority of the surrounding urban area and would be used during similar hours as surrounding uses. Therefore, while the proposed project in conjunction with past, present, and reasonably foreseeable development would change the appearance of the site, all development projects follow applicable local planning and design guidelines regarding roadway design including materials, coloration, and landscaping as specified in Chapter 8 Planning and Zoning, Chapter 10 Vehicles and Traffic, Chapter 12 Streets, Sidewalks and Public Places, and Chapter 15 Buildings and Construction of the Town's Municipal Code regarding lighting standards and limitation. Therefore, aesthetic impacts are not expected to be cumulatively considerable and impacts would be less than significant.

4.2 Agriculture and Forestry Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
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))?				**X**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
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?				**X**

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP) has designated the project site and surrounding area as Urban and Built-Up Land and Grazing

Land. There is no Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance on the project site or in the project vicinity. The nearest prime farmland is located approximately 1.10 miles west of the project site. According to the FMMP, the project site contains no agricultural lands, and therefore would not convert farmland to non-agricultural uses. Therefore, there would be no impact and no mitigation would be required.

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

No Impact. A Williamson Act contract between local governments and private landowners restricts specified parcels of land to agricultural or related open space use in return for a lower property tax assessment. According to the California Department of Conservation, the project site is not under a Williamson Act contract. The nearest Williamson Act contract is approximately 1-mile southeast of the project site. Therefore, the proposed project is not considered to conflict with agricultural zoning designation. Therefore, no impact would occur 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. California Public Resources Code 4526 defines "timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis. There is no timberland on the project site and the project site is not zoned for forest land or timberland (as defined by PRC 4526). Therefore, there would be no impact and no mitigation would be required.

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

No Impact. See response to Section 4.2(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. The project site is not located on Farmland and would not convert forest land to non-forest use. The nearest prime farmland is located approximately 1.10 miles west of the project site. The project would not cause conversion of other farmland to non-agricultural use or forest land to non-forest use.

Cumulative Impacts

The proposed project would have no impact on agricultural and forestry resources. Therefore, the proposed project would not contribute to a cumulatively impact.

4.3 Air Quality

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?		X		
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?			X	

An Air Quality Assessment for the proposed project was prepared by Kimley-Horn and Associates (August 2019). The report is provided in Appendix A; the results and conclusions of the report are summarized herein.

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The proposed Project is located within the San Francisco Bay Area Air Basin (Basin). This Basin comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions.

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various nongovernmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

The BAAQMD's CEQA Air Quality Guidelines provides significance thresholds for both construction and operation of projects. If the BAAQMD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project proposes development in excess of the established thresholds, as outlined in *Table 4.3-1, Bay Area Air Quality Management District Emissions Thresholds*, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

Table 4.3-1: Bay Area Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related	
	Average Daily Emissions (pounds/day)	Average Daily Emission (pounds/day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average 20.0 ppm (1-hour average)	
Source: Bay Area Air Quality Management District, 2017 CEQA Air Quality Guidelines, 2017.			

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

Less Than Significant Impact. The project site is an existing roadway and does not include new land uses or structures. The purpose of the proposed project is to provide congestion relief at the St. Mary's Road and Rheem Boulevard and to improve stopping sight distance and visibility at the Rheem Boulevard and Bollinger Canyon Road intersections. The project is proposed to alleviate the current congestion, reduce intersection delays and queues, improve multimodal safety and better accommodate pedestrian and bicycle traffic.

The project is included in the Town of Moraga Capital Improvement Project (CIP). The design concept and scope of the project is consistent with the project description in the CIP and is intended to meet the traffic needs in the area based on local land use plans. The project is partially funded through Measure J 2013 Strategic Plan: Major Streets category.

A project would be consistent with the 2017 Clean Air Plan Progress Report if does not exceed the growth assumptions in the plan. The primary method of determining consistency with the 2017 Clean Air Plan growth assumptions is consistency with the General Plan land use designations and zoning ordinance designations for the site. If the General Plan growth forecast was adopted prior to the adoption of the 2017 Clean Air Plan, then it can be assumed that the 2017 Clean Air Plan incorporates the growth forecast from the General Plan. The Town of Moraga General Plan was adopted in 2002.

The Clean Air Plan assumptions for projected air emissions and pollutants in the Town are based on the land use and development projection assumptions in the General Plan. St. Mary's Road and Rheem

Boulevard are two of the major arterials in the Town of Moraga providing access to St. Mary's College and connecting to the City of Orinda and Lafayette. The proposed project is a roadway improvement project that is consistent with the Town of Moraga 2002 General Plan.

The project is conforming with Town of Moraga regulations (i.e., consistent with the current land use designations for the project site). Additionally, as discussed below in Section 4.3(b), construction and operational air quality emissions generated by the proposed Project would not exceed the BAAQMD's emissions thresholds. These thresholds are established to identify projects that have the potential to generate a substantial amount of criteria air pollutants. Because the proposed project would not exceed these thresholds, the proposed project would not be considered by the BAAQMD to be a substantial emitter of criteria air pollutants and would not contribute to any non-attainment areas in the SFBAAB. Therefore, the project would be in compliance with the 2017 Clean Air Plan and impacts would be less than significant.

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

Less Than Significant Impact with Mitigation Incorporated.

Construction Emissions

Project construction activities would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the project area include ozone-precursor pollutants (i.e., ROG and NO_X) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BAAQMD's thresholds of significance.

Construction results in the temporary generation of emissions during demolition, site grading, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities, as well as weather conditions and the appropriate application of water.

The duration of construction activities associated with the proposed project are estimated to last approximately 12 months. The project's construction-related emissions were calculated using the BAAQMD-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Project demolition, site preparation, and grading are anticipated to begin in the Summer 2021. Although the details of Project construction have not been finalized, the conservative modeling assumptions include approximately 1,100 cubic yards of cut material and approximately 1,500 cubic yards of fill. Additionally, approximately 2,370 tons of existing pavement would be demolished. Paving was modeled to be completed by Spring 2022 and painting/striping to be completed Summer 2022. The exact construction timeline is unknown, however to be conservative, earlier dates were utilized in the modeling. This approach is conservative given that emissions factors decrease in future years due to regulatory and technological improvements and fleet turnover. See Appendix A: Air Quality Data, of the Air Quality Assessment (attached as Appendix A) for additional information regarding the construction assumptions used in this analysis. The project's

predicted maximum daily construction-related emissions are summarized in *Table 4.3-2, Construction-Related Emissions (Maximum Pounds Per Day).*

Table 4.3-2: Construction-Related Emissions (Maximum Pounds Per Day)

Emissions Source	Pollutant (maximum pounds per day)[1, 2]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_X)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
2021	2.09	21.63	1.05	0.98	2.88	1.46
2022	1.34	9.36	0.49	0.45	0.12	0.03
Maximum	2.09	21.63	1.05	0.98	2.88	1.46
BAAQMD Threshold	*54*	*54*	*82*	*54*	*N/A*	*N/A*
Exceed BAAQMD Threshold?	No	No	No	No	No	No

Notes:
1. Emissions were calculated using CalEEMod.
2. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, updated May 2017. Source: Refer to the CalEEMod outputs provided in Appendix A, Air Quality Modeling Data.

Fugitive Dust Emissions. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill operations, demolition, and truck travel on unpaved roadways. Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions. Fugitive dust emissions may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project vicinity. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds; refer to **MM AQ-1.**

Construction Exhaust. Exhaust emission factors for typical diesel-powered heavy equipment are based on the CalEEMod program defaults. Variables factored into estimating the total construction emissions include: level of activity, length of construction period, number of pieces/types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported onsite or offsite. Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on site as the equipment is used, and emissions from trucks transporting materials and workers to and from the site. Emitted pollutants would include ROG, NO_X, PM_{10}, and $PM_{2.5}$. The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds; refer to **MM AQ-1**.

ROG Emissions. In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the BAAQMD, the ROG emissions associated with paving have been quantified with CalEEMod.

The highest concentration of ROG emissions would be generated from pavement off-gassing. The proposed project does not include any structures and only minimal striping. Although this project is a roadway improvement project, any paints would be required to comply with BAAQMD Regulation 8, Rule 3: Architectural Coating. Regulation 8, Rule 3 provides specifications on painting practices and regulates the ROG content of paint. Additionally, compliance with BAAQMD Regulation 8, Rule 15: Emulsified Liquid Asphalts, would also be required. This rule dictates the reactive organic gases content of asphalt available for use during construction through regulating the sale and use of asphalt and limits the ROG content in asphalt.

In summary, as shown in Table 4.3-2, all criteria pollutant emissions would remain below their respective thresholds. However, BAAQMD considers fugitive dust emissions to be potentially significant without implementation of fugitive dust controls. Accordingly, **MM AQ-1** is required to reduce fugitive dust emissions to less than significant. NO_X emissions are primarily generated by engine combustion in construction equipment, haul trucks, and employee commuting, requiring the use of newer construction equipment with better emissions controls would reduce construction-related NO_X emissions.

The proposed project emissions would not worsen ambient air quality, create additional violations of federal and state standards, or delay the Basin's goal for meeting attainment standards. Impacts would be less than significant.

Operational Emissions

The proposed project includes two roundabouts and pedestrian and bicycle facilities improvements. The project would not generate any new automobile, bicycle, or pedestrian traffic and the effects to existing vehicle distribution and travel speeds would be nominal. The project is proposed to alleviate the current congestion, reduce intersection delays and queues, improve multimodal safety and better accommodate pedestrian and bicycle traffic. The proposed project does not include any new traffic and no buildings are proposed to be constructed. Therefore, the project would not generate any new operational emissions. Impacts would be less than significant.

Criteria Pollutant Health Impacts

On December 24, 2018, the California Supreme Court issued an opinion identifying the need to provide sufficient information connecting a project's air emissions to health impacts or explain why such information could not be ascertained (Sierra Club v. County of Fresno [Friant Ranch, L.P.] [2018] Cal.5th, Case No. S219783).

As previously discussed, project construction emissions would be less than significant and would not exceed BAAQMD thresholds (refer to *Table 4.3-2* above). The BAAQMD has set its CEQA significance threshold based on the trigger levels for the federal New Source Review (NSR) Program and BAAQMD's Regulation 2, Rule 2 for new or modified sources. The NSR Program was created by the FCAA to ensure that stationary sources of air pollution are constructed or modified in a manner that is consistent with attainment of health-based federal ambient air quality standards. The federal ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health. Project operations would also not generate an increase in emissions, and therefore would not exceed the ambient air quality standards or cause an increase in the frequency or severity of existing violations of those standards. Therefore, the proposed project would not violate any air quality standards

or contribute substantially to an existing or projected air quality violation and no criteria pollutant health impacts would occur. Project impacts would be less than significant.

Cumulative Short-Term Emissions

The SFBAAB is designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$ for State standards and nonattainment for O_3 and $PM_{2.5}$ for Federal standards. As discussed above, the project's construction-related emissions by themselves would not have the potential to exceed the BAAQMD significance thresholds for criteria pollutants.

Since these thresholds indicate whether an individual project's emissions have the potential to affect cumulative regional air quality, it can be expected that the project-related construction emissions would not be cumulatively considerable. The BAAQMD recommends Basic Construction Mitigation Measures for all projects whether or not construction-related emissions exceed the thresholds of significance. Compliance with BAAQMD construction-related mitigation requirements are considered to reduce cumulative impacts at a Basin-wide level. As a result, construction emissions associated with the proposed project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Long-Term Impacts

The BAAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD developed the operational thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds the BAAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As discussed above, the proposed project would not generate any new automobile, bicycle, or pedestrian traffic. Therefore, operational emissions associated with the proposed Project would not generate new operational emissions and would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Mitigation Measures

MM AQ-1: BAAQMD Basic Construction Measures. Prior to any grading activities, the applicant shall prepare and implement a Construction Management Plan that includes the BAAQMD Basic Construction Mitigation Measures to minimize construction-related emissions. This shall plan shall first be reviewed and approved by the Director of Public Works/Town Engineer. The BAAQMD Basic Construction Mitigation Measures are:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. 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.
7. 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.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Sensitive land uses are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. Sensitive receptors in the area include single-family residences approximately 80 feet to the north and 100 feet south of the project Site.

Toxic Air Contaminants

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known toxic air contaminants (TAC). Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. The closest sensitive receptor to the project site are the residences to the north and south of the project site. BAAQMD provides guidance for evaluating impacts from TACs in its *CEQA Air Quality Guidelines* document. As noted therein, an incremental cancer risk of greater than 10 cases per million at the Maximally Exposed Individual (MEI) will result in a significant impact. The BAAQMD considers exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 $\mu g/m^3$ from a single source to be significant. The BAAQMD significance threshold for non-cancer hazards is 1.0.

Mobile Sources

The project does not include sensitive receptors and therefore would not place sensitive receptors within 1,000-feet of a major roadway (mobile TAC sources). Additionally, the project's effects to existing vehicle distribution and travel speeds would be nominal. Any changes to vehicle distribution and travel speeds can affect vehicle emissions rates, although these changes would be minimal and would not substantially

change criteria pollutant emissions, which are primarily driven by VMT. Traffic is also predominantly light-duty and gasoline powered and therefore any shifts in traffic would not constitute a change in substantial cancer risk. The project would not increase roadway capacity, but would alleviate current congestion, reduce intersection delays and queues, improve multimodal safety, and better accommodate pedestrian and bicycle traffic. As such, the project would not generate increased emissions for new vehicle traffic and would potentially improve emissions from reduced idling and delay. Therefore, impacts related to cancer risk, hazards, and $PM_{2.5}$ concentrations from mobile sources would be less than significant at the project site.

Carbon Monoxide Hotspots

The primary mobile-source criteria pollutant of local concern is carbon monoxide (CO). Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration modeling is therefore typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours.

The SFBAAB is designated as attainment for carbon monoxide (CO). Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB with the introduction of the catalytic converter in 1975. No exceedances of the CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. As a result, the BAAQMD screening criteria notes that CO impacts may be determined to be less than significant if a project would not increase traffic volumes at local intersections to more than 44,000 vehicles per hour, or 24,000 vehicles per hour for locations in heavily urban areas, where "urban canyons" formed by buildings tend to reduce air circulation. Traffic would increase along surrounding roadways during long-term operational activities.

The proposed roundabouts and pedestrian and bicycle facilities improvements would not increase roadway capacity and would not generate an increase in vehicle trips. The project would alleviate current congestion, reduce intersection delays and queues, improve multimodal safety and better accommodate pedestrian and bicycle traffic. The operational improvements would reduce idling, thereby reducing localized vehicle emissions, including CO. As a result, the project would not have the potential to create a CO hotspot and impacts would be less than significant.

Construction-Related Diesel Particulate Matter

Construction-related activities would result in project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., demolition, clearing, grading); paving; application of architectural coatings; on-road truck travel; and other miscellaneous activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. The

closest sensitive receptor to the project site are the single-family residences located approximately 80 feet north of the project site.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur throughout the site. Additionally, construction activities would be subject to and would comply with California regulations limiting idling to no more than five minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable diesel PM emissions. Furthermore, even during the most intense year of construction, emissions of diesel PM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time.

The EPA recommended screening model AERSCREEN has been used to evaluate potential health effects to sensitive receptors from construction emissions of diesel particulate matter (DPM). AERSCREEN is the recommended screening model based on the AERMOD dispersion model. The model produces estimates of worst-case concentrations without the need for hourly meteorological data. According to the EPA Support Center for Regulatory Atmospheric Modeling (SCRAM) website, AERSCREEN is intended to produce concentration estimates that are equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data. Maximum (worst case) PM_{10} exhaust construction emissions over the entire construction period were used in AERSCREEN to approximate construction DPM emissions. Risk levels were calculated according to the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, *Air Toxics Hot Spots Program Risk Assessment Guidelines* (February 2015). PM_{10} emissions are higher than $PM_{2.5}$ Project emissions and were conservatively used in the impact assessment.

Construction emissions rates in grams per second were calculated from the total annual mitigated on-site exhaust emissions reported in CalEEMod for PM_{10} (0.0654 tons per year) to calculate risk levels. Total mitigated on-site exhaust and fugitive dust for $PM_{2.5}$ (0.1381 tons per year) were conservatively used to assess of $PM_{2.5}$ concentrations against the BAAQMD's 0.3 $\mu g/m^3$ threshold (it should be noted that this approach is conservative as estimation of only the exhaust emissions are required for comparison to the threshold). Annual emissions were converted to grams per second and these emissions rates were input into AERSCREEN. Results of this assessment indicate that the maximum concentration of $PM_{2.5}$ during construction would be 0.011 $\mu g/m^3$ which is below the BAAQMD 0.3 $\mu g/m^3$ significance threshold. The highest calculated carcinogenic risk from Project construction is 1.09 per million based on an annual PM_{10} concentration of 0.0052 $\mu g/m^3$. The risk calculation used a construction exposure duration of one years and a weighted breathing rate of 944 liters per kilogram of bodyweight per day (based on OEHHA 95 percentile breathing rates of 3 months at 361 and 12 months at 1,090 liters per kilogram). Non-cancer hazards for DPM would be below BAAQMD threshold of 1.0, with a chronic hazard index computed at 0.001 and an acute hazard index of 0.0021. As described above, worst-case construction risk levels based on screening-level modeling (AERSCREEN) and conservative assumptions would be below the BAAQMD's thresholds. Therefore, construction risk levels would be less than significant.

d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

Less Than Significant Impact.

Construction

According to the BAAQMD, land uses associated with odor complaints typically include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The proposed project does not include any uses identified by the BAAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy duty equipment (i.e., diesel exhaust), as well as from architectural coatings and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Any construction-related odors would be short-term in nature and cease upon project completion. As a result, impacts to existing adjacent land uses from construction-related odors would be short-term in duration and therefore would be less than significant.

Operational

BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds.

The proposed project is a roadway improvement project which includes two roundabouts. With respect to odor impacts from adjacent and nearby properties that could affect project residents, land uses typically producing objectionable odors include agricultural uses, wastewater treatment facilities, waste-disposal facilities, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. None of these uses are located near the project site. Impacts would be less-than-significant.

Cumulative Impacts

The cumulative setting for air quality includes the Town of Moraga and the Air Basin. Air Basin is designated as a nonattainment area for state standards of ozone, PM_{10}, and $PM_{2.5}$. The Air Basin is designated as a nonattainment area for federal standards of ozone and $PM_{2.5}$, attainment and serious maintenance for federal PM_{10} standards, and is designated as unclassified or attainment for all other pollutants. Cumulative growth in population and vehicle use could inhibit efforts to improve regional air quality and attain the ambient air quality standards.

The BAAQMD CEQA Air Quality Guidelines do not include separate significance thresholds for cumulative operational emissions. However, with respect to regional air pollution, the development of the project would not result in population growth and therefore is consistent with the Town's General Plan projections. The project would be consistent with the 2017 Clean Air Plan that uses ABAG population

forecasts. Additionally, as noted above, the project would alleviate current congestion, reduce intersection delays and queues, improve multimodal safety and better accommodate pedestrian and bicycle traffic. The operational improvements would reduce idling, thereby reducing vehicle emissions.

As described in Section 4.3(a), above, the project would also be consistent with the appropriate 2017 Clean Air Plan control measures, which are provided to reduce air quality emissions for the entire Bay Area region. Additionally, the discussion in Section 4.3(b) addresses cumulative impacts and demonstrates that the project would not exceed the applicable BAAQMD thresholds. The BAAQMD CEQA Air Quality Guidelines note that the nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size by itself to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Consistency with the 2017 Clean Air Plan control measures would ensure that the project would not cumulatively contribute to air quality impacts in the Basin. Therefore, impacts would be less than significant.

4.4 Biological Resources

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

An Aquatic Resources Delineation Report (ARDR) and Biological Resources Study (BRS) was prepared by WRECO in August 2019 for the proposed project. These studies are included in Appendix B and Appendix C, respectively, of this Initial Study and the results are summarized herein.

Study Area

The project is located in the Las Trampas USGS 7.5 Minute quadrangle in the Town of Moraga. The study area is bound by the Las Trampas Ridge to the east, the Gudde Ridge to the west, the Town of Moraga to the south, and the City of Lafayette to the north. Residential housing developments with a mixture of grassland and oak woodlands surround the entire project area, with Las Trampas Creek crossing beneath St. Mary's Road via a box culvert, flowing south to north. The study area is located along St. Mary's Road with Las Trampas Creek located approximately 30 ft below the road. Elevations within the study area range from approximately 523 ft to 586 ft above mean sea level (MSL).

The project is located within the Las Trampas watershed. It originates from the hills southeast of the Town along Las Trampas Ridge. The watershed drains on a northerly course to the City of Walnut Creek, where it drains into Walnut Creek. The creek flows primarily in an open natural channel, with some flows through underground culverts and concrete open channels through the City of Walnut Creek until it reaches Suisun Bay, approximately 17 miles north of the project site.

The ARDR and BRS evaluated potential impacts within the limits of disturbance which is defined as the area (land and water) that may be directly, indirectly, temporarily, or permanently impacted by construction and constructed-related activities. Direct impacts could include noise, crushing or injuring wildlife, causing bird nests to be abandoned or destroyed by vegetation removal, or similar disruption impacts that could result from the presence of construction equipment and personnel. Indirect impacts could include future changes in habitat or species viability due to increased noise, improper dust control, or improper implementation of BMPs. The limits of disturbance encompass the project limits of disturbance and extends approximately 100 feet beyond the project limits. The area 100-feet beyond the project limits is referred to as the Biological Study Area (study area) herein. Permanent impact areas would be limited to areas within cut and fill slopes and permanent hardscape additions, such as paving. Temporary impact areas would be limited to construction areas where grading and ground disturbance would occur.

Methodology

Surveys and studies were performed to satisfy the requirements of CEQA and NEPA, to document all special-status species that occur or have potential to occur in the limits of disturbance, and to identify all potential project impacts on protected resources or critical habitat designated by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and California Department of Fish and Wildlife (CDFW). Special-status species include those listed as endangered, threatened, or rare under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA); plants listed as rare by the California Native Plant Society (CNPS) and protected under the Native Plant Protection Act (NPPA); migratory birds protected under the Migratory Bird Treaty Act (MBTA); and California Species of Special Concern (SSC).

Database Searches and Literature Search. Information about habitat types and special-status species that can occur in the study area was obtained from the following sources:

- USFWS online database for federally threatened and endangered species (USFWS, 2019)
- NOAA Fisheries online database for federally threatened and endangered species (NOAA, 2019)
- CDFW California Natural Diversity Database (CNDDB) (CDFW, 2019)
- CDFW California Wildlife Habitat Relationship Systems (CWHR) (CDFW, 2017)
- CNPS Online Inventory of Rare and Endangered Plants (CNPS, 2019)

Results from the USFWS, NOAA and CNDDB databases were refined using available scientific literature, aerial imagery, site visits, and CNPS databases to determine which special-status species have the potential to occur in the study area and affected by the project. If suitable habitat was not present for a sensitive species within the study area, the species was not given further consideration.

Surveys. Biological surveys were conducted to determine the presence or absence of special-status plants, wildlife and fish and potential habitat for special-status species. The area was surveyed on foot, walking the entire impact area, and photo-documenting existing habitat conditions, as well as potential habitat for special-status species.

Note: Mitigation measures are identified at the end of the each Impact section.

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

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

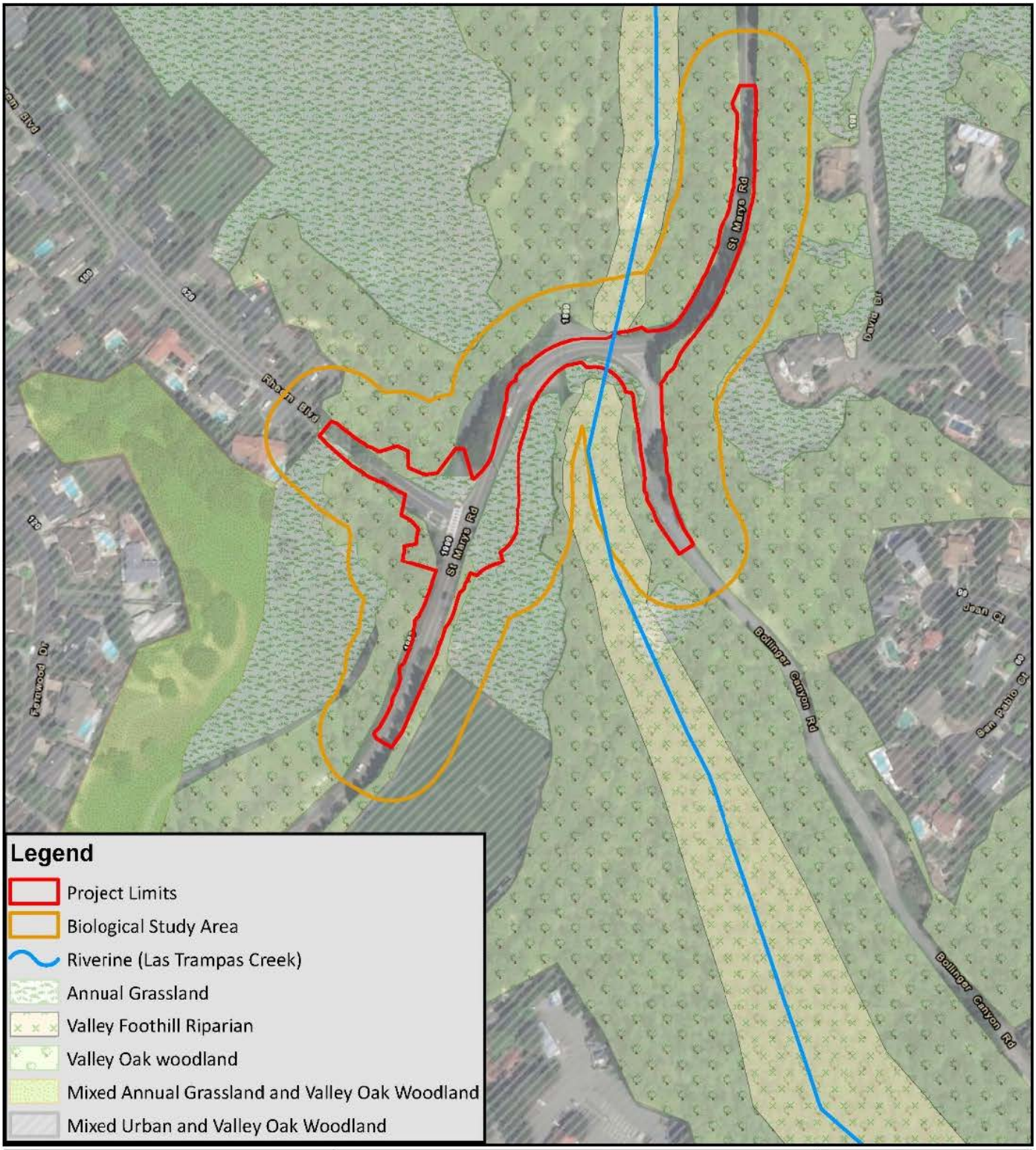
Less Than Significant Impact with Mitigation Incorporated.

Vegetation Communities

There are five vegetation communities, also referred to as habitat communities, within the study area: valley oak woodland, valley foothill riparian, riverine, annual grassland, and urban. *Table 4.4-1, Vegetation Communities*, summarizes the acreage of habitats within the project limits and *Figure 4.4-1, Vegetation Communities Map* shows the vegetation communities in relation to the project area.

Table 4.4-1: Vegetation Communities

Vegetation Community	Area within the Project Limits (Acres)
Annual Grassland	0.49
Valley oak woodland	0.30
Valley foothill riparian	0.002
Riverine	0.024
Mixed Urban and Valley Oak Woodland	0.04



Source: Wreco, ESRI, 2019.

Figure 4.4-1: Vegetation Communities Map

St. Mary's Road Double Roundabouts Project

Kimley»Horn

Expect More. Experience Better.

***Valley Oak Woodland*.** Oak woodland is the dominant habitat community present within the study area. Oak woodland can be found within all portions of the study area, including portions within the project limits. The dominant tree species in the project vicinity was coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), California bay (*Umbellularia californica*), and California buckeye (*Aesculus californica*) were also present in smaller numbers.

***Valley Foothill Riparian*.** Riparian habitat communities mainly occupy areas between the low-and high-water points along the banks of rivers, streams, lakes, springs, and floodplains. One or more species of deep-rooted deciduous trees, shrubs, and herbs grow in these habitat communities. The dominant tree species in the project vicinity was coast live oak. California bay, big leaf maple (*Acer macrophyllum*), alder (*Alnus spp.*), California buckeye, and arroyo willow (*Salix lasiolepis*) were also present in smaller numbers.

Riverine. Riverine habitat communities occur where channels are shaped by flowing water, such as rivers, creeks, and streams. The riverine waters in Las Trampas Creek are perennial, and the water levels range from high and fast-flowing in the winter to low and slow moving in the summer. There were several inches of flowing water present during the March, May, and July 2017, and June 2019 surveys, but no aquatic plant or wildlife species were observed in the riverine habitat. A black phoebe nest was observed within the Las Trampas Creek box culvert, located near the downstream outlet towards the top of the concrete wall. Special-status wildlife that could occur in the riverine habitat community include California red-legged frog, foothill yellow-legged frog, and western pond turtle. In addition, the project is within NOAA Fisheries designated essential fish habitat (EFH) for Chinook salmon. Salmonid species, including steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*Oncorhynchus tshawytscha*) have no potential to occur due to two fish barriers between Suisun Bay and the study area. These barriers include Bancroft Road Drop Structure (located in Walnut Creek) and Walnut Creek City Drop Structure (located upstream of the Las Trampas Creek and San Ramon Creek confluence). These barriers completely block all fish passage for anadromous fish species to move upstream to the study area.

***Annual Grassland*.** Non-native or naturalized annual grasses and forbs have largely replaced pre-colonial grasslands on rolling hills and flat plains in California. Many annual grass species grow alongside other habitats, such as oak woodland, perennial grassland, and vernal pools. Grassland habitat is present throughout the study area, with a significant portion of the southeast section of the study area consisting of annual grassland. This area was observed as an open field adjacent to a soccer facility for St. Mary's College. The most common species identified in the grassland habitat community within the study area include common wild oat (*Avena fatua*) and Italian rye grass (*Festuca perennis*).

Urban. The CWHR System classifies urban vegetation into five areas: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Examples include residential landscapes, golf courses, parks, and school grounds. Non-native landscape species and invasive weeds are common. The urban habitat community within the study area consists primarily of roadways and a small portion of a recreational soccer field associated with St. Mary's College.

Special Status Plants

The CNDDB, USFWS, and CNPS databases list 50 plant species initially evaluated, but only two were determined to potentially occur within the study area. The names and legal status of these two plant species, as well as a general description of the habitat requirements, is provided in *Table 4.4-2, Special-Status Plants with Potential to Occur in the Study Area.* A comprehensive list with descriptions of the

initially evaluated 50 plant species, consisting of 48 species that have no possibility of occurring within the study area, is contained in *Table 3* of the BRS, attached as Appendix C.

Diablo helianthella. Diablo helianthella is a CNPS list 1B plant with no federal or state listing. This perennial herb occurs only in California and is found in broad-leafed upland forests, chaparral, riparian woodlands, valley grasslands, and foothill woodlands. It occurs between 195 and 4,625 feet and blooms from March to June. There are 15 CNDDB records in the 5-mile radius of the project. The two nearest are for Occurrence #99 which was 11 plants observed in 2009 approximately 0.69 miles southeast of the Project area near St. Mary's College. The second record is for Occurrence #75 which was 6 plants observed in 2003 approximately 0.70 miles northwest of the Project area east of Rheem Valley, about 1 mile north of St. Mary's College. Diablo helianthella was not observed during the 2017 botanical surveys. There is a low potential for Diablo helianthella to occur within the study area, including within the fairly undisturbed foothill or riparian woodlands, or valley grasslands adjacent to Las Trampas Creek. Implementation of Mitigation Measures **MM BIO-1**, **MM BIO-2**, and **MM BIO-4** would reduce potential impacts on this species to less than significant.

Northern California Black Walnut. Northern California Black Walnut is a CNPS list 1B deciduous tree with no federal or state special status listing. The northern subspecies is found in nature at only a few sites. Most black walnut trees in northern California have hybridized with J. Californica, a mostly non-riparian tree of Southern California, as well as other walnut species. The northern California black walnut is found in riparian forest, and riparian woodland. Few extant native stands remain. This rare species occurs in deep alluvial soil associated with a creek or stream between elevations of 0 to 1,300 feet. The only CNDDB record (occurrence #2) in the 5-mile radius is for 6 trees observed in 2001 approximately 2.1 miles northeast of the project area. This species was observed in the study area during the May 2017 botanical surveys. Multiple trees were located in the riparian corridor of Las Trampas Creek along the banks. According to CNPS, the Las Trampas Ridge quad (465D) contains populations of northern California black walnut that are presumed extant (CNPS, 2019). Northern California black walnut was observed in the study area during the May 2017 botanical surveys. Multiple trees were located in the riparian corridor of Las Trampas Creek along the banks. Implementation of Mitigation Measures **MM BIO-1**, **MM BIO-2**, and **MM BIO-4** would reduce potential impacts on this species to less than significant.

Special Status Wildlife

The CNDDB, USFWS, and NOAA Fisheries databases list a total of 32 wildlife species initially evaluated, but only five were determined to potentially occur within the study area. The names and legal status of these five wildlife species, as well as a general description of the habitat requirements, is provided in *Table 4.4-3, Special-Special-Status Wildlife with Potential to Occur in the Study Area*. A comprehensive list with descriptions of the initially evaluated 32 plant species, consisting of 27 species that have no possibility of occurring within the study area, is contained in *Table 4* of the BRS, attached as Appendix C.

Western Pond Turtle. The Western pond turtle (*Emys marmorata*), is a California-listed SSC, and USFWS is in the candidate assessment process for protection under FESA. Western pond turtle could occur within Las Trampas Creek, Tributary 1, and Tributary 2, within the study area; however, there are no CNDDB records within 5-miles of the study area. There were no focused surveys conducted for the Western pond turtle and none were observed during the biological surveys conducted on March 31, May 25, July 5, 2017, and June 2019. There is a low potential for Western pond turtle to occur within the study, including

Table 4.4-2: Special-Status Plants with Potential to Occur in the Study Area

Scientific Name Common Name	Status			Blooming Period	Habitat Requirements (bold if present in Study Area)	Potential to Occur/ Rationale
	Fed	State	CNPS			
Helianthella castanea Diablo helianthella	--	--	1B.2	Mar-Jun	**Broadleafed upland forest**, chaparral, **cismontane woodland**, coastal scrub, **riparian woodland**, and **valley and foothill grassland**. Usually in rocky axonal soil, often in partial shade. Elev. 197-4264 ft	**Low.** There are 15 CNDDB records in the 5-mile radius of the project. The two nearest are for Occurrence #99 which was 11 plants observed in 2009 approximately 3,660 ft. southeast of the project area near St. Mary's College. The second record is for Occurrence #75 which was 6 plants observed in 2003 approximately 3,680 ft. northwest of the project area east of Rheem Valley, about 1 mile north of St. Mary's College. Species not observed during the March or May 2017 botanical surveys.
Juglans hindsii Northern California black walnut	--	--	1B.1	Apr-May	Riparian forest, **riparian woodland**. Elev. 0-1443 ft	**Present.** These trees are likely hybridized (not genetically pure *J. hindsii*) but the resource agencies will require 3:1 tree replacement for trees removed.

General Habitat Descriptions are based upon definitions used by the CNPS online Inventory of Rare and Endangered Plants (2019).

Status Legend

-- = No status, or not applicable
FE = Listed as endangered under the Federal Endangered Species Act (FESA)
FT = Listed as threatened under FESA
SE = Listed as endangered under the California Endangered Species Act (CESA)
Rare = Listed as rare under CESA; ST = Listed as threatened under CESA

CNPS Ranking

1A = Presumed extinct in California and either rare or extinct elsewhere.
1B = Rare, threatened, or endangered in California and elsewhere.
2A = Presumed extinct in California but common elsewhere.
2B = Rare, threatened, or endangered in California and but more common elsewhere.
3 = More information needed about this plant (Review List).
4 = Limited distribution (Watch List).

CNPS Threat Ranks

0.1 = Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat).

Table 4.4-2: Special-Status Plants with Potential to Occur in the Study Area

Scientific Name Common Name	Status			Blooming Period	Habitat Requirements (bold if present in Study Area)	Potential to Occur/ Rationale
	Fed	State	CNPS			

0.2 = Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat).
0.3 = Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

Potential to Occur Definitions

None = No possibility for occurrence.
Not likely = Habitat may be present but this species has not been documented in the study area other than historical museum specimen records; however, potential for its presence cannot be ruled out entirely.
Low = Suitable habitat present; not likely to occur due to environmental constraints, but cannot be ruled as absent.
Moderate = Potential to occur based on habitat suitability and documented records in the study area region.
High = Species has been document within the study area.

Table 4.4-3: Special-Status Wildlife with Potential to Occur in the Study Area

Scientific Name Common Name	Status Federal/State		Habitat Description	Potential to Occur within the Study Area/Rationale[1]
Invertebrates: None				
Fish: None				
Amphibians				
Rana boylii Foothill yellow-legged frog	--	CT, SSC	**Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.**	**Low.** Suitable upland habitat present. No suitable breeding habitat present. There is 1 CNDDB record approximately 4.3 miles west of the project limits. The CNDDB occurrence 160 is for a frog observed in 1997 along an intermittent tributary to Moraga Creek, 0.75 mile southeast of Moraga HWY and Glorietta Blvd.
Rana draytonii California red-legged frog	FT	SSC	**Lowlands and foothills in or near-permanent sources of deep water** with dense, shrubby or emergent riparian vegetation.	**Moderate.** Suitable upland habitat present. No suitable breeding habitat present. There are 2 CNDDB records approximately 2 miles north and 1 CNDDB record approximately 1.5 miles north of the project limits. The nearest CNDDB record (occurrence 120) is for a frog observed in 1994 in Las Trampas Creek, east of St. Mary's Road, 1.3 miles north of Rheem Blvd.
Reptiles				
Emys marmorata Western pond turtle	--	SSC	A thoroughly aquatic turtle of ponds, marshes, **rivers, streams** and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	**Low.** Las Trampas Creek provides aquatic habitat within the study area; however, no CNDDB occurrences within a 5-mile radius of the project have been recorded.
Masticophis lateralis euryxanthus Alameda whipsnake	FT	ST	Typically found in **chaparral and scrub habitats but will also use adjacent grassland**, oak savanna and **woodland habitats**. Mostly south-facing slopes & ravines, with rock outcrops, deep crevices or abundant rodent burrows, where shrubs form a	**High.** Annual grassland and woodland habitat occur within the study area, and critical habitat is directly adjacent to the project area. There are 26 CNDDB occurrences within a 5-mile radius of the project area, 6 of these are within 3 miles. The nearest

Table 4.4-3: Special-Status Wildlife with Potential to Occur in the Study Area

Scientific Name Common Name	Status Federal	Status State	Habitat Description	Potential to Occur within the Study Area/Rationale[1]
			vegetative mosaic with oak trees and grasses.	record was for Occurrence #172 located approximately 1.5 miles southeast of the project, for a species found dead on the road in 2012.
Birds: None				
Mammals				
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--	SSC	Forest habitats of moderate canopy to dense understory. May prefer chaparral and redwood habitats.	**Present.** There are 2 CNDDB records within 5-miles of the project area. Occurrence 14 is from 2015 located approximately 3 miles west on the southwest side of Moraga way and Ivy Dr. in Orinda. Occurrence 13 is from 2015 located approximately 2.5 miles northeast and was found near Hunsaker Canyon Rd. During the June 18, 2019, survey, three woodrat nests were observed within the study area.

1. Evaluation of potential presence is based upon the types of habitat that each listed species occupies, historical records, and on observations made during the March, May, and July 2017, and June 2019 site surveys.
2. Sources: Unless otherwise noted, technical information was obtained as follows:
   - Nomenclature/Taxonomy – California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) Special Animals List (CDFW 2019). When necessary, additional sources include, in the following order: CDFW Statewide List of Animal Species (CDFW 2019), NOAA Fisheries West Coast Region (NOAA Fisheries 2019), American Ornithological Society (AOS) checklist of North and Middle American Birds (AOS 2019), and Integrated Taxonomic Information System (IT IS 2019). Status and Habitat Description – CNDDB.

Status Legend
FE = Listed as endangered under FESA
FT = Listed as threatened under FESA
SE = Listed as endangered under CESA
ST = Listed as threatened under CESA
SSC = Designated as a Species of Special Concern by CDFW
FP = Fully Protected under the California Fish and Game Code (F.G.C.).
Proposed = Proposed for threatened (T) or endangered (E) status
F.G.C. = Protected under nongame mammal provisions in the California Fish and Game Code; in particular, bats
DL = Delisted

Rationale Definitions
None = No possibility for occurrence.

Table 4.4-3: Special-Status Wildlife with Potential to Occur in the Study Area

Scientific Name Common Name	Status Federal/State	Habitat Description	Potential to Occur within the Study Area/Rationale[1]

Not likely = Habitat may be present, but this wildlife species has not been documented in the study area other than historical museum specimen records; however, potential for its presence cannot be ruled out entirely.
Low = Suitable habitat present; not likely to occur due to environmental constraints, but cannot be ruled as absent.
Moderate = Potential to occur based on habitat suitability and documented records in the study area region.
High = Species has been documented within the study area.

riverine and riparian habitats associated with Las Trampas Creek, Tributary 1, and Tributary 2. Implementation of Mitigation Measures **MM BIO-1** through **MM BIO-4** would reduce potential impacts on this species to less than significant.

Alameda whipsnake. The Alameda whipsnake (*Masticophis lateralis euryxanthus*) is listed as threatened under both the FESA and CESA. Critical habitat was designated for the Alameda whipsnake in 2006 (USFWS, 2006), and there is one critical habitat unit (Unit 2-Oakland-Las Trampas) located approximately 300 feet north of the study area. This critical habitat unit and extends outside the study area along Las Trampas Regional Wilderness to San Leandro Reservoir and Redwood Regional Park. No Alameda whipsnakes were observed during the biological surveys conducted on March 31, May 25, July 5, 2017, and June 2019. However, there are 26 CNDDB occurrences within a 5- mile radius of the study area, 6 of these are within 3 miles. The nearest record was for Occurrence #172 located approximately 1.5 miles southeast of the project area, for a species found dead on the road in 2012. Due to the high mobility of this species, the presence of known populations and critical habitat in the region, and the presence of dispersal corridors on-site, Alameda whipsnake has a high potential to occur in grassland, oak woodland, and riparian woodland habitats in the study area. Implementation of Mitigation Measures **MM BIO-1** through **MM BIO-4** would reduce potential impacts on this species to less than significant.

Foothill yellow-legged frog. The foothill yellow-legged frog (*Rana boylii*) is a California-listed SSC and has no federal status. There were no foothill yellow-legged frogs observed during biological surveys conducted on March 31, May 25, July 5, 2017, and June 2019. However, there is one CNDDB record (occurrence 160) for two adult frogs observed in 1997 approximately 4.3 miles northwest of the study area in an intermittent tributary to Moraga Creek near the intersection of Moraga Hwy and Glorietta Blvd. There is marginal breeding habitat and suitable dispersal habitat for the foothill yellow-legged frog within the study area. There is a low potential for foothill yellow-legged frog to occur within the study area, including within Las Trampas Creek, Tributary 1, and Tributary 2. Implementation of Mitigation Measures **MM BIO-1** through **MM BIO-4** would reduce potential impacts on this species to less than significant.

California red-legged frog. The California red-legged frog (*Rana draytonii*) is a federally listed threatened species and a State SSC. Well-vegetated upland habitats in proximity of a riparian corridor may provide sheltering habitat during the winter. Breeding occurs during winter and early spring (late November through April). There were no California red-legged frogs observed during biological surveys conducted on March 31, May 25, July 5, 2017, and June 2019. However, there are three CNDDB records for California red-legged frog within 5-miles of the study area. The nearest CNDDB record (occurrence 120) is for one adult and 1 egg cluster observed in 1994 in Las Trampas Creek approximately 1.4 miles northeast of the project area. Suitable breeding habitat is not present in the immediate study area however there could be breeding pools upstream and/or downstream of the study area. Uplands and dispersal habitat is present within the stuy area. There is no suitable breeding habitat within the project limits. However, there is a moderate potential they could occur within the study area, including within Las Trampas Creek, Tributary 1, and Tributary 2; and riparian woodland habitat. Implementation of Mitigation Measures **MM BIO-1** through **MM BIO-4** would reduce potential impacts on this species to less than significant.

San Francisco dusky-footed woodrat. The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a California-listed SSC. There were no San Francisco dusky-footed woodrats, or their nests observed during biological surveys conducted on March 31, May 25, and July 5, 2017. However, three dusky-footed woodrat nests were found during the wetland delineation survey conducted on June 18,

2019. There are two CNDDB record (Occurrence 14 and Occurrence 13), both located approximately 3-miles from the study area. Occurrence 14 is for an adult male that was trapped and relocated in 2015, found near the southwest side of Moraga way, located northwest of the project. Occurrence 13 is for three adult males that were trapped and relocated in 2015, found near Hunsaker Canyon Rd, located northeast of the project area. San Francisco dusky-footed woodrat is present within the riparian woodland habitat in the study area. Implementation of Mitigation Measures **MM BIO-1** through **MM BIO-4** would reduce potential impacts on this species to less than significant.

Critical Habitat

Critical habitat is designated by the USFWS and NOAA Fisheries to protect areas that are essential to the survival of federally-listed species of plants and wildlife. Critical habitat for Alameda whipsnake (*Masticophis lateralis euryxanthus*), Unit 2 (Oakland- Las Trampas), is located approximately 300 feet north of the study area. Critical habitat for Alameda whipsnake does not occur within the study area or within the project limits.

Migratory Birds

The federal Migratory Bird Treaty Act (MBTA) and California F.G.C. Sections 3503 and 3800 protect the occupied nests and eggs of migratory and non-game bird species. The Federal Bald and Golden Eagle Protection Act also prohibits the take of bald eagles (*Haliaeetus leucocephalus*), golden eagles (*Aquila chrysaetos*), and their nests. Birds nest in a variety of places including trees, shrubs, man-made structures, and the ground. Work buffers around migratory birds and their nests are typically needed to minimize impacts to these species. Incidental take permits are not issued under the MBTA. Any proposed project must take measures to avoid the take of any migratory and non-game birds, nests, or eggs.

Numerous migratory bird species were observed during wildlife surveys. An active black phoebe (*Sayornis nigricans*) nest was identified within the outlet side of the Las Trampas Creek culvert during the March 31, 2017 survey.

Bats

Several species of bats are considered species of special concern by the state, including: pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), western red bat (*Lasiurus blossevillii*), and western mastiff bat (*Eumops perotis*). In addition to bat species listed as sensitive by the resource agencies, state laws protect bats and their occupied roosts from harassment and destruction. Protection under California Law is found in the F.G.C. Sections 2000, 2002, 2014 and 4150, and under California Code of Regulations (CCR) Section 251.1.

Bats could potentially roost in the multiple tree species that were observed within the study area. However, no acoustic or focused surveys of vegetation were conducted in the study area for roosting bats. Implementation of Mitigation Measures **MM BIO-1** through **MM BIO-4** would reduce potential impacts on this species to less than significant.

Summary

In general, the proposed project would have minimal impacts on the natural environment because the project would occur primarily within the existing roadway and areas previously disturbed from the construction of the original roadway, such as the roadway embankment. Permanent impact areas would

be limited to areas within cut and fill slopes and permanent hardscape additions, such as paving. Temporary impact areas would be limited to construction areas where grading and ground disturbance would occur. In addition, the construction of these cut and fill slopes could result in temporary effects to biological resources in areas immediately surrounding the cut and fill slopes from disturbance by heavy equipment and other construction activities. Temporary impacts are also associated with trimming of vegetation that may be required for construction-related access. Impacts to trees, including oak woodlands, are addressed later under Section 4.4(e). Compensatory mitigation will be required for permanent and temporary impacts on Alameda Whipsnake habitat, and California red-legged frog habitat, and would also require approvals from USFWS, NOAA, and CDFW.

Mitigation Measures

MM BIO-1: **Environmentally Awareness Training**. Before project activities, a qualified biologist shall conduct an education program for all Project personnel. Species to be covered in the training shall include special-status species that are known to occur within the study area, such as Diablo helianthella, Northern California black walnut, western pond turtle, Alameda whipsnake, California red-legged frog, foothill yellow-legged frog, San Francisco dusky-footed woodrat, nesting birds, and roosting bats. The program shall include:

- Information on the protected species and the habitats likely to be found.
- Requirements of Federal and state laws pertaining to these species.
- Identification of measures implemented to conserve the species and habitats.
- Distribution of a fact sheet conveying this information to the personnel who may enter the study area.

MM BIO-2: **Preconstruction Surveys, Construction Monitoring, and Project Schedule Windows.** Prior to issuance of Improvement Plans, the Town shall ensure the Improvement Plans include the following notes:

- A qualified biological monitor shall be present during ground-disturbing activities (e.g., clearing, grubbing, or excavation).
- Special-Status Plants**.** At least 48 hours prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified botanist shall perform a pre-construction botanical survey for special-status plants within the work area. The purpose of the pre-construction botanical survey is to identify locations where special-status plants could be temporarily or permanently impacted by construction activities, as well as determine presence/absence of Diablo helianthella and Northern California black walnut. The qualified botanist shall be present during clearing and grubbing activities in suitable or potential habitat for special-status plants. If Diablo helianthella is found during pre-construction surveys or during construction, the qualified botanist will immediately consult with CDFW. If Northern California black walnut trees will be removed, consultation with CDFW will be required.
- Turtles. At least 48 hours prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified biologist shall perform a pre-construction survey for western pond turtles within the work area. If a pond turtle is

observed in the project limits during construction, all work will be stopped, and the turtle will: 1) be allowed to leave on its own volition, or 2) be moved by the qualified biologist in the direction it was heading (upstream or downstream), at a safe distance from the construction activities, and at a safe location. The qualified biologist will report observations and relocations to the Town.

- Snakes. At least 48 hours prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified biologist shall perform a pre-construction survey for Alameda whipsnakes within a 200-foot buffer of the work area. If Alameda whipsnakes are found during pre-construction surveys or during construction, the qualified biologist shall stop all construction activities within the vicinity of the whipsnake and will consult with USFWS and CDFW. To prevent inadvertent entrapment of Alameda whipsnake during construction, excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot-high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot-high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected by the on-site biologist for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape, or the USFWS and CDFW will be contacted by telephone for guidance. The USFWS and CDFW will be notified of the incident by telephone and email within 48 hours. Plastic monofilament netting (erosion control matting) or similar material will not be used for the project because Alameda whipsnake may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

- Frogs. At least 48 hours prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified biologist shall perform a pre-construction survey for foothill yellow-legged frog and California red-legged frog within the work area. If either species is found during pre-construction surveys or during construction, the qualified biologist will immediately consult with USFWS and CDFW.

- Woodrats. At least 48 hours prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified biologist shall perform a pre-construction survey for San Francisco dusky-footed woodrats or their nests within the work area. If San Francisco dusky-footed woodrats or their nests are found within the study area during pre-construction surveys or during construction, the qualified biologist must consult with CDFW. If a nest cannot be avoided, the qualified biologist shall consult with CDFW about moving the nest.

- MBTA Protected Birds. At least 48 hours prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified biologist shall perform a pre-construction nesting bird survey for nesting passerines (small perching songbirds) and raptors (birds of prey) and their nests. Pre-construction nesting bird

surveys shall be conducted during bird nesting season (between February 1 through October 15) 50 feet beyond the project limits for passerines, and 250 feet beyond the project limits for raptors. If active nests are discovered, the qualified biologist shall establish buffer zones around the nest and develop a Nest Monitoring Plan as needed to prevent disruption of the nesting cycle. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored at least twice per week and a status report submitted monthly. This applies only to birds that are not federally or state listed due to consultation required by regulatory agencies with protection oversight.

- Bats. At least 7 days prior to any construction activity, including ground disturbing activities, clearing, and grubbing, a qualified biologist shall perform visual surveys of the vegetation and trees scheduled for removal in the project area for bat roosts. If bats are found, the qualified biologist will determine if they could be affected by the project. If it is determined that bats must be passively or actively excluded, the qualified biologist must prepare an exclusion plan. To the extent practicable, trees and vegetation shall be removed or trimmed from September 1 to March 1, outside of the bat breeding season, so as not to disturb maternal colonies or roosts.
- If a protected species is discovered during construction within the work area, the Town shall notify USFWS and/or CDFW as required in resource agency permits, and the qualified biologist shall have the authority to stop all construction work on the site until the appropriate corrective measures have been conducted, and it is determined that the animal shall not be harmed.
- A report of all pre-construction survey efforts and construction monitoring must be prepared to document compliance. The report must include the dates, times, weather conditions, and personnel involved in the surveys and monitoring. Additionally, the report must identify all special-status species that were observed within the study area. For relocated individuals, such as turtles, or relocated habitat features, like woodrat nests, the report must provide the UTM coordinates and habitat descriptions of the capture and relocation site, the length of time between capture and relocation, and the general health of the individuals.

MM BIO-3: **Wildlife Exclusion Devices**. Prior to issuance of Improvement Plans, the Town shall ensure the Improvement Plans include the following note:

Temporary, high-visibility wildlife exclusion fencing will be installed around the perimeter of the project footprint prior to the initiation of construction. The fencing will function to prevent California red-legged frogs, Alameda whipsnake, and other sensitive wildlife species from entering the project work site. The fencing will remain in place throughout the project and will be inspected regularly and fully maintained.

MM BIO-4: **Control Exotic and Invasive Weeds**. Prior to issuance of Improvement Plans, the Town shall ensure the Improvement Plans include a note stating:

Exotic and invasive plants will be controlled to the maximum extent practicable. Heavy duty equipment will be washed clean and be free of organic plant material (including seeds and propagules) prior to entry and exit into the study area. Staging and storage of

equipment would be done in weed free areas to the extent feasible to limit exposure of seeds, and noxious weed propagules from spreading into sensitive areas in project limits.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant Impact with Mitigation Incorporated.

Wetlands and Other Waters of the United States. Per Wreco's 2019 ARDR, aquatic resource delineations were conducted using U.S. Army Corps of Engineers' (USACE) guidance for the proposed site. For the purposes of delineation, field surveys were performed on March 31, 2017 and June 18, 2019 to evaluate potential jurisdictional areas that may be directly, indirectly, temporarily, or permanently impacted by construction and construction-related activities as a result of the proposed project. The study area consisted of approximately 2.87 acres and found 0.024 acre of potentially other waters of the U.S. (OWUS). The surveys concluded that no potential waters of the U.S. (wetlands) were identified and delineated within the study area. *Table 4.4-4, Summary of Potential Jurisdictional Waters* below summarizes the OWUS identified and lists each aquatic feature, along with its total area and length within the project limits.

Table 4.4-4: Summary of Potential Jurisdictional Waters

Potential Other Waters of the U.S. (OWUS)	Area (sq.ft.)	Area (acres)	Length (lft)
Las Trampas Creek	689	0.016	88
Tributary 1	55	0.001	44
Tributary 2	335	0.007	101
Total	**1,079**	**0.024**	**233**

Las Trampas Creek, Tributary 1, and Tributary 2 were the three potential jurisdictional OWUS that were identified and delineated within the project area. They were determined to be an OWUS, because they met the USACE definition under the criteria that it has a defined bed, bank and Original High Water Mark (OHWM) [USACE, 2015]. Las Trampas Creek flows through the project area in a northerly direction, (traveling below St. Mary's Road through a concrete box culvert) and is a perennial stream (Relatively Permanent Water [RPW]) subject to USACE jurisdiction, pursuant to Section 404 of the Clean Water Act (CWA). Tributary 1 is a non-RPW hillside drainage feature, located adjacent to Bollinger Canyon Road (approximately 270 feet south of the St. Mary's Road intersection) and is likely subject to USACE jurisdiction as other waters of the U.S. under the significant nexus test. Tributary 2 is an RPW, located adjacent to Rheem Boulevard (approximately 160 feet northwest of the St. Mary's Road and Rheem Boulevard intersection) and is subject to USACE jurisdiction, pursuant to Section 404 of the CWA.

As discussed above, the project's study area has approximately 0.024 acres of potentially jurisdictional OWUS under Section 404 of the CLA. The OWUS were delineated in Las Tramps Creek and the two tributaries. The aquatic features are designated as potential jurisdictional OWUS, because they have not gone through a USACE jurisdictional determination. No potential jurisdictional waters of the U.S. (wetlands) were identified or delineated within the project limits.

The proposed project will result in the following impacts to aquatic resources:

- Total of 0.005 acre of permanent impacts, which include filing of slopes from roadway widening, the extension of a culvert; and
- Total of 0.020 acre of temporary impacts, which include grading and ground disturbance associated with construction

Compensatory mitigation will be required for permanent and temporary impacts to Water of the U.S. and State, and will require negotiations and approvals from resource agencies, including USFWS and CDFW. Prior to construction, including clearing and grubbing, the project (qualified) biologist should delineate areas along the construction alignment where silt fence and high visibility environmentally sensitive area (ESA) fencing should be erected to protect other waters adjacent to the project limits. Implementation of Mitigation Measures **MM BIO-5** through **MM BIO-8** would reduce these impacts to a less than significant level.

Mitigation Measures

MM BIO-5: **Construction Staging.** Prior to issuance of Improvement Plans, the Town shall ensure the Improvement Plans include a note stating:

All equipment shall be stored, fueled and maintained in a vehicle staging area 300 feet or the maximum distance possible from any wetland feature and no closer than 200 feet unless a bermed (no ground disturbance) and lined refueling area is constructed and hazardous-material absorbent pads are available in the event of a spill.

MM BIO-6: **Construction Fencing**. Prior to issuance of Improvement Plans, the Town shall ensure the Improvement Plans include a note stating:

High visibility and silt fencing shall be erected at the edge of construction/maintenance footprint if work is anticipated to occur within 50 feet of potentially jurisdictional features and riparian areas which are fence installation and during any initial grading or vegetation clearing activities within 50 feet of potentially jurisdictional features and riparian areas which are proposed for avoidance. A biological monitor shall be present during the fence installation and during any initial grading or vegetation clearing activities within 50 feet of potentially jurisdictional features and riparian areas which are proposed for avoidance.

MM BIO-7: **Wetland Permits.** Prior to the approval of grading permits or improvement plans, the Town shall ensure, evidence that the U. S. Army Corps of Engineers (USACE) California Department of Fish and Wildlife (CDFW), and the San Francisco Bay Regional Water Quality Control Board (RWQCB) have been notified in writing regarding the existence of wetlands on the property. Any permits required shall be obtained and copies submitted to the Director prior to any equipment staging, clearing, grading, or excavation work. The permit shall include authorization for temporary construction work within the wetland area.

MM BIO-8: **Wetland Compensation.** Prior to the approval of grading permits or improvement plans, the Town shall ensure that the following measures have been completed:

Provide written evidence that compensatory mitigation has been established for permanent impacts to Waters of the U.S. and State through the purchase of mitigation

credits at a qualified wetland mitigation bank established by and in agreement with USACE. The purchase of credits shall be equal to the amount necessary as determined and by USACE to replace impacted jurisdictional wetlands including compensation for temporal loss in accordance with approved regulatory permits (e.g., Regional Water Quality Control Board Section 401 Water Quality Certification, US Army Corps of Engineers 404 Permit, and California Department of Fish and Game Section 1602 Lake and Streambed Alteration Agreement) (minimum 1:1 ratio; more if required by other agencies). The total amount of impacted jurisdictional wetlands, as determined by the regulatory agencies, shall be replaced in accordance with the total amount of impacted acreage. The regulatory agencies shall verify the replacement prior to issuance of any permit by the Town.

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?

Less than Significant Impact.

Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act was passed in 1976 for the conservation and management of the fishery resources of the U.S. to prevent overfishing, to rebuild overfished stocks, to ensure conservation, and to facilitate long-term protection of Essential Fish Habitat (EFH). This Act is implemented by regional Fishery Management Councils that work with NOAA to develop and implement fishery management plans. The plans must identify the EFH for each fishery within their NOAA jurisdiction. When a project is proposed that could adversely affect EFH, federal agencies must consult with NOAA in order to obtain avoidance and minimization consultation as well as conservation and enhancement recommendations.

The project is within NOAA Fisheries designated essential fish habitat (EFH) for Chinook salmon. Salmonid species, including steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*Oncorhynchus tshawytscha*) have no potential to occur within the project area due to two fish barriers between Suisun Bay and the study area. These barriers include Bancroft Road Drop Structure (located in Walnut Creek) and Walnut Creek City Drop Structure (located upstream of the Las Trampas Creek and San Ramon Creek confluence). These barriers completely block all fish passage for anadromous fish species to move upstream to the study area. Potential impacts are considered to be less than significant.

The project may have indirect impacts on EFH for Chinook salmon, however due to the fish barriers that exclude this species from the study area, it is unlikely that consultation with NOAA Fisheries is necessary. Implementation of the Best Management Practices (BMPs) required for the Stormwater Pollution Prevention Plan (SWPPP) discussed in Section 4.10(a) to protect water quality would reduce potential indirect impacts to a less than significant level.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact with Mitigation Incorporated.

The Town of Moraga Municipal Code includes a tree ordinance (12.12.030) which requires a permit for

removal of native trees, orchard tree or trees, or a tree of historic significance, located either on public of private property. Each tree type is defined below:

- A native tree is a tree, which is native to California and indigenous to the Moraga area, the most common being the bay (*Umbellularia californica*), oak (*Quercus sp*.), redwood (*Sequoia sempervirens*), toyon (*Heteromeles arbutifolia*) and the knobcone pine (*Pinus attenuata*).
- An orchard tree or trees are fruit or nut trees planted for commercial agricultural purposes.
- A tree of historic significance as a tree having historic value related to the heritage of the town and designated by action of the town council.

Trees removed by the proposed project would be subject to the Town's Tree Preservation Guidelines (Moraga Planning and Zoning Ordinance Chapter 12.12), as applicable. In addition, a tree or trees removed from the riparian corridor will require, at minimum, 3 to 1 replacement by both CDFW and the RWQCB. Implementation of mitigation measures and compliance with the Town's tree ordinance would reduce potential impacts to local policies or ordinances protecting biological resources, such as trees. Implementation of Mitigation Measures **MM BIO-9** and **MM BIO-10** would reduce these impacts to a less than significant level.

Mitigation Measures

MM BIO- 9: **Tree Replacement.** Prior to issuance of Improvement Plans, the Town shall ensure the Improvement Plans include the following notes:

The Town shall obtain a Tree Removal Permit and shall provide mitigation for the loss of the on-site, native oak trees protected under the Town of Moraga Tree Preservation Ordinance which are five (5) inches or more measured three feet above the natural grade or, if having multiple trunks, a total perimeter of forty (40) inches or more measured three feet above the natural grade. The project applicant shall compensate for the loss of such trees either through implementation of a revegetation plan or payment of fees, as determined by the Town of Moraga Planning Director.

If a revegetation plan is chosen, the plan shall identify the seed or seedling source of the trees to be propagated, the location of the plots, the methods to be used to ensure success of the revegetation program (e.g., irrigation), an annual reporting requirement, and the criteria to be used to measure the success of the plan. Mitigation shall include planting of replacement native trees of the same species as were removed at a 3:1 ratio for the total inches (DBH) of native trees removed (i.e., the total DBH of replacement trees will be equal to the total DBH of removed trees at an "inch-for-an-inch" replacement). Successful replacement includes:

- Trees shall be specimens in at least 1-gallon sized pots and planted in accordance to industry standards.
- A 3-year maintenance schedule shall be implemented to ensure planted saplings are established.
- If any five-gallon size tree or greater that was replanted or relocated that is dead after three years, the tree must be replaced in kind with equal sized healthy replacements.

- Revegetated areas or areas where trees smaller than five-gallon size were replanted must have at least seventy-five (75) percent of the trees still alive after three years.

MM BIO-10: **Tree Protection**. Prior to the issuance of Improvement Plans, the Town shall submit evidence that the following measures have been completed:

The following protection measures shall be shown on the Improvement Plans and implemented to protect retained trees on-site:

1) A Tree Protection Zone (TPZ) shall be established around any tree or group of trees to be retained. The TPZ shall be defined as 1.5 times the radius of the dripline or 5 feet from the edge of any grading, whichever is greater, unless otherwise adjusted on a case-by-case basis after consultation with a certified arborist.
2) All TPZs shall be marked with post and wire or equivalent fencing, which shall remain in place for the duration of construction activities in the area. "Keep out" signs shall be posted on TPZ fencing facing out in all directions.
3) Construction-related activities, including grading, trenching, construction, demolition, or other work shall be prohibited within the TPZ. No heavy equipment or machinery shall be operated within the TPZ. No construction materials, equipment, machinery, or other supplies shall be stored within a TPZ. No wires or signs shall be attached to any tree. In the event that the contractor identifies a need to conduct activities within a TPZ, such activities must be approved and monitored by a certified arborist.
4) Selected trees shall be pruned, as necessary, to provide clearance during construction and/or to remove any defective limbs or other parts that may pose a failure risk. All pruning shall be completed by a certified arborist or tree worker and shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.
5) Each week during construction, a certified arborist shall monitor the health and condition of the protected trees and, if necessary, recommend additional mitigations and appropriate actions. This shall include the monitoring of trees adjacent to project facilities in order to determine if construction activities (including the removal of nearby trees) would affect protected trees in the future.
6) Provide supplemental irrigation and other care, such as mulch and fertilizer.

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?

Less than Significant Impact. No portions of the project area, which includes the project site and study area are subject to approved local, regional, or State conservation plans. As discussed above, there are no CDFW-designated sensitive natural communities within or adjacent to the study area, as well as within a 5-mile radius of the study area and project limits. Therefore, impacts to CDFW-designated sensitive natural communities and other approved local, regional or state HCPs are not anticipated. Thus, impacts would be less than significant, and no mitigation measures are required.

Cumulative Impacts

The cumulative impacts analysis for biological resources considered the proposed project site as well as

the land uses surrounding the project site. The cumulative impact on biological resources resulting from the project in combination with other projects in the project area and larger region would be dependent on the relative magnitude of adverse effects of these projects on biological resources compared to the relative benefit of impact avoidance and minimization efforts prescribed by planning documents, CEQA mitigation measures, and permit requirements for each project; compensatory mitigation and proactive conservation measures associated with each project. In the absence of such avoidance, minimization, compensatory mitigation, and conservation measures, cumulatively significant impacts on biological resources would occur.

The project would result in potential impacts to aquatic resources, which may affect habitat for special-status plant and wildlife species including migratory birds. Impacts would be fully mitigated in accordance with previous larger planning efforts and in consultation with State and federal wildlife agencies. Project mitigation would be pursued in a manner consistent with requirements provided by regulatory agencies and all special-status species impacts would be permitted in accordance with State and federal regulations. Furthermore, the Town of Moraga General Plan contains open space and conservation goals that would benefit biological resources, as well as measures to reduce and mitigate any adverse impacts on these resources. Thus, provided that this project successfully incorporates the mitigation measures described, the project will not contribute to substantial cumulative effects on biological resources. As such, cumulative impacts are considered less than significant.

4.5 Cultural Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?				**X**
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		**X**		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		**X**		

A Cultural Resources Survey Report was prepared by Archaeological/Historical Consultants (August 2019) for the proposed project. The results are included in Appendix D of this Initial Study and the results are summarized herein.

a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?

No Impact. Historical resources are defined as buildings, structures, objects, sites, and districts of significance in history, archaeology, architecture, and culture. These resources include intact structures of any type that are 50 years or more of age. These resources are sometimes called the "built environment" and can include, in addition to residences, other structures such as irrigation works and engineering features. Historical resources are preserved because they provide a link to a region's past as well as a frame of reference for a community.

CEQA Guidelines Section 15064.5 defines "historic resources" as resources listed in the California Register of Historical Resources, or determined to be eligible by the California Historical Resources Commission for listing in the California Register of Historic Resources. The National Register recognizes properties that are significant at the national, state and local levels. In accordance with CEQA Guidelines Section 15064.5, a site or structure may be considered a historical resource if it is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of PRC Section 5020.1(j), or if it meets the criteria for listing in either the National Register of Historic Places or the California Register of Historical Resources (14 Code of Federal Regulations § 4850). CEQA allows local historic resource guidelines to serve as the California Register of Historical Resources criteria if enacted by local legislation to act as the equivalent of the State criteria.

According to the Cultural Report prepared by Archaeological/ Historical Consultants, the project area does not appear to contain historical resources as defined in CEQA Section 15064.5. In April 2017 a record search for previously recorded cultural resources in the project area and within a half-mile radius was completed at the Northwest Information Center, California Historical Resources Information System (NWIC File #16-1437). No cultural resources were reported within the project area as a result of the record search. One historic and prehistoric archaeological site (CA-CCO-640H/P-07-000404) was recorded around on the west side of Las Trampas Creek, about 800 feet from the northern limit of the project area. The site consists of historic architectural elements that may be associated with the 1860 residence of David and George Carrick, cattle ranchers, and one prehistoric bedrock mortar. The historic Contra Costa-Moraga Transmission Line (P-07-004688) runs east-west about ½ mile north of the project area.

In addition, a pedestrian archaeological survey of the Area of Potential Effect (APE) was carried out by Archaeological/ Historical Consultants on July 20, 2017. The survey found that no buildings are present in the project area. St. Mary's Road and the East Bay Regional Park District's (EBRPD) Lafayette-Moraga Regional Trail are the only built environment features in the project area. The EBRPD Lafayette-Moraga Regional Trail runs on the former right-of-way of the Sacramento Northern (formerly Oakland, Antioch, and Northern) Railroad. The trail is paved for use by walkers and cyclists. No historical railroad features were observed during the survey. Likewise, St. Mary's Road and a segment of the pre-1928 alignment of Bollinger Canyon Road are present in the project area. However, none of them retain features that would make them eligible for the California Register under Criteria 1, 2, 3, or 4. The project area therefore does not appear to contain historical resources as defined in CEQA §15064.5. Therefore, due to the lack of significant historic resources on the project site, the project would have no impact on historic resources 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 with Mitigation Incorporated. None of the inventories or literature reviewed in the Cultural Report identified any archaeological cultural resources within the project area. As discussed above, the record search found one historic and prehistoric archaeological site (CA-CCO-640H/P-07-000404) recorded around on the west side of Las Trampas Creek, about 800 feet from the northern limit of the project area and the historic Contra Costa-Moraga Transmission Line (P-07-004688) runs east-west about ½ mile north of the project area. In addition, the field survey conducted by Archaeological/ Historical Consultants did not identify any prehistoric archaeological cultural resources in the project area.

Although no previously recorded archaeological resources were identified within the Cultural Report during the record search and literature review, portions of the project area near Las Trampas Creek contain superficial geology that is Holocene-aged. Holocene-aged sediments are known to have increased potential for containing buried archaeological deposits. While no formal archaeological resources have been recorded within the project area, there is increased potential for as-yet undocumented archaeological deposits to exist subsurface.

While the majority of ground disturbance associated with project activities would occur between ground surface and 2 feet, in previously disturbed material, some project elements would require deeper excavation (up to 10 feet). This deep excavation could result in a significant impact to as-yet

undocumented archaeological resources. However unlikely, if archaeological resources are exposed during any phase of construction and an archaeological resource is lost, damaged or destroyed, a significant impact to an archaeological resource pursuant to § 15064.5 would occur. To reduce the impact, implementation of Mitigation Measures **MM CUL-1** through **MM CUL-3** would be required to reduce these impacts to less than significant.

Mitigation Measures

MM CUL-1: **Construction Worker Awareness Training:** Prior to the start of ground disturbance, all construction personnel involved with earth-moving activities should be informed that artifacts protected by law could be discovered during excavating. The training should include the appearance of common artifacts and proper notification procedures should artifacts be discovered. This worker training should be prepared and presented by a qualified archaeological professional.

MM CUL-2: **Subsurface Cultural Resources:** The Improvement Plans shall include a statement that if any archaeological artifacts, exotic rock (non-native), or unusual amounts of shell or bone are uncovered during any on-site construction activities, all work shall be stopped immediately within a 50-foot radius of the find and a qualified archaeologist retained to evaluate the deposit. The archaeologist shall 1) evaluate the find(s) to determine if they meet the definition of a historical or archaeological resource; and (2) make appropriate recommendations regarding the disposition of such finds prior to issuance of building permits. The qualified archaeologist shall have authority to halt construction activities temporarily in the immediate vicinity of an unanticipated find. If, for any reasons, the qualified archaeologist is not present but construction crews encounter a cultural resource, all work shall stop temporarily within 50 feet of the find until a qualified archaeologist has been contacted to determine the proper course of action. If the finds do not meet the definition of a historical or archaeological resources, no further study or protection is necessary prior to project implementation. If the find(s) does meet the definition of a historical or archaeological resource, the find and the area around the find shall be avoided by project activities and a Cultural Resources Treatment Plan as described in MM CUL-3 shall be implemented.

MM CUL-3: **Subsurface Cultural Resources Treatment Plan:** If subsurface testing revealed the presence of cultural resources, the qualified archeologist shall prepare an archaeological resources treatment plan prior to issuance of any grading permits. The treatment plan shall utilize data recovery methods to reduce impacts on subsurface resources. The treatment plan shall contain, at a minimum:

- Identification of the scope of work and range of subsurface effects (including location map and development plan), including requirements for preliminary field investigations.
- Description of the environmental setting (past and present) and the historic/prehistoric background of the parcel (potential range of what might be found).

- Development of research questions and goals to be addressed by the investigation (what is significant vs. what is redundant information).
- Detailed field strategy used to record, recover, or avoid the finds and address research goals.
- Analytical methods.
- Report structure and outline of document contents.
- Disposition of the artifacts.
- Appendices: all site records, correspondence, and consultation with Native Americans, etc.

The treatment plan shall be prepared and submitted to the Supervising Environmental Planner of the Town of Moraga Department of Planning, Building, and Code Enforcement for review and approval prior to the issuance of any grading permits.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact with Mitigation Incorporated. No known human remains occur on site, and due to the level of past disturbance, it is not anticipated that human remains exist within the limits of disturbance for the project. In the event human remains are encountered during earth removal or disturbance activities compliance with the California Health and Safety Code Section 7050.57.98 as identified in Mitigation Measure **MM CUL-4** would reduce any impact associated with disturbance of human remains to less than significant levels.

Mitigation Measures

MM CUL-4: California Health and Safety Code Section 7050.5, CEQA Section 15064.5, and Public Resources Code Section 5097.98 mandate the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery. California Health and Safety Code Section 7050.5 requires that in the event that human remains are discovered, disturbance of the site shall be halted until the coroner has conducted an investigation into the circumstances, manner and cause of death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes or has reason to believe the human remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission.

Cumulative Impacts

Potential historical, and archaeological, and are considered and evaluated on a project specific basis. The Town of Moraga requires all projects to implement standard conditions of approval and/or implement measures to avoid, reduce or mitigate impacts to cultural resources. Each incremental development would be required to comply with all applicable State, Federal, County and Town regulations concerning

preservation, salvage, or handling of cultural resources including compliance with required mitigation. Similar to the proposed project, these development projects also would be required to implement and conform to mitigation measures, which would be likely to reduce impacts to less than significant. Although in the process of development, some known or unknown resources may be lost, it is not anticipated that these impacts would be cumulatively considerable. In addition, implementation of Mitigation Measures MM CUL-1 through MM CUL-4 would reduce project-specific impacts to a less than significant level. Therefore, the project's contribution to cumulative impacts would be less than significant.

4.6 Energy

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

Background: Building Energy Conservation Standards

Senate Bill 350. Senate Bill (SB) 350 (de Leon) was signed into law in September 2015 and establishes tiered increases to the Renewable Portfolio Standard—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 100 was signed into law September 2018 and increased the required Renewable Portfolio Standards.

Senate Bill 100. On September 10, 2018, then Governor Brown signed SB 100. Under SB 100, the total kilowatt-hours of energy sold by electricity retailers to their end-user customers must consist of at least 50 percent renewable resources by 2026, 60 percent renewable resources by 2030, and 100 percent renewable resources by 2045. SB 100 also establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Town of Moraga

The Town of Moraga has a General Plan that contains relevant goals, policies, and implementation programs regarding energy service. Additionally, the Town has a Climate Action Plan that has strategies that addresses energy use. The strategies include increasing employer participation in Transportation Demand Management programs, support transition to hybrids and alternative fuel vehicles, and raising awareness about energy use in the community by coordinating an energy benchmarking campaign to name a few.

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. The proposed project involves roadway improvements. The project would not increase roadway capacity or generate any new automobile, bicycle, or pedestrian traffic that would result in an environmental impact due to wasteful, inefficient or unnecessary consumption of energy resources. The analysis below explains the impacts in this regard would be less than significant.

Electricity

PG&E provides electricity to the project area. The proposed project is not a typical land use project associated with electricity usage. As proposed, the project would relocate the existing streetlights and not increase the number of streetlights beyond existing conditions. Project implementation would not increase electricity consumption over existing conditions. Total electricity demand in PG&E's service area is forecast to increase by approximately 15,000 GWh—or 15 billion kWh—between 2018 and 2030. As the project would not increase electricity demand, it would not affect overall demand in PG&E's service area.

Project implementation would not interfere with achievement of the 60 percent Renewable Portfolio Standard set forth in SB 100 for 2030 or the 100 percent standard for 2045. These goals apply to PG&E other electricity retailers. As electricity retailers reach these goals, emissions from end-user electricity use would decrease from current emission estimates. As noted above, the project would not increase electricity demand and would not impact PG&E's level of service.

Natural Gas

PG&E also provides natural gas service to the project area. The project does not propose any new structural or operations that would use natural gas. Natural gas consumption would be minimal during construction as well. Therefore, the natural gas demand from the proposed project would represent a nominal percentage of overall demand in PG&E's service area. The project would not result in a significant impact due to wasteful, inefficient, or unnecessary consumption of natural gas resources, during project construction or operation.

Fuel

During construction, transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. Most construction equipment during grading would be gas-powered or diesel-powered, and the later construction phases would require electricity-powered equipment. Idling of in-use off-road heavy-duty diesel vehicles in California are limited to five consecutive minutes per Title 13, California Code of Regulations, Section 2449(d)(3). Project construction equipment would also be required to comply with the latest U.S. Environmental Protection Agency (U.S. EPA) and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel use.

The project would entail construction activities that would use energy, primarily in the form of diesel fuel (e.g., mobile construction equipment). Contractors would be required to monitor air quality emissions of

construction activities using applicable regulatory guidance such from BAAQMD CEQA Guidelines. This requirement indirectly relates to construction energy conservation because when air pollutant emissions are reduced from the monitoring and the efficient use of equipment and materials, energy use is reduced. There are no aspects of the project that would foreseeably result in the inefficient, wasteful, or unnecessary use of energy during construction activities.

Due to increasing transportation costs and fuel prices, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary use of energy during construction. There is growing recognition among developers and retailers that sustainable construction is not prohibitively expensive and that there is a significant cost-savings potential in green building practices. The use of battery-powered tools and equipment that do not rely on gas to operate are also becoming more common. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure; impacts would not be significant.

The project is a roadway improvement project that would alleviate congestion, reduce intersection delays and queues, improve multimodal safety and better accommodate pedestrian and bicycle traffic. The project would not increase roadway capacity or generate any new automobile, bicycle, or pedestrian traffic. The reduction in congestion and intersection delays would reduce idling time and associated fuel consumption. Consequently, the proposed project would not result in a substantial demand for energy that would require expanded supplies or the construction of other infrastructure or expansion of existing facilities. Project operations would not substantially affect existing energy or fuel supplies or resources. The project would comply with applicable energy standards and new capacity would not be required. Fuel consumption associated with vehicle trips generated by the proposed project would not be considered inefficient, wasteful, or unnecessary.

For these reasons, the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Impacts are less than significant, and no mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. The proposed project involves roadway improvements. The project would construct two roundabouts on St. Mary's Road at the Rheem Boulevard and Bollinger Canyon Road intersections and create safer pedestrian and bicycle crossings. The Bay Area Metropolitan Planning Commission MTC) Plan Bay Area 2040 (adopted July 2017) establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 as well as an overall GHG target for the project region consistent with both the target date of AB 32 and the post-2020 GHG reduction goals of EOs 5-03-05 and B-30-15. The project is consistent with regional strategies to reduce passenger vehicle miles traveled (VMT). The proposed project is a roadway improvement project with pedestrian and bicycle crossings. The project aims to enhance circulation and safety in the project area, thus reducing congestion and energy consumption. Providing enhanced and safer pedestrian facilities promotes alternative means of transportation and is a key strategy to reducing regional VMT. Therefore, the project would be consistent with regional goals to reduce trips and VMT by locating enhancing infrastructure to promote alternative transportation solutions, which reduces vehicle trip lengths. The project would not conflict with the stated goals of Plan Bay Area. Therefore, the project would not interfere with MTC's ability to achieve the

region's post-2020 mobile source GHG reduction targets. Potential impacts are considered less than significant, and no mitigation is required.

Cumulative Impacts

Construction associated with implementation of the project would result in the consumption of fuel and energy, but it would not do so in a wasteful manner, as discussed above. Project operations would improve intersection operations and reduce congestion, which would reduce vehicle idling and associated fuel consumption. The consumption of fuel and energy would not be substantial in comparison to statewide electricity, natural gas, gasoline, and diesel demand. New capacity or supplies of energy resources would not be required. Additionally, the project would be subject to compliance with all Federal, State, and local requirements for energy efficiency.

The anticipated project impacts, in conjunction with cumulative development in the site vicinity, would increase urbanization and result in increased energy consumption. Potential land use impacts are site-specific and require evaluation on a case-by-case basis. Each cumulative project would require separate discretionary approval and CEQA assessment, which would address potential energy consumption impacts and identify necessary mitigation measures, where appropriate.

As noted above, the project is a roadway improvement project and would not result in significant energy consumption impacts. The project would not be considered inefficient, wasteful, or unnecessary with regard to energy. Thus, the project and identified cumulative projects are not anticipated to result in a significant cumulative impact.

4.7 Geology and Soils

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?		X		
iii) Seismic-related ground failure, including liquefaction?		X		
iv) Landslides?		X		
b) Result in substantial soil erosion or the loss of topsoil?		X		
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?		X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?		X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems			X	

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
where sewers are not available for the disposal of waste water?				
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

This section presents information on geology and soils conditions in the project area. It also describes the impacts on geology and soils that would result from implementation of the proposed project and mitigation measures that would reduce these impacts. The following analysis of the potential environmental impacts related to geology and soils is also derived from the sources listed below. The geotechnical report is attached as Appendix E to this MND.

- Moraga 2002 General Plan
- California Geological Survey and U.S Geological Survey
- Geocon Consultants Incorporated. 2019. Preliminary Geotechnical Report for the project site.

PROJECT SETTING

Topography. The project site is currently a two-lane undivided roadway with stop-signalized intersections at Rheem Boulevard and Bollinger Canyon Road. The project area is undeveloped, apart from the roadways, and is characterized by roadside vegetation. Topographically, the site generally descends from the east and west toward Las Trampas Creek, which flows north to south within the project limits. The slope at the culvert outfall is approximately 25 feet high with overall inclinations on the order of 1 ½:1 (horizontal: vertical). Based on topographic and layout information for the proposed site, the development of the roundabouts will require roadway widening at the approaches of the roundabouts for each of the subject streets and a new retaining wall would be constructed on the south side of St. Mary's Road, near the top of the slope that descends to Las Trampas Creek. The new retaining wall would be 85 linear feet and have a retained height of 3 to 4 feet.

Geology. Available geologic mapping by the United States Geological Survey (USGS) indicates most of the site is underlain by Holocene-age alluvium. The southeastern margin of the project area, generally where Bollinger Canyon Road extends away from St. Mary's Road, is underlain by Pliocene-age Orinda Formation.

Soils. The U.S. Department of Agriculture (USDA) Soil Conservation Survey web soil mapping data was used to identify the major soil types in the project area. The identified soils consist primarily of Clear Lake clay, Cropley clay, and Los Osos clay loam. The St. Mary's Road and Bollinger Canyon Road intersection is specific to Clear Lake clay soil and the St. Mary's Road and Rheem Boulevard intersection is specific to Cropley clay soil. Los Osos clay loam soil is located generally northwest and outside of the project limits. The geotechnical investigation reported artificial, alluvium and formational materials identified during

testing of their soil boring sites. The artificial fill materials consisted of loose, coarse gravel that remain from a construction yard associated with a recent PG&E transmission line project. The alluvial materials observed were medium stiff to very stiff fat clays with variable amounts of silt and/or sand. The formational materials were observed in the southeastern margin of the project area and were fractured and moderately weathered to weathered claystone with interbedded sand layers. The formational materials were discovered below the alluvial deposits previously described.

Regional Faulting, Seismicity, and Related Seismic Hazards. The San Francisco Bay Area is a seismically active region. The project site is within the region where faulting and seismicity are common. Numerous earthquakes have been recorded in the region in the past, and significant earthquakes can be expected to occur in the future. The closest faults to the Town are the Hayward Fault and the Calaveras Fault located approximately 5 miles to the southwest and 5.5 miles to the east, respectively. Additionally, the project area is not located within an Alquist-Priolo fault zone and no active faults have been identified or mapped within or in proximity to the site by the California Geological Survey and U.S Geological Survey (DOC, 2018). The nearest Alquist-Priolo fault zone is approximately 5 miles west of the project site.

Groundshaking. The severity of ground shaking depends on several variables such as earthquake magnitude, epicenter distance, local geology, thickness, seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Ground shaking hazards are most pronounced in areas near faults or with unconsolidated alluvium. On July 16, 2019, the United States Geological Survey (USGS) reported a 4.3 magnitude earthquake in Contra Costa County. The small quake's epicenter was approximately 20 miles east of the project site and 10 miles east of Blackhawk, an unincorporated town in Contra Costa County. Based on the USGS, the intensity felt at the Town of Moraga, was considered weak and no potential damage was recorded.

Landslides. Based on historical landslide mapping, the project site is located within the Las Trampas Ridge Quadrangle (DOC, 2015) and has known past occurrences of landslides. Historic landslides are mapped to the east and south of St. Mary's college, which is located just south of the project site (Town of Moraga, 2016a).

Liquefaction. Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground shaking. Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations. In order to determine the liquefaction susceptibility of a region, three major factors must be analyzed: (1) density and textural characteristics of the alluvial sediments; (2) intensity and duration of ground shaking; and (3) depth to groundwater. Liquefaction can only occur in saturated soil layers, often in areas of shallow groundwater. The geotechnical investigation conducted did not encounter groundwater in the soil borings tested at the project site.

Unstable Geologic Units. Expansive soils can undergo significant volume change with changes in moisture content. In general, expansive soils shrink and harden when dried, and swell and soften when wet. Such changes can cause distress to building foundations and structures, slabs on grade, pavements, and other surface improvements. Expansive soils are also generally a major contributing factor to soil creep on slopes. The USDA Soil Conservation Survey web soil mapping data and Geocon's laboratory testing results

identified soil complexes in the project area with medium to high expansion potential. Soils with high expansion potential often represent a local hazard, varying property to property.

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

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. As discussed above, the nearest Alquist-Priolo fault zone is located approximately 5 miles west of the project site. The closest active faults to the project site are the Hayward Fault and the Calaveras Fault located approximately 5 miles to the southwest and 5.5 miles to the east, respectively.

The Town's General Plan contains Public Safety goals associated with Seismic and Geological Hazards that the proposed project would comply with (PS4 Seismic and Geologic Hazards, Moraga General Plan). The Seismic and Geologic Hazards goals are established to minimize risk to lives and property due to earthquakes and other geologic hazards. The proposed project would conform with the goals stated in the General Plan that include development of technical reports addressing geologic hazards, public facilities and utilities in landslide areas, applicable construction standards and construction oversight, as well guidelines pertaining to grading and retaining walls. The goals in the General Plan's Public Safety Chapter, Seismic and Geologic Hazards section are applicable to geology and soils as related to the proposed project are provided below (PS4.1, PS4.2, PS4.5, PS4.6, PS4.7. PS4.8, PS4.10 and PS4.11).

PS4.1: Development in Geologic Hazard Areas. Prohibit development in geologically hazardous areas, such as slide areas or near known fault lines, until appropriate technical evaluation of qualified independent professional geologists, soils engineers and structural engineers is completed to the Town's satisfaction. Allow development only where and to the extent that the geologic hazards have been eliminated, corrected or mitigated to acceptable levels.

PS4.2: Development Review for Geologic Hazards. Require development proposals to address geologic hazards, including but not limited to landslide, surface instability, erosion, shrink-swell (expansiveness) and seismically active faults. Technical reports addressing the geologic hazards of the site shall be prepared by an independent licensed soil engineer, geologist and/or structural engineer, approved by the Town and at the expense of the developer. All technical reports shall be reviewed by the Town and found to be complete prior to approval of a development plan.

PS4.5: Public Facilities and Utilities in Landslide Areas. Prohibit the financing and construction of public facilities or utilities in potential landslide areas.

PS4.6: Construction Standards. Ensure that all new construction and applicable remodeling/ reconstruction projects are built to established standards with respect to seismic and geologic safety.

PS4.7: Construction Oversight. Adopt and follow procedures to ensure that the recommendations of the project engineer and the design and mitigating measures incorporated in approved plans are followed through the construction phase.

PS4.8: Unsafe Structures. Properly disclose information pertaining to structures and facilities found to be unsafe and remove or rebuild such structures and facilities to adequate construction standards.

PS4.10: Grading. Grading for any purpose whatsoever may be permitted only in accordance with an approved development plan that is found to be geologically safe and aesthetically consistent with the Town's Design Guidelines. Land with a predevelopment average slope of 25% or greater within the development area shall not be graded except at the specific direction of the Town Council and only where it can be shown that a minimum amount of grading is proposed in the spirit of, and not incompatible with, the intention and purpose of all other policies of the General Plan. The Town shall develop an average slope limit beyond which grading shall be prohibited unless grading is required for landslide repair or slope stabilization.

PS4.11: Retaining Walls. Discourage the use of retaining walls and other man-made grading features to mitigate geologic hazards, permitting them only when:

- Required to decrease the possibility of personal injury or property damage;
- Designed to blend with the natural terrain and avoid an artificial or structural appearance;
- Appropriately screened by landscaping;
- Designed to avoid creating a tunnel effect along roadways and to ensure unrestricted views for vehicular and pedestrian safety; and
- Designed to ensure minimal public and/or private maintenance costs.

The building and safety standards established by these goals have been developed to address structural integrity during a seismic event. The proposed improvements to St. Mary's Road would be constructed in accordance with applicable Town codes and goals listed above, as well as the codes established by the California Building Code (CBC). All construction plans, and related geotechnical plans and studies would be reviewed by the Town further ensuring compliance with all construction standards. Compliance with all construction standards would ensure that the project is seismically safe. As a result, the proposed project would not expose people or structures to potential risk of loss or injury where there is high potential for earthquake-related ground rupture in the vicinity of major fault crossings. Any potential impacts would therefore be less than significant.

ii. Strong seismic ground shaking?

Less Than Significant Impact with Mitigation Incorporated. As previously discussed, the closest active faults to the project site are the Hayward Fault and the Calaveras Fault. Because the project site is in a seismically active region, it may experience strong ground shaking during an earthquake on one of the major active faults that cross the region. Chapter 14 of the Town's Municipal Code is the Grading Ordinance, which requires a grading permit for most construction permits moving more than 50 cubic yards of soil, or located in an area where potential seismic or erosion hazards are present. The proposed improvements to St. Mary's Road would be constructed in accordance with applicable Town codes and goals listed above, as well as the codes established by the CBC. The CBC includes design criteria for seismic

loading and other geologic hazards, including design criteria for geologically induced loading that govern sizing of structural members and provide calculation methods to assist in the design process. While shaking impacts could be potentially damaging, they would also tend to be reduced in their structural effects due to CBC criteria that recognize this potential. All construction plans and related geotechnical plans and studies would be reviewed by the Town further ensuring compliance with all construction standards. Compliance with all construction standards would ensure that the project is seismically safe.

In addition, the project applicant would be required to submit a design-level geotechnical report to the Town as part of **MM GEO-1** and implement all remedial grading measures in the 2019 Geocon report. The design-level geotechnical report is necessary to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during the design phase. The design-level geotechnical report may also provide supplemental recommendations that would be based on site conditions during grading and clearing operations. The implementation of mitigation measure **MM GEO-1** would mitigate impacts related to strong seismic ground shaking to a less than significant level.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact with Mitigation Incorporated. Hazards maps produced by the Association Bay Area of Government (ABAG) indicate the project site has low potential for liquefaction hazards (ABAG, 2015). As discussed above, the proposed improvements to St. Mary's Road would be constructed in accordance with applicable Town codes and goals listed above, as well as the codes established by the CBC. All construction plans and related geotechnical plans and studies would be reviewed by the Town further ensuring compliance with all construction standards. Compliance with all construction standards would reduce impacts related to ground failure and ensure that the project is seismically safe. In addition, liquefaction can only occur in saturated soil layers, often in areas of shallow groundwater. The geotechnical investigation conducted did not encounter groundwater in the soil borings tested at the project site.

The applicant would be required to submit a geotechnical investigation report to the Town as part of **MM GEO-1** and implement all remedial grading measures in the 2019 Geocon report. This would reduce any potential impacts associated with seismic-related ground failure and liquefaction. The design-level geotechnical report is necessary to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during the design phase. The design-level geotechnical report may also provide supplemental recommendations that would be based on site conditions during grading and clearing operations. The implementation of this measure would mitigate impacts to a less than significant level.

iv. Landslides?

Less Than Significant Impact with Mitigation Incorporated. Based on historical landslide mapping, the project site is located within the Las Trampas Ridge Quadrangle (DOC, 2015) and has known past occurrences of landslides. Historic landslides are mapped to the east and south of St. Mary's college, which is located just south of the project site (Town of Moraga, 2016a). Chapter 14 of the Town's Municipal Code is the Grading Ordinance, which requires a grading permit for most construction permits moving more than 50 cubic yards of soil, or located in an area where potential seismic or erosion hazards are present. The proposed improvements to St. Mary's Road would be constructed in accordance with applicable Town codes and goals listed above, as well as the codes established by the CBC. All construction

plans, and related geotechnical plans and studies would be reviewed by the Town further ensuring compliance with all building construction standards. Compliance with all construction standards would reduce landslides or slope stability impacts to a less than significant level.

As discussed above, the applicant would be required to submit a geotechnical investigation report to the Town as part of **Mitigation Measure MM GEO-1** and implement all remedial grading measures in the 2019 Geocon report. The design-level geotechnical report is necessary to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during the design phase. The design-level geotechnical report may also provide supplemental recommendations that would be based on site conditions during grading and clearing operations. This would reduce any potential impacts associated with landslides to a less than significant level.

Mitigation Measure

MM GEO-1 Prior to construction, the Town shall prepare a design-level geotechnical investigation and a final geotechnical report with site-specific recommendations, which must be reviewed and approved by the Town of Moraga prior to issuance of any grading permit. All recommended remedial grading measures identified in the Geocon reports dated June 2019 shall be updated to reflect current building code requirements and be implemented unless alternative techniques developed by a certified geotechnical engineer or engineering geologist are identified as part of the final geotechnical report.

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

Less Than Significant Impact with Mitigation Incorporated. The topography at the project site generally descends from the east and west, gradually sloping toward Las Trampas Creek, which flows north to south within the project limits. Proper surface drainage is critical to the future performance of the project to avoid the potential occurrence of soil erosion. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Buildout of the proposed project would involve construction-related activities and during the early stages of construction, topsoil would be exposed associated with grading activities. As a result, once grading is complete but prior to overlaying the ground surface substrate, the potential exists for wind and water erosion to occur which could affect project site soils causing a potentially significant impact.

Projects involving disturbance of one acre or more are required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies how water quality would be protected during construction activities. The SWPPP would include best management practices (BMPs) to protect the quality of storm water runoff. Construction BMPs would include, but are not limited to, stabilization of construction entrances, straw wattles on embankments, and sediment filters on existing inlets. These measures would minimize erosion, protect exposed slope areas, control surface water flows over exposed soils, and require the implementation of a sediment monitoring plan. These measures would be further refined with the subsequent preparation of a SWPPP to ensure compliance with the erosion control ordinances required by the Town. In addition, the project applicant would be required to submit a geotechnical investigation report to the Town as part of **MM GEO-1**. As a result, with implementation of

MM GEO-1 and the SWPPP, impacts associated with soil erosion and loss of topsoil would be less than significant.

Mitigation Measure

See Mitigation Measure **MM GEO-1** above.

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 with Mitigation Incorporated. As discussed above, the U.S. Department of Agriculture (USDA) Soil Conservation Survey web soil mapping data was used to identify the major soil types in the project area. The identified soils consist primarily of Clear Lake clay, Cropley clay, and Los Osos clay loam. The St. Mary's Road and Bollinger Canyon Road intersection is specific to Clear Lake clay soil and the St. Mary's Road and Rheem Boulevard intersection is specific to Cropley clay soil. Los Osos clay loam soil is located generally northwest and outside of the project limits. Clear Lake clay soils generally drain poorly, while Cropley clay soils drain moderately well and contain slow permeability. The Geocon report refers to these as onsite alluvial soils, that can be generally excavated with moderate effort using conventional excavation equipment. The buildout of the proposed project would involve construction-related activities and during the early stages of construction, topsoil would be exposed associated with grading activities. As a result, once grading is complete but prior to overlaying the ground surface substrate, the potential exists for wind and water erosion to occur which could affect project site soils causing a potentially significant impact.

To prevent the potential for an off-site landslide, lateral spreading, subsidence, liquefaction or collapse, the proposed improvements to St. Mary's Road would be constructed in accordance with applicable Town codes and goals listed above, as well as the codes established by the CBC. All construction plans and related geotechnical plans and studies would be reviewed by the Town further ensuring compliance with all building construction standards. Compliance with all construction standards would reduce the potential for an off-site landslide, lateral spreading, subsidence, liquefaction or collapse and reduce the impacts to a less than significant level. In addition, the project applicant would be required to submit a geotechnical investigation report to the Town as part of **MM GEO-1**. As a result, with implementation of **MM GEO-1** and the SWPPP, impacts associated would be less than significant.

Mitigation Measure

See Mitigation Measure **MM GEO-1** above.

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

Less Than Significant Impact with Mitigation Incorporated. As discussed above, the USDA Soil Conservation Survey web soil mapping data and Geocon's laboratory testing results identified soil complexes in the project area with medium to high expansion potential. Soils with high expansion potential often represent a local hazard, varying property to property. Given the frequently site-specific nature of these hazards, specific grading recommendations for compaction of expansive soils would be

provided in a design-level study at the site as required by Mitigation Measure **MM GEO-1**. As a result, with implementation of **MM GEO-1** and compliance with Town ordinances, policies and goals, impacts associated with expansive soils would be reduced to less-than-significant levels.

Mitigation Measure

See Mitigation Measure **MM GEO-1** above.

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?

Less than Significant Impact. The project site is not in a sensitive geological area. However, foundations and roadway may be damaged depending on soil characteristics such as expansion potential, permeability, and low strength; foundations and roadways could fail, especially if located on soils of differing properties and improperly mixed and compacted. The proposed project would comply with the all Town grading and construction standards to reduce impacts related to soils including any landslide potential, lateral spreading, subsidence, liquefaction, collapse, or expansive soils. In addition, the Town would ensure that the design specifications of all site-specific geotechnical reports prepared for the proposed project are incorporated to project design and implemented during construction. Therefore, the impacts are less than significant, and no mitigation is required.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact with Mitigation Incorporated. There are no known paleontological resources located in project area. However, development of the proposed project could result in the discovery and disturbance of previously unknown or undiscovered paleontological resources. While fossils are not expected to be discovered during construction, it is possible that significant fossils could be discovered during excavation activities, even in areas with a low likelihood of occurrence. Fossils encountered during excavation could be inadvertently damaged. If a unique paleontological resource is discovered, the impact to the resource could be substantial. MM GEO-2 would require that a qualified paleontologist monitor grading and excavation activities, and a paleontologist be notified if paleontological resources are found. If any scientifically important large fossil remains are uncovered, the paleontologist would have the authority to divert heavy equipment away from the fossil site.

With implementation of **MM GEO-2** and consistency with Town ordinances, policies and goals, impacts associated with paleontological resources would be less than significant.

Mitigation Measure

MM GEO-2: **Paleontological Monitor:** Prior to issuance of improvement plans, the Town shall ensure that a qualified paleontologist shall be retained to prepare a Paleontological Resources Monitoring and Mitigation Plan (PRMMP). This plan will address specifics of monitoring and mitigation and comply with the recommendations of the Society of Vertebrate Paleontology's 2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. All ground disturbances in the project area that occur in previously undisturbed sediment with high paleontological sensitivity will require

monitoring. The Project Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In the event that any potentially significant paleontological resources are discovered, the paleontological monitor shall stop work inside a zone designated by him/her where additional paleontological resources could be found. A plan for the evaluation of the resource shall be submitted to the Community Development Director for approval.

Cumulative Impacts

Geology and soil-related impacts are generally site-specific and are determined by a particular site's soil characteristics, topography, and proposed land uses. Capital Improvement Projects (CIPs) are analyzed on an individual basis and must comply with established requirements of the applicable jurisdiction's development requirements and the California Building Standards Code as they pertain to protection against known geologic hazards and potential geologic and soil-related impacts.

Cumulative effects related to geology resulting from the implementation of proposed improvements of the site and surrounding areas could expose more persons and property to potential impacts due to seismic activity. Long-term impacts related to geology include the exposure of people to the potential for seismically induced ground shaking. Implementation of other cumulative projects would incrementally increase the number of people and structures subject to a seismic event. Seismic and geologic significance would be considered on a project-by-project basis through the preparation of a design-level geotechnical study and such exposures would be minimized through strict engineering guidelines as they pertain to protection against known geologic hazards and potential geologic and soil related impacts.

CIPs would be required to be constructed in accordance with the latest edition of the CBC and to adhere to all current earthquake construction standards, including those relating to soil characteristics. The proposed project would not contribute to any cumulatively considerable geologic and/or soils impacts. Therefore, cumulative effects of increased seismic risk would be less than significant.

4.8 Greenhouse Gas Emissions

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

A Greenhouse Gas Emissions Assessment was prepared for the proposed project by Kimley-Horn and Associates (August 2019). The report is provided in Appendix F; the results and conclusions of the report are summarized herein.

Certain gases in the earth's atmosphere classified as GHGs, play a critical role in determining the earth's surface temperature. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with transportation, industrial/manufacturing, utility, residential, commercial, and agricultural emissions sectors. California is a significant emitter of CO2e in the world. The State of California has adopted various administrative initiatives and legislation relating to climate change, much of which set aggressive goals for GHG emissions reductions statewide. The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various nongovernmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. The BAAQMD's 2017 CEQA Air Quality Guidelines provide significance thresholds for project GHG emissions that are used by the Town of Moraga. If the BAAQMD thresholds are exceeded, a potentially significant impact could result. These thresholds are substantiated in the Options and Justification Report (dated October 2009) prepared by the BAAQMD. These recommendations represent the best available science on the subject of what constitutes a significant GHG effect on climate change for this project. BAAQMD's recommended thresholds are as follows:

- Compliance with a Qualified Climate Action Plan or
- Meet one of the following thresholds:
    - 1,100 MT CO_2e/year (yr); or

- 4.6 $MTCO_2e$/service population (sp)/yr (residents and employees)

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact.

Short-Term Construction Greenhouse Gas Emissions

The proposed project would result in direct GHG emissions from construction-related activities. The approximate daily GHG emissions generated by construction equipment utilized to build the proposed project are included in *Table 4.8-1, Construction-Related Greenhouse Gas Emissions*.

Table 4.8-1: Construction-Related Greenhouse Gas Emissions

Category	$MTCO_2e$[1, 2]
Total Construction Emissions	239
30- Year Amortized Construction	8

Notes:
1. Emissions were calculated using CalEEMod.
2. Construction emissions are provided for informational purposes. The BAAQMD does not have construction GHG thresholds. Source: Kimley-Horn and Associates, 2019; refer to Appendix A of the Greenhouse Gas Emissions Assessment for model outputs.

As shown in *Table 4.8-1*, project construction-related activities would generate approximately 239 $MTCO_2e$ of GHG emissions over the course of construction. Construction GHG emissions are typically summed and amortized over the project's lifetime (assumed to be 30 years), then added to the operational emissions. The amortized project emissions would be 8 $MTCO_2e$ per year. Once construction is complete, the generation of construction-related GHG emissions would cease.

Long-Term Operational Greenhouse Gas Emissions

The proposed project includes two roundabouts and pedestrian and bicycle facilities improvements. The project would not generate any new automobile, bicycle, or pedestrian traffic and the effects to existing vehicle distribution and travel speeds would be nominal. The project would not increase roadway capacity and would alleviate current congestion, reduce intersection delays and queues, improve multimodal safety, and better accommodate pedestrian and bicycle traffic. The proposed project does not include any new traffic and no buildings are proposed to be constructed. Therefore, the project would not generate any new operational emissions. Impacts would be less than significant.

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

Less than Significant Impact. The Town of Moraga's Climate Action Plan (CAP) was first published in October 2014. The CAP identifies policies that will achieve a GHG reduction target of 15 percent below 2005 levels by the year 2020. The goal is to bring community-wide emissions down to 79,854 $MTCO_2e$. The CAP provides goals and associated measures, also referred to as reduction measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment. In 2012, the Town

also created a Climate Action Plan Task Force, a citizen's committee tasked with assisting the Town to develop feasible GHG reduction goals and the CAP.

In 2014, the Town of Moraga adopted a Climate Action Plan (CAP) to improve energy efficiency and reduce GHG emissions. As discussed above the CAP identifies policies that will achieve a GHG reduction target of 15 percent below 2005 levels by the year 2020. The goal is to bring community-wide emissions down to 79,854 $MTCO_2e$. The CAP provides goals and associated measures, also referred to as reduction measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment. In 2012, the Town also created a Climate Action Plan Task Force, a citizen's committee tasked with assisting the Town to develop feasible GHG reduction goals and the CAP.

California's Executive Branch has taken several actions to reduce GHGs using executive orders. Although not regulatory, they set the state's tone and guide the actions of state agencies. The reduction goals established in these executive orders represent what some scientists believe is necessary to reach levels that will stabilize the climate within the next 10 to 30 years. The goals established in the Executive Orders are not legally enforceable for local governments or the private sector.

Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

Concerning Executive Order S-3-05's 2050 goals, it is presently not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed. Nevertheless, it can be anticipated that project operations would be subject to compliance with all applicable measures that State lawmakers have enacted and that would lead to an 80 percent reduction below 1990 levels by 2050.

The proposed project demonstrates consistency with the General Plan, CAP goals and measures. The design concept and scope of the project is consistent with the project description in the CIP and is intended to meet the traffic needs in the area based on local land use plans. The project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce GHG emissions, including Title 24, AB 32, and SB 32. Therefore, project impacts would be less than significant.

Cumulative Impacts

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have much longer atmospheric lifetimes of one year to several thousand years that allow them to be dispersed around the globe.

It is generally the case that an individual project of the proposed project's size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of project-related GHG

emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed project as well as other cumulative related projects, would be subject to all applicable regulatory requirements, which would further reduce GHG emissions. The project proposes two roundabouts and would not increase roadway capacity. The project would alleviate current congestion, reduce intersection delays and queues, improve multimodal safety, and better accommodate pedestrian and bicycle traffic. The project would not generate increased emissions for new vehicle traffic and would potentially improve emissions from reduced idling and delay. The project would not conflict with any GHG reduction plan. Therefore, the project's cumulative contribution of GHG emissions would be less than significant and the project's cumulative GHG impacts would also be less than cumulatively considerable.

4.9 Hazards and Hazardous Materials

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
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?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	
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?			**X**	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				**X**
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			**X**	

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

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

Less Than Significant Impact. During construction, hazardous and potentially hazardous materials typically associated with construction activities would be routinely transported and used on the project site. These hazardous materials could include gasoline, diesel fuel, lubricants, and other products used to operate and maintain construction equipment. The transport, use, and handling of these materials would be a temporary activity coinciding with project construction. Although such materials may be stored on the project site, any transport, use, and handling of these materials is expected to be limited to quantities and concentrations required to operate and maintain equipment. Removal and disposal of any hazardous materials from the project site during construction would be conducted by a permitted and licensed service provider. In addition, the proposed project would be required to conform with requirements of the Town's Grading Permit and Construction General Permit. These existing requirements require implementation of best management practices (BMPs) for hazardous material storage and soil stockpiles, inspections, maintenance, training of employees, and containment of releases to prevent runoff into existing stormwater collection systems or waterways.

Any handling, transport, use, or disposal would comply with all applicable federal, State, and local agencies and regulations, including the USEPA, the California DTSC, Caltrans, the California Occupational Safety and Health Administration, the Resource Conservation and Recovery Act, and the Contra Costa County Environmental Health Department. During long-term project operation, hazardous and potentially hazardous materials may be transported by vehicles traveling on project roadways. However, this transport, while occurring on the project site, is not a part of the proposed project. With conformance with existing requirements, operational impacts associated with the transport, use, and disposal of hazardous materials would be less than significant.

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?

Less Than Significant Impact. A search of the National Pipeline Mapping System (NPMS) mapper revealed that there is one natural gas pipeline that traverses through the project site along St. Mary's Road. This pipeline, number 10079, is operated by Pacific Gas and Electric Company (PG&E) and is currently active (NPMS, 2019). The proposed project would not affect the natural gas pipeline as it will remain and be protected in place. Construction-related excavation would not cause impacts to the existing gas pipeline,

as excavation depth would be approximately 2 feet and the existing pipeline is well below that depth, based on PG&E utility plans.

The proposed project is a roadway improvements project and would involve earthmoving activities which could potentially create a hazard to the public or the environment through accidental release of hazardous materials. As discussed above, the proposed project would be required to conform with requirements of the Town's Grading Permit and Construction General Permit. These existing requirements require implementation of best management practices for hazardous material storage and soil stockpiles, inspections, maintenance, training of employees, and containment of releases to prevent runoff into existing stormwater collection systems or waterways. With implementation of BMPs required to be implemented during construction, potential impacts would be reduced to a less than significant level.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The nearest school to the project site is St. Mary's College campus, located at 1928 St. Mary's Road, approximately 550 feet. The proposed project is a roadway improvement project and is not expected to generate hazardous emissions or hazardous materials. Any future school developed in the surrounding area would be subject to the oversight of the California Environmental Protection Agency (Cal EPA) and DTSC, as required by State law. New school sites are required to be free of contamination or, if the properties were previously contaminated, they must be remediated under DTSC's oversight. Therefore, impacts are less than significant.

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?

Less Than Significant Impact. A search of the Department of Toxic Substances Control's Envirostor database did not reveal any hazardous material sites within one-half mile of the project site (DTSC, 2019). A search of the State Water Resources Control Board (SWRCB)'s GeoTracker database revealed two cleanup sites within one-half mile of the project site. One leaking underground storage tank (LUST) cleanup site (Saint Mary's College), located at 1928 Saint Mary's Road, is approximately 0.30 mile south of the project site. The potential contaminants of concern are heating oil/fuel oil and total petroleum hydrocarbons (TPH). As of November 20, 2017, this site has been cleaned up and closed (SWRCB, 2019b). The other cleanup site is a permitted UST facility (Saint Mary's College [Saint Joseph's Hall]), located at 1928 Saint Mary's Road is approximately 0.26 mile south of the project site. The potential contaminants of concern are diesel, gasoline, TPH. As of April 21, 2017, the site is open for site assessment (SWRCB, 2019c).

As discussed above, a search of Envirostor's database did not reveal any hazardous material sites within one-half of the project site. Therefore, potential impacts are 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 two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The proposed project is not located within an airport land use plan. The nearest public airport is Oakland International Airport, located approximately 35.0 miles southeast of the project site. The nearest private airport is Little Hands Airport located in the City of San Ramon, approximately 5.26 miles southeast of the project site. Thus, no impacts would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The revised Emergency Operations Plan was recently approved by Moraga's Town Council in August 2018. The Town's Emergency Operations Plan (EOP) establishes an Emergency Management Organization and assigns functions and tasks consistent with California's Standardized Emergency Management System (Town of Moraga, 2018). The plan establishes protocols required to effectively respond to, manage, and recover from major emergencies and or disasters.

The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which would improve traffic flow and emergency responses and evacuation. The proposed project is included in the Town of Moraga's CIP and intended to meet the traffic needs in the area based on local land use plans. The proposed project would bring the roadway into conformance and would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes. The project design would still be subject to review by the Moraga-Orinda Fire District (MOFD) to meet standards for emergency vehicle access and emergency response needs established in the EOP. Thus, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant, and no mitigation is required.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. The proposed project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) as designated by CALFIRE (California Department of Forestry and Fire Protection, 2009). The project site is located within a Local Responsibility Area and fire protection in the Town is provided by Moraga-Orinda Fire District (MOFD). Additionally, the project site is located within the Wildland-Urban Interface (WUI), which is the zone of transition between unoccupied land and human development (ABAG, 2003).

The WUI is considered an area where wildfire risks are a potential concern. Fires in the WUI have the potential to result in direct damage to the built environment and could harm residents. Wildland fires could cause significant impacts to critical structures such as housing; damage linear infrastructure systems that serve the Bay Area, causing subsequent outages; impact air quality in the entire region during the duration of the fire; and impact water quality in watersheds affected by a wildland fire. Wildland and WUI fires can also damage natural and open space environments and cause lasting impacts to slopes and soils (ABAG, 2018). The MOFD has specific WUI fire conformance requirements that are applicable to detached residential, commercial, and accessory structures/buildings. As discussed above, the proposed project is a roadway improvement project and does include the construction of buildings, therefore the MOFD WUI fire conformance requirements would not specifically apply to the proposed project. However, the proposed project would be required to conform with requirements of the MOFD Ordinance 13-01, the

2013 California Building Code (Chapter 7A) and other applicable Town and MOFD policies involving best management practices (BMPs) for wildland fire risk areas. These existing requirements require implementation of best management practices (BMPs) for roadway construction, vegetation maintenance, prohibited plants, fire apparatus access standards, and materials approved by the fire code official. In addition, the proposed project would obtain applicable construction permits and ensure fire department and emergency access remain available during construction. Therefore, conformance with existing requirements would ensure that potential impacts in regard to wildland fires would be less than significant and no mitigation is required.

Cumulative Impacts

The Town of Moraga 2002 General Plan concluded that project sites would involve the storage, use, and transport of hazardous materials at individual project sites during construction activities. Hazardous materials are strictly regulated by local, state, and federal laws. Specifically, these laws are designed to ensure that hazardous materials do not result in a gradual increase in toxins in the environment. For each of the reasonably foreseeable projects under consideration, including the project, various mitigation measures would be implemented as a condition of development approval for the risks associated with exposure to hazardous materials. Measures would include incorporating the requirements of applicable local, state, and federal laws and regulations during all phases of project development.

Similar to the project, reasonably foreseeable projects could result in construction impacts related to the routine transport, disposal, or handling of hazardous materials; intermittent use and transport of petroleum---based lubricants, solvents, and fuels; and transport of affected soil to and from sites. However, hazardous waste generated during construction of any project would be collected, properly characterized for disposal, and transported in compliance with regulations such as the Resource Conservation and Recovery Act of 1976, U.S. Department of Transportation Hazardous Materials Regulations, and local Certified Unified Program Agency regulations. Furthermore, compliance with applicable Town requirements would ensure that potential impacts associated with hazards and hazardous materials are minimized. Therefore, the impacts would be less than significant.

4.10 Hydrology and Water Quality

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			**X**	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			**X**	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site?			**X**	
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?			**X**	
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			**X**	
iv. Impede or redirect flood flows?			**X**	

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

This analysis is based on information provided in the following technical studies that have been prepared for the proposed project:

- Water Quality Assessment Report (WQAR) prepared by WRECO in August 2019.
- Floodplain Evaluation Report prepared by WRECO in August 2019.

The results are included as Appendix G and Appendix H of this Initial Study, respectively, and the results are summarized herein.

The project site is within the Walnut Creek Hydrologic Sub-area (#207.32) of the Concord Hydrologic Area in the Suisun Hydrologic Unit and the Las Trampas Creek Watershed. Drainage patterns tend to flow on a northerly course toward the City of Walnut Creek, where it drains into Walnut Creek. The project's receiving water bodies are Las Trampas Creek and a drainage feature (Drainage 1). Las Trampas Creek flows primarily in an open natural channel, with some flows through underground culverts and concrete open channels. Las Trampas Creek flows through the project area in a northerly direction, traveling below St. Mary's Road, approximately 30 ft below the road, through a concrete box culvert. Drainage 1 originates from the hillside east of the project area along Bollinger Canyon Road, which consists of a residential community. The hillside drainage enters an 18-in. corrugated plastic pipe and travels west below Bollinger Canyon Road, where it outlets approximately 50-ft down the embankment into Las Trampas Creek. Las Trampas Creek and Drainage 1 are not listed as pollutant impaired on the Clean Water Act 303 (d) List of Water Quality Limited Segments. The proposed project has a low receiving water risk because the project's receiving water bodies, Las Trampas Creek and its tributaries (Drainage 1), do not have an impairment for sedimentation and the combined existing beneficial uses of cold freshwater habitat, fish spawning, and fish migration.

The Town of Moraga is not within a named groundwater basin designated by the California Department of Water Resources' Groundwater Information Center Interactive Map Application (2019). According to the SWRCB's Groundwater Ambient Monitoring Assessment Program GeoTracker application (2019), a monitoring well located approximately 1.38 miles southwest of the Project at a former Shell service station recorded groundwater depths ranging from 2.74 ft to 10.72 ft below ground surface.

The Project is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The San Francisco Bay RWQCB implements the San Francisco Bay 2017 Basin Water Quality Control Plan (Basin Plan), which regulates surface and groundwater quality in the region. The Basin Plan lists beneficial uses and water quality objectives to protect those uses.

Surface Water Quality Objectives/Standards and Beneficial Uses

Water quality objectives are numeric and narrative objectives used to define the appropriate levels of environmental quality, to protect beneficial uses, and to manage activities that can impact aquatic environments. The San Francisco Bay RWQCB Basin Plan lists the following narrative and numeric water quality objectives for the region's surface waters: bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, taste and odors, temperature, toxicity, turbidity, and un-ionized ammonia. Las Trampas Creek and its tributaries (Drainage 1) have the following existing beneficial uses as stated in the San Francisco Bay RWQCB's Basin Plan:

- Cold freshwater habitat
- Preservation of rare and endangered species
- Warm freshwater habitat
- Wildlife habitat
- Water contact recreation
- Non-contact water recreation

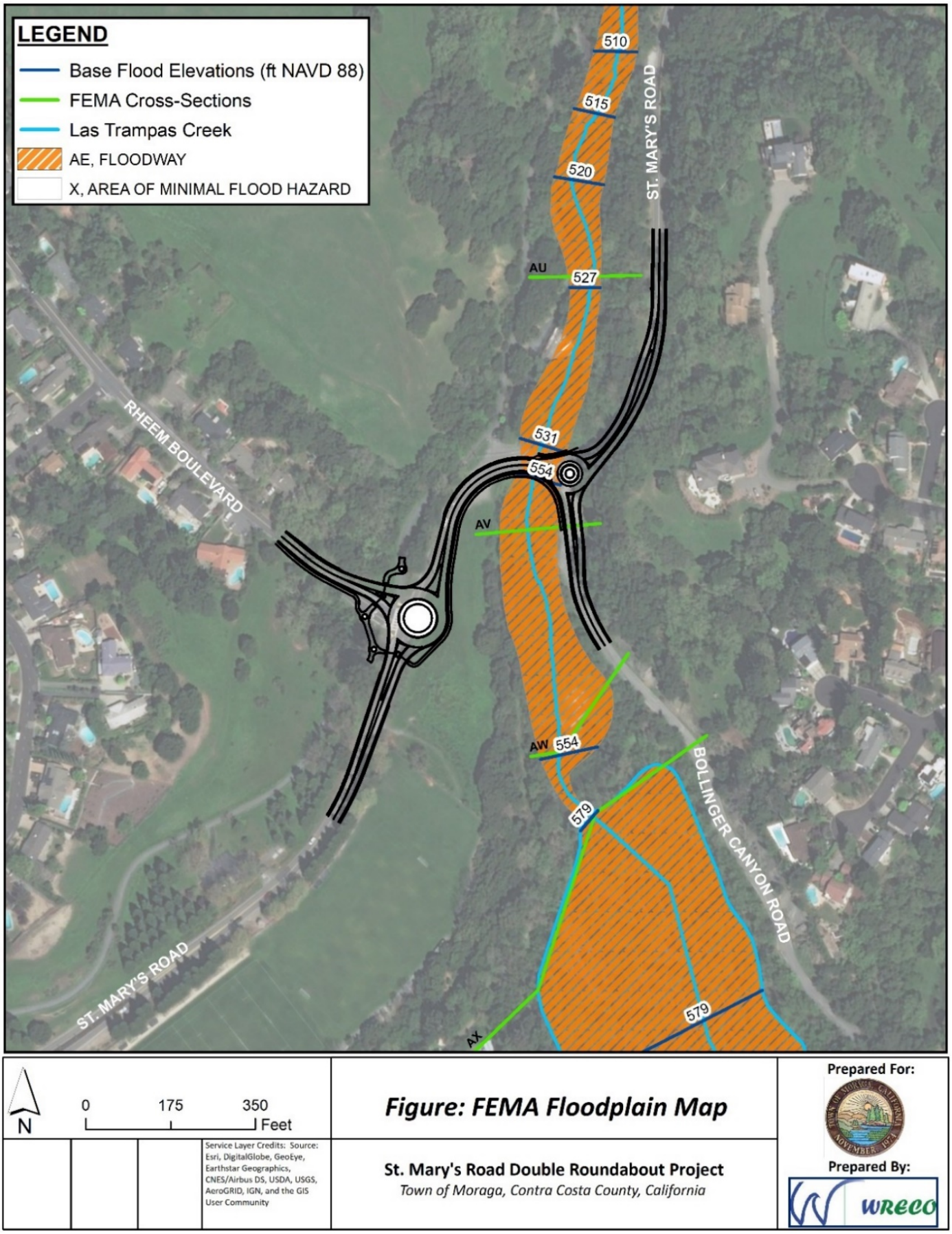
Groundwater Quality Objectives/Standards and Beneficial Uses

The San Francisco Bay RWQCB Basin Plan identifies narrative and numerical groundwater objectives for the region. It states, "at a minimum, groundwater shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor." The Basin Plan lists the following beneficial uses that are suitable or potentially suitable for groundwater outside of designated groundwater basins:

- Municipal and domestic water supply
- Industrial process water supply
- Industrial water supply
- Agricultural water supply
- Groundwater recharge
- Freshwater replenishment to surface waters

FEMA Floodplains

The project site is located within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) 06013C0426F and 06013C0428F (provided in Appendix A of the Floodplain Evaluation Report, attached as Appendix H). The Las Trampas Creek floodplain in the vicinity of the project site is a FEMA designated Zone AE area with a regulatory floodway. *Figure 4.10-1, FEMA Floodplain Map* shows the mapped FEMA FIRM in relation to the proposed project. Zone AE floodplains represent areas subject to inundation during the 1%-annual chance (or the 100-year) flood event and determined by detailed methods where base flood elevations (BFE) are provided. The remainder of the project area, where improvements are proposed, are located within a FEMA designated unshaded Zone X region. Unshaded



Source: Wreco, FEMA, ESRI, 2019.

Figure 4.10-1: FEMA Floodplain Map

St. Mary's Road Double Roundabouts Project

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Zone X represents areas of minimal flood hazard, which are defined as areas outside of the special flood hazard area (SFHA) and above the 500-year flood level.

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. The State Water Regional Control Board (SWRCB) recognizes the Town as a permittee under the San Francisco Bay Municipal Regional Permit (MRP), Order No. R2-2015-0049 and is part of the Contra Costa Clean Water Program (CCCWP). The CCCWP developed the *Stormwater C.3 Guidebook* (2017) to summarize the requirements of the MRP and provide guidance for low-impact development design strategies and specific BMP selection criteria. This manual provides technical guidance for project designs that require the implementation of permanent stormwater BMPs and hydromodification assessment, susceptibility, and management measures throughout the San Francisco Bay RWQCB's boundary within Contra Costa County. Because the proposed project would not add additional travel lanes, stormwater treatment and hydromodification management measures are not considered for the project per the exemption criteria stated in the MRP and the CCCWP's *Stormwater C.3 Handbook* (2017). The proposed project would implement site design features such as dispersal of stormwater runoff to adjacent pervious areas to maximize sheet flow from impervious areas in the project site. The proposed project would also implement additional project features such as erosion control measures and revegetation of slopes to reduce dispersal of sediment into Las Trampas Creek.

Within the SWRCB, there are nine regional boards and the proposed project is under the jurisdiction of the San Francisco Bay RWQCB. The San Francisco Bay RWQCB implements the *San Francisco Bay Basin Water Quality Control Plan* (Basin Plan, 2017) to regulate surface and groundwater quality in the region. The San Francisco Bay RWQCB would monitor the proposed project's adherence to the requirements of the Construction General National Pollutant Discharge Elimination System (NPDES) permit (CGP). The CGP (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, adopted on November 16, 2010) became effective on February 14, 2011 and was amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. The permit regulates stormwater discharges from construction sites which result in a disturbed soil area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. The NPDES CGP uses different risk levels to determine the type of water resource protection measures that would be needed. The risk level for the proposed project was determined to be low; the contractor would be required to perform quarterly non-storm water discharge visual inspections, and rain event visual inspections pre-storm, daily during a storm event, and post-storm. The project also would require implementation of Rain Event Action Plans and compliance with Numeric Action Level effluent limits for pH and turbidity.

The NPDES would also address potential temporary impacts during construction and would require the construction contractor to develop an SWPPP to obtain coverage under the CGP. Temporary impacts include sediment from grading and excavation activities and pollutants from accidental spills. The SWPPP would detail the measures to address the temporary water quality impacts resulting from construction activities associated with the proposed project. The SWPPP would also include the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring, sampling, and analysis plans. Temporary impacts to water quality during construction can be avoided by implementing temporary BMPs. Temporary BMPs for stormwater would include scheduling, preservation of existing vegetation, hydraulic mulch, hydroseeding, soil binders, straw mulch, geotextiles

and mats, wood mulching, earth dikes and drainage swales, velocity dissipation devices, slope drains, streambank stabilization, compost blanket, soil preparation/roughening, non-vegetative stabilization, silt fence, check dam, fiber rolls, gravel bag berm, street sweeping and vacuuming, storm drain inlet protection, manufactured linear sediment controls, compost socks and berms, biofilters bags, wind erosion control, non-stormwater management measures, and waste management and material pollution control measures.

Construction would result in the disturbance of approximately 2.61 acres of soil. Construction activities have the potential to increase erosion and could result in temporary water quality impacts from sediment discharge from disturbed soils area. The roadway, retaining wall, and new trail construction may increase turbidity within receiving waters. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, unstable slopes and construction staging areas, and construction equipment not properly maintained or cleaned. The proposed project also could include the fueling and maintenance of construction vehicles resulting in a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter the local storm drains. The magnitude of the impact from an accidental release depends on the amount and type of material spilled. Temporary impacts to water quality during construction would be avoided by implementing temporary standard construction BMPs noted above, such as site design measures to control erosion and promote infiltration into pervious areas adjacent to the impervious areas.

The proposed project could result in operational water quality impacts. The proposed project would result in additional impervious surface area from the creation of the new trail which could potentially increase deposition of sediment and other pollutants from vehicular and human traffic. Heavy metals resulting from vehicle tire and brake wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. In general, runoff from roadways contains total suspended solids, nitrate, nitrogen, total Kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. The sources of these pollutants include tree leaves, combustion of fossil fuels, and the wearing of brake pads and tires, among others. However, the added impervious surfaces would have minimal hydromodification impacts and stormwater pollution effects because runoff from the proposed project activities would be treated with site design measures. The proposed project would disperse stormwater runoff to adjacent pervious areas, which would filter pollutants from the runoff before discharging into Las Trampas Creek. Pollution and runoff sources are not expected to change.

The Las Trampas Creek flows through the project area in a northerly direction, traveling below St. Mary's Road, approximately 30 ft below the road, through a concrete box culvert. The existing Las Trampas Creek cross culvert below St. Mary's Road is a single 6 ft x 8 ft (span x height) reinforced concrete box culvert with a length of approximately 119 ft. The proposed improvements include construction of retaining walls at the St. Mary's Road/Bollinger Canyon Road intersection to avoid impacts to the Las Trampas Creek due to steeper surface slopes that may result from the proposed roadway widening. The proposed retaining walls would also be placed within the floodplain limits at the downstream and upstream side of the creek crossing. The proposed project would extend the existing cross culvert to meet the projects needs.

As discussed above, the Las Trampas Creek and Drainage 1 have the following beneficial uses as stated in the San Francisco Bay RWQCB's Basin Plan: cold freshwater habitat, preservation of rare and endangered species, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water

recreation. The proposed project would not have cause impacts to these beneficial uses. In addition, removal of vegetation during construction can potentially cause a reduction in shade to adjacent waters, temporarily increasing temperature and decreasing dissolved oxygen levels. The proposed project would preserve existing native vegetation to the maximum extent practicable and implement BMPs, such as revegetation of slopes to reduce erosion impacts and promote infiltration and habitat restoration. No impacts are anticipated.

To address the requirements of the listed permits, permitting conditions, and other standards, during construction and throughout operation, the proposed project would implement the required SWPPP and would include other design features to address water quality impacts as a condition of the CGP, and other regulatory agency requirements. A Notice of Intent would need to be filed with the SWRCB's Storm Water Multiple Application and Report Tracking System. The Town requires the project contractors to implement a SWPPP that complies with CGP conditions to address temporary water quality impacts resulting from the proposed project construction activities. The SWPPP would be submitted by the contractor and approved prior to the issuance of a Notice to Proceed (start of construction) and would include the following elements at a minimum:

- Project Description;
- Minimum Construction Control Measures;
- Erosion and Sediment Control;
- Non-Storm Water Management;
- Post-Construction Storm Water Management;
- Waste Management and Disposal;
- Maintenance, Inspection, and Repair;
- Monitoring;
- Reports;
- Training; and
- Construction Site Monitoring Program.

The SWPPP would incorporate specific erosion and sediment control best management practices (BMPs) to comply with the applicable regulations and reduce potential impacts to water quality. The standard construction BMPs from Section 4.2 Cumulative Impacts of the Wreco's 2019 WQAR included in Appendix G, would be implemented for the proposed project and would avoid potential impacts discussed above. The Town also has specific criteria and BMPs for construction activities requiring grading permits, stormwater management and discharge control, drainage and traffic improvements, and street excavation and pavement restoration regulations. BMPs may include but are not limited to dust control through watering, hydroseeding, preservation of existing vegetation, use of soil binders, stabilization of construction access, silt fences, inlet and catch basin protection, and fiber rolls to minimize any potential impacts to the storm water runoff.

Further evaluation of the BMPs necessary for the proposed project to comply with the CGP would be detailed during the design phase. The contractor would be required to detail actual in-field implementation of the BMPs in the SWPPP during construction; the contractor would also be required to amend the SWPPP as necessary to match both field conditions and project phasing. Potential temporary impacts to water quality would be avoided or minimized by implementing these standard BMPs, which are consistent with the practices required under the CGP, Town's regulations, and are intended to achieve

compliance with the requirements of the permits. Compliance with the requirements of these permits, and adherence to the conditions, would reduce or avoid potentially significant construction-related impacts.

To address post-construction operational impacts, pollutant source control, and treatment BMPs would be implemented to address these impacts, promote infiltration, reduce erosion, and collect, retain, and treat roadway runoff. The additional impervious surface areas would have minimal hydromodification impacts and stormwater pollution effects because runoff from the proposed project's construction activities would be treated with site design measures. Pollution and runoff sources are not anticipated to change post-construction phase.

To ensure minimal impacts to water quality, the proposed project would implement site design measures, construction BMPs, and comply with required regulations to satisfy the San Francisco Bay RWQCB's Basin Plan requirements, CGP, and all other applicable requirements and standards. With implementation of the previously discussed construction BMPs, SWPPP, CGP, and all other applicable requirements and standards, the operational impacts associated with water quality standards and wastewater discharge requirements would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. As discussed above, the project site is not within a designated groundwater basin. The San Francisco Bay RWQCB's Basin Plan lists the following beneficial uses that are suitable or potentially suitable for groundwater outside of designated groundwater basins: municipal and domestic water supply, industrial process water supply, industrial water supply, agricultural water supply, groundwater recharge, and freshwater replenishment to surface waters. Groundwater within the project site may be potentially suitable for beneficial uses such as groundwater recharge or municipal and domestic water supply. The proposed project would result in the addition of impervious surface area and reduce the available unpaved area that previously allowed runoff to infiltrate into the native soils. To reduce impacts associated with runoff filtration, the proposed project would disperse runoff to adjacent pervious areas, which would promote filtration of stormwater into the native soils, reducing the risk of transporting discharge into groundwater basins. The Town of Moraga is not a source of the municipal water supplied by the East Bay Municipal Utility District (EBMUD), thus impacts associated with municipal and domestic water supply are not anticipated.

Groundwater may be temporarily impacted due to construction activities specific to excavation. If the project area contains contaminated groundwater or groundwater that may release contaminated plumes when disturbed, applicable dewatering permits would be obtained during the design phase. Dewatering during construction may be necessary due to the shallow groundwater within the project area. Dewatering activities would have to comply with Caltrans' *Field Guide to Construction Site Dewatering* (2014) and if needed, a separate dewatering permit would be obtained prior to the start of construction. Groundwater extracted from temporary dewatering activities would be managed based on the groundwater quality within the project site. As a standard BMP, clean groundwater could be used for dust control, collected on-site using desilting basins and/or tanks prior to discharging to receiving waters, transported to a publicly owned treatment works. Temporary BMPs for groundwater may also include

non-stormwater use for dust control, desilting basins/tanks, and transport to publicly owned treatment works during dewatering operations.

As previously discussed, local groundwater is not used for the Town's water supply and the proposed project would implement temporary standard BMPs to protect beneficial uses associated with groundwater recharge and supply. The proposed project would implement temporary BMPs for groundwater to reduce potential impacts, would manage and treat stormwater runoff and infiltrating pollutants, comply with required regulations, and obtain permits for dewatering activities prior to the start of construction if needed. Therefore, the project would not result in groundwater overdraft, substantial local groundwater level drawdown, or substantially redirect stormwater such that natural basin recharge would be precluded. Impacts would be less than significant, and no mitigation is required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

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

Less Than Significant Impact. The project's receiving water bodies are the Las Trampas Creek and a drainage feature (Drainage 1). Existing drainage patterns tend to flow on a northerly course toward the City of Walnut Creek, where the water drains into Walnut Creek. The proposed project would alter the project site by creating 0.42 acres of impervious area associated with the roadway, roundabouts, and bicycle and pedestrian improvements. The new impervious area created by the proposed project may result in impacts to the existing hydrograph including increases in low flow, peak flow velocity, and volume in storm water runoff, and storm water infiltration for groundwater recharge, due to the project not adding additional travel lanes. Compared to the overall project watershed size of 3.2 sq. mi., the added impervious area is 0.02% of the existing impervious area. The change in impervious surface area would not cause significant impacts or risks to the existing hydrograph and would maintain existing drainage patterns. The proposed project would implement drainage design features to reduce the increased peak flow velocities and volumes to pre-project conditions. The project would also implement additional BMPs such as erosion control measures and revegetation of slopes to reduce dispersal of sediment into Las Trampas Creek.

Construction General Permit Risk Level Assessment

This proposed project would disturb more than one acre of soil and thus, must comply with the CGP, which includes performing a risk level determination to determine the required monitoring and sampling of stormwater during construction. The risk level assessment is determined from the combined sediment risk and receiving water risk and is documented in Appendix A of Wreco's 2019 WQAR.

The proposed project has a low receiving water risk because the project's receiving water bodies, Las Trampas Creek and its tributaries (Drainage 1), do not have an impairment for sedimentation and the combined existing beneficial uses of cold freshwater habitat, fish spawning, and fish migration.

The sediment risk factor is determined from the product of the rainfall erosivity factor (R), the soil erosion factor (K), and the length-slope factor (LS). The project has a medium sediment risk, as calculated in the WQAR (Appendix G). The medium sediment and low receiving water risks result in the project being

classified as Risk Level 2. The CGP separates projects into risk levels 1, 2, or 3 and risk level is determined during the planning and design phases based on potential erosion and transport to receiving waters. Therefore, in addition to implementation of standard construction site BMPs, the contractor would be required to perform quarterly non-stormwater discharge visual inspections, and rain event visual inspections pre-storm, daily during a storm event, and post-storm. Risk Level 2 projects are also required to implement Rain Event Action Plans and comply with Numeric Action Level effluent limits for pH and turbidity. Further evaluation of the BMPs necessary for the proposed project to comply with the CGP would be detailed during the design phase, including updating the risk level assessment.

These temporary BMPs would serve to preserve the existing drainage pattern and flow of waters to off-site and downstream areas. With the incorporation of the BMPs to the project design, the existing drainage pattern would be maintained, and post-construction runoff discharge rates and durations would match pre-project conditions. Therefore, as discussed, the proposed project would not substantially alter the existing drainage pattern of the site or area, would not alter a stream or river, and would not result in substantial erosion or siltation on or off site. Impacts would be less than significant, and mitigation is not required.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less Than Significant Impact. The project site is located within the vicinity of Lafayette/Moraga Regional Trail. Las Trampas Creek crosses St. Mary's Road near the Bollinger Canyon Road intersection and the Lafayette/Moraga Regional Trail runs parallel to St. Mary's Road. The proposed project would improve the physical and operational characteristics of the roadway network along St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road. The improvements would also include realigning an existing trail crossing to allow for safe pedestrian and bicycle crossings. The trail realignment would accommodate the roundabouts and roadway widening. The project proposes to construct retaining walls at the St. Mary's Road/Bollinger Canyon Road intersection to avoid impacts to the creek due to steeper surface slopes that may result from the proposed roadway widening. The proposed retaining walls would also be placed within the floodplain limits at the downstream and upstream side of the creek crossing. The proposed placement of fill on St. Mary's Road near the creek crossing would be balanced by proposed cut within the floodplain limits and therefore, would not pose any risks or impacts associated with fill inside the base floodplain due to the widening of the roadway. Although there would be fill within the floodplain from the proposed retaining walls, the results of the proposed condition hydraulic analysis indicate there would be no impact on the Base Flood Elevations (BFEs); further details on the Water Surface Elevations (WSEs) results from the hydraulic analysis are provided in Appendix H, Wreco's 2019 Floodplain Evaluation Report. There would be no impacts associated with the placement of fill in the floodplain due to the proposed retaining walls and changes in the 100-Year WSEs would be less than 0.1 ft, therefore potential impacts are considered less than significant. *Table 4.10-1, Las Trampas Creek 100-Year Water Surface Elevations*, compares the WSEs between the existing and proposed conditions of the project.

Table 4.10-1: Las Trampas Creek 100-Year Water Surface Elevations

River Station (RS)	Location/ Distance from Existing Bridge Centerline	Water Surface Elevations (ft)		
		Existing Condition	Proposed Condition	Change
1196	600 ft Upstream of Existing Culvert/ Upstream Limit of Hydraulic Model	552.39	552.41	0.02
1008	410 ft Upstream of Existing Culvert	552.38	552.39	0.01
834	240 ft Upstream of Existing Culvert	552.38	552.40	0.02
675	80 ft Upstream of Existing Culvert	552.38	552.40	0.02
610	Culvert	--	--	--
515	80 ft Downstream of Existing Culvert	522.21	522.21	0.00
5	590 ft Downstream of Existing Culvert/ Downstream Limit of Hydraulic Model	514.81	514.81	0.00

The proposed project would implement site design features, standard construction BMPs and includes the construction of retaining walls to avoid impacts to the creek within the project area. The proposed design would provide at a minimum, an equivalent level of flood protection through the project area by balancing the proposed cut and fill within the floodplain limits as to not pose risks to the floodplain or flood base. As previously discussed, with the incorporation of the BMPs to the project design, the existing drainage pattern would be maintained, and post-construction surface runoff discharge rates, durations and elevations would match pre-project conditions or similar. Overall, the proposed project improvements would not affect or alter the alignment or position of Las Trampas Creek and its tributaries (Drainage 1) and not result in would not result in increased runoff from the project area and water that is diverted through the drainage network. Therefore, as discussed, the proposed project would not substantially alter the existing drainage pattern of the site or area, would not alter a stream or river, and would not result in substantial surface runoff which would induce flooding on site or off site. Impacts would be less than significant, and mitigation is not required.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. As discussed in Section 4.10(a, c-i, and c-ii) above, the proposed project would include a comprehensive drainage plan that would consist of site design features such as dispersal of stormwater runoff to adjacent pervious areas to maximize sheet flow from impervious area in the project site. The proposed project would create an additional 0.42 acres of impervious area associated with the roadway, roundabouts, and bicycle and pedestrian improvements. The new impervious area created by the proposed project may result in impacts to the existing hydrograph including increases in low flow, peak flow velocity, and volume in storm water runoff, and storm water infiltration for groundwater recharge, due to the project not adding additional travel lanes. Compared to the overall project watershed size of 3.2 sq. mi., the added impervious area is 0.02% of the existing impervious area. The change in impervious surface area would not cause significant impacts or risks to the existing

hydrograph and existing drainage patterns would be maintained to pre-project conditions. In addition, the Town requires project contractors to implement a SWPPP that complies with CGP conditions and address temporary water quality impacts resulting from the proposed project construction activities. The SWPPP would incorporate specific stormwater runoff control measures and best management practices (BMPs) to comply with the applicable regulations and reduce potential impacts to water quality that may contribute to excessive runoff capacity. The standard construction BMPs from Section 4.2 Cumulative Impacts of the Wreco's 2019 WQAR, included in Appendix G, would be implemented for the proposed project and would avoid potential impacts associated with stormwater discharges. The Town also has specific criteria and BMPs for construction activities requiring grading permits, stormwater management and discharge control, drainage and traffic improvements, and street excavation and pavement restoration regulations. BMPs may include but are not limited to dust control through watering, hydroseeding, preservation of existing vegetation, use of soil binders, stabilization of construction access, silt fences, inlet and catch basin protection, and fiber rolls to minimize any potential impacts to the stormwater runoff. With the incorporation of the BMPs to the project design, SWPPP, CGP, and all other applicable requirements and standards, the existing drainage pattern would be maintained, and post-construction runoff discharge rates and durations would match pre-project conditions.

The proposed additional impervious surface area could potentially cause an increase in deposition of sediment and other pollutants from vehicular and human traffic. As discussed in Section 4.10(a), primary pollutants associated with transportation corridors are heavy metals resulting from vehicle tire and brake wear, oil and grease, and exhaust emissions. The sources of these pollutants include tree leaves, combustion of fossil fuels, and the wearing of brake pads and tires, among others. However, the added impervious surfaces would have minimal hydromodification impacts and stormwater pollution effects because runoff from the proposed project activities would be treated with site design measures. The proposed project would disperse stormwater runoff to adjacent pervious areas, which would filter pollutants from the runoff before discharging into Las Trampas Creek. To address pre and post-construction impacts, including pollutant source control, stormwater treatment BMPs would be implemented to promote infiltration, reduce erosion, and collect, retain, and treat roadway runoff. The additional impervious surface areas would have minimal hydromodification impacts and stormwater pollution effects because runoff from the proposed project's construction activities would be treated with site design measures. With implementation of standard BMPs, and compliance with Town regulations, pollution and runoff sources are not anticipated to change.

The proposed project's drainage and stormwater discharge systems would contain and collect stormwater flows in the project site, before runoff is allowed to drain off site. Site design measures would disperse stormwater runoff to adjacent pervious areas, which would filter pollutants from the runoff before discharging into Las Trampas Creek. As mandated by the San Francisco Bay RWQCB, new stormwater facilities would be planned and designed to satisfy NPDES, CGP, and SWPPP requirements, which includes ensuring that post-development flows do not exceed pre-development flows. With implementation of site design measures, standard BMPs, SWPPP, and other applicable regulations, stormwater flows at or below pre-development levels would be maintained. Therefore, impacts would be less than significant, and no mitigation is required.

iv. Impede or redirect flood flows?

Less Than Significant Impact. EO 11988 (Floodplain Management) directs all federal agencies to avoid,

to the extent possible, long-term and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Requirements for compliance are outlined in Title 23, Code of Federal Regulations, Part 650, Subpart A (23 CFR 650A) titled "Location and Hydraulic Design of Encroachment on Floodplains."

The proposed project would result in 0.42 acres of new impervious surface area. The project would not create new access routes to developed or undeveloped land within the 100-year floodplain and would not support incompatible floodplain development. As discussed above, the project site is located within FEMA FIRM 06013C0426F and 06013C0428F. The Las Trampas Creek floodplain in the vicinity of the project site is a FEMA designated Zone AE area with a regulatory floodway (see *Figure 4.10-1, FEMA Floodplain Map*). Zone AE floodplains represent areas subject to inundation during the 1%-annual chance (or the 100-year) flood event and determined by detailed methods where base flood elevations (BFE) are provided. The remainder of the project area, where improvements are proposed, are located within a FEMA designated unshaded Zone X region. Unshaded Zone X represents areas of minimal flood hazard, which are defined as areas outside of the SFHA and above the 500-year flood level.

As defined by the FHWA, a longitudinal encroachment is an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain. A longitudinal encroachment is "[a]n encroachment that is parallel to the direction of flow. Example: A highway that runs along the edge of a river is usually considered a longitudinal encroachment." The requirement for consideration of avoidance alternatives must be included in a Location Hydraulic Study by including an evaluation and a discussion of the practicability of alternatives to any significant encroachment or any support of incompatible floodplain development. Las Trampas Creek runs fairly parallel to St. Mary's Road, where Bollinger Canyon Road is on the upstream side of the project crossing and St. Mary's Road is on the downstream side of the project crossing. However, longitudinal encroachments would not be anticipated as a result of the proposed improvements including the following:

1. The proposed improvements on Bollinger Canyon Road include cut (lowering of the roadway) adjacent to the creek and therefore, would not encroach upon the floodplain.
2. Downstream of the project crossing, the water surface profile drops significantly. The water surface profile elevation ranges from 523.5 ft just downstream of St. Mary's Road to 523.0 ft at the downstream limit of the hydraulic study. The proposed improvements on the adjacent roadway (St. Mary's Road) in this reach of the creek would be much higher than the floodplain. The St. Mary's Road existing roadway elevations range from 552.9 ft just downstream of St. Mary's Road to 565.5 ft at the downstream limit of the hydraulic study measured along the centerline of the roadway. The project proposes to place fill beginning at the eastern end of the proposed concrete median to the western limits of the widening. Therefore, the proposed roadway elevations would be higher than the existing roadway elevations, and in turn, would not encroach upon the floodplain.

The proposed project would not change the overall land use within the project watershed and will not cause impacts due to increased impervious areas. There would be a less than 0.1 ft change to the existing 100-year WSEs resulting from the proposed improvements as demonstrated by the hydraulic model results and analysis discussed in Section 4.10(c-ii). Therefore, the overall project's possible adverse effects to the base floodplain are anticipated to be insignificant, and measures to avoid, minimization, and/or

mitigate impacts to the floodplain are not required. Impacts in this regard are less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less Than Significant Impact. Tsunamis, which are large sea waves that are caused by an earthquake, submarine landslide, or other disturbance that displaces or causes the movement of a large volume of ocean water. The project site is approximately 16.5 miles inland from the San Francisco Bay shoreline at an elevation range of approximately 523 ft to 586 ft above mean sea level. As such, the proposed project would not be affected by a tsunami; however, the site is not mapped within the Contra Costa County Tsunami Inundation Map for the Las Trampas Ridge Quadrangle by the California Geological Survey (CGS). The nearest inundation boundary line is in the Oakland East Quadrangle, within the City of Oakland's shoreline area near the Oakland Inner Harbor Tidal Canal, approximately eight miles southwest of the project site. The inundation map uses the best currently available scientific information and the inundation line represents the maximum considered tsunami runup from a number of extreme, yet realistic, tsunami sources. Tsunamis are rare events and due to a lack of known occurrences the map does not include information about the probability of any tsunami affecting any area within a specific period of time (CGS, 2009). Therefore, the risk associated with tsunamis would be less than significant.

Seiches are standing waves caused by large-scale, short-duration phenomena (e.g. wind or atmospheric variations or seismic activity) that result from the oscillation of confined bodies of water (such as reservoirs and lakes) that may damage low-lying adjacent areas as a result of changes in the surface water elevation. Elongated and deep (relative to width) bodies of water seem most likely to be affected, and earthquake wave orientation may also play a role in seiche formation. Per the Contra Costa General Plan (2005), no occurrences of seiches have been recorded in the Bay Area. The Moraga Reservoir is located approximately 2,544 ft west of the project site and Upper San Leandro Reservoir is located approximately 4.5 miles south of the project site. While the occurrences of seiches are uncommon in the project area, Chapter 10 Safety Element of the Contra Costa General Plan has established the following Flood Hazard Implementation Measure to guide planning for development and infrastructure projects as noted below:

> **Measure 10-y**: Through the environmental review process, ensure that potential flooding impacts, due to new development, including on-site and downstream flood damage, subsidence, dam or levee failure, and potential inundation from tsunamis and seiche, are adequately assessed. Impose appropriate mitigation measures (e.g. flood-proofing, levee protection, Delta reclamations).

The analysis in this section has assessed the potential flooding impacts associated with the proposed project. Compliance with standard BMPs related to downstream flood damage and consideration of Measure 10-y above, would ensure that potential impacts as a result of inundation from tsunamis and seiches are avoided. Impacts would be less than significant, and no mitigation is required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. As discussed above in Sections 4.10(a-c), the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater

management plan. To ensure minimal impacts to water quality, the proposed project would implement site design measures, construction BMPs, and comply with required regulations to satisfy the San Francisco Bay RWQCB's Basin Plan requirements, CGP, and all other applicable requirements and standards. With implementation of the previously discussed construction BMPs, SWPPP, CGP, and all other applicable requirements and standards, the impacts associated with water quality standards and groundwater requirements would be less than significant.

Cumulative Impacts

The potential impacts related to hydrology and storm water runoff are typically site specific and site specific BMPs are implemented at the project level. The analysis above determined that the implementation of the proposed project would not result in significant impacts. In regard to proposed project impacts that would be considered less than significant, such impacts are not expected to result in compounded or increased impacts when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects, as other projects would be subject to similar laws and requirements regarding hydrology practices.

Development in the Town of Moraga would generally involve redevelopment of existing developed sites that contain substantial areas with impervious surfaces. Projects would be required to adhere to applicable General Plans goals, policies, and action statements; the Town Municipal Zoning Code; the Town's Standard Conditions of Approval; and the Town's stormwater management guidelines regarding stormwater runoff and infrastructure. In addition, other projects would be required to implement stormwater pollution best management practices during construction and design measures to reduce water quality impacts and comply with the NPDES Municipal Regional Permit. Future developments in the watershed would also be required to comply with the SWRCB and San Francisco Bay RWQCB. Depending on the size of future projects, they would be required to obtain and comply with all required water quality permits and the Water Quality Control Plan, as needed and prepare and implement SWPPPS, implement construction BMPs, including BMPs to minimize runoff, erosion, and storm water pollution, comply with other applicable requirements. As part of these requirements, projects would be required to implement and maintain source controls, and treatment measures to minimize polluted discharge and prevent increases in runoff flows that could substantially decrease water quality. Conformance to these measures would minimize runoff from those sites and reduce contamination of runoff with pollutants. Therefore, related projects are not expected to cause substantial increases in storm water pollution. With compliance with State and local mandates, cumulative impacts would be less than significant, and project impacts would not be cumulatively considerable.

4.11 Land Use and Planning

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

a) Physically divide an established community?

Less Than Significant Impact. St. Mary's Road is located in the Town of Moraga within Contra Costa County. St. Mary's Road and Rheem Boulevard are two of the major arterials in the Town of Moraga, providing access to the St. Mary's College and connection to the surrounding Cities of Orinda and Lafayette. The project area is undeveloped, apart from the roadways, and is characterized by roadside vegetation. Single family residential dwellings are located immediately northwest of the Rheem Boulevard/ St. Mary's Road intersection on Rheem Boulevard. The St. Mary's College is located approximately 0.25 miles southwest of the Rheem Boulevard/ St. Mary's Road intersection, with access along St. Mary's Road. The proposed project site is bordered by properties with the following land use designations in the Town of Moraga's General Plan: Open Space/Parks, Institutional, 1-DUA (Residential, One Dwelling Unit Per Acre), and 2-DUA (Residential, Two Dwelling Units Per Acre). The proposed project site is bordered by properties zoned: College, 1-DUA, MOSO Open Space, 2-DUA.

St. Mary's Road is currently a two-lane undivided roadway with stop-signalized intersections at Rheem Boulevard and Bollinger Canyon Road. The proposed project would improve the physical and operational characteristics of the roadway network along St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road. Implementation of the project would not result in the displacement of businesses or residences because St. Mary's Road is an existing corridor. The project would allow for roadway improvements with the overall goal of enhancing vehicular and traffic operations through an established urban area. Therefore, the project would not divide an already established community and impacts would be less than significant.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed project is a roadway improvement project and is consistent with the Moraga

2002 General Plan. The existing roadway presently experiences inadequate intersection level of service (LOS) under cumulative build-out conditions with traffic queue lengths exceeding existing intersection geometry. Without the proposed project, the congestion along St. Mary's Road would continue to increase, further deteriorating traffic operations in the corridor. Additionally, the roadway does not conform to the Caltrans Highway Design Manual as it has insufficient stopping sight distance and visibility issues approaching the Rheem Boulevard and Bollinger Canyon Road intersections. The proposed project is included in the Town of Moraga's Capital Improvement Project (CIP) and intended to meet the traffic needs in the area based on local land use plans. The proposed project would bring the roadway into conformance and would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which is consistent with the Town's General Plan Circulation Element Policy C1.1 to ensure public safety for all roadway users through roadway design, construction, and maintenance of all roadways in the Town. The project is consistent with current applicable land use plans, policies, and regulations. Thus, no impact would occur.

Cumulative Impacts

The analysis of potential impacts indicated that no significant impacts would result from the proposed project. As a result, no cumulative impacts related to land use and planning would occur.

4.12 Mineral Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				**X**
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?				**X**

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. The Surface Mining and Reclamation Act of 1975 (SMARA) is the primary State law concerning mineral resources, including sand, gravel, and building stone, which are important for commercial purposes. Because of the economic importance of mineral resources, SMARA limits new development in areas with significant mineral deposits. SMARA also requires State Geologists to classify specified areas into Mineral Resource Zones (MRZs). Further, the State Mining and Geology Board may designate sectors, acknowledging the importance of these resource areas in meeting the future mineral resource needs of the region. The proposed project site is not within any MRZ area.

According to the Moraga 2002 General Plan, no mineral resources within the Town's planning area were identified. In addition, a search of the California Division of Mines and Geology maps did not reveal any mineral resources on the project site (California Division of Mines and Geology, 2015). The proposed project is a roadway improvement project and would improve the physical and operational characteristics of the St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road. The project would not involve any mining activities or result in the loss of a mineral recovery site. Therefore, no impacts would occur.

Cumulative Impacts

The analysis of potential impacts indicated that no significant impacts would result from the proposed project. As a result, no cumulative impacts related to mineral resources would occur.

4.13 Noise

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		**X**		
b) Generation of excessive groundborne vibration or groundborne noise levels?			**X**	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			**X**	

An Acoustical Assessment was prepared for the proposed project by Kimley-Horn and Associates (August 2019). The report is provided in Appendix I; the results and conclusions of the report are summarized herein.

Environmental Noise and Descriptors

Noise is defined as loud, unexpected, or annoying sound. The fundamental acoustics model consists of a noise source, receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (µPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and

the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness.

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) is the average noise level averaged over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and is defined further in *Table 2: Definitions of Acoustical Terms* in the Acoustical Assessment, included in Appendix I.

Town of Moraga General Plan

The Moraga General Plan (2002) identifies goals and policies in the Noise Element that requires the Town to develop acoustical standards.

Goal: A peaceful and tranquil community.

OS6.1: Acoustical Standards. Develop acoustical standards that properly reflect acceptable sound emission levels.

OS6.2: Noise Levels. Ensure that noise from all sources is maintained at levels that will not adversely affect adjacent properties or the community, especially during evening and early morning hours. Reasonable exceptions may be made in the interest of public safely.

OS6.3: Noise Sensitive Uses. Locate uses where they will be most acoustically compatible with elements of the man-made and natural environment.

OS6.4: Noise Impacts of New Development. Ensure that new development will not raise noise levels above acceptable levels on the Town's arterials and major local streets.

OS6.5: Acoustical Data with Development Applications. Require the submittal of acoustical data, when and where appropriate, as part of the development application process so that the noise impacts of proposed uses can be properly evaluated and mitigated.

OS6.6: Temporary Noise Sources. Permit temporary noise-generating activities such as construction only for the shortest reasonable duration and in locations that will have the least possible effect.

OS6.7: Vehicle Noise. Require that vehicles, including those used for recreational purposes, be used in such a manner that they will not intrude on the peace and quiet of residential areas. Reasonable exceptions may be made in the interest of public safety.

OS6.8: Public Information on Noise Pollution. Whenever appropriate, use public information programs to educate the public on the value of an environment that is free of noise pollution.

Town of Moraga Municipal Code

The Town of Moraga does not establish noise level standards. However, Chapter 7.12 Noise Control in the Moraga Municipal Code highlights the requirements pertaining to noise. According to Section 7.12.090 construction within 500 feet of a residential zone should not use equipment in a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance, particularly between the hours of 5:00 p.m. and 8:00 a.m. Additionally, it is unlawful for a person to install, use or operate a loudspeaker or sound amplifying equipment where it causes annoyance or discomfort (7.12.120).

Existing Noise Sources

The Town is impacted by various noise sources. Mobile sources of noise, especially cars and trucks are the most common and significant sources of noise. Other noise sources are the various land uses (i.e. residential, commercial, institutional, and recreational and parks activities) throughout the Town that generate stationary-source noise. Significant noise sources in the project vicinity are existing traffic on St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road.

Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. Sensitive receptors near the project site includes primarily existing single-family communities. *Table 4.13-1, Sensitive Receptors*, lists the distances and locations of sensitive receptors within the project vicinity.

Table 4.13-1: Sensitive Receptors

Receptor Description	Distance and Direction from the Project Site
Single-family residential	80 feet north
Single-family residential	100 feet south
Single-family residential	710 feet east
Burton Valley Elementary School	1.12 miles northeast
Donald L. Rheem Elementary School	1.3 miles northwest
Moraga Valley Presbyterian Church	1.5 miles west
Pat Vincent Memorial Field Park	100 feet southwest
Saint Mary's College of California	800 feet southwest

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact with Mitigation Incorporated.

Construction

Construction noise typically occurs intermittently and varies depending on the nature or phase of

construction (e.g. land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the residential neighborhoods surrounding the construction site. Project construction would occur adjacent to existing single-family residences to the east and west, with the closest receptors being approximately 100 feet away from construction. However, construction activities would occur throughout the project site and would not be concentrated at a single point near sensitive receptors.

Construction activities would include demolition, site preparation, grading, paving, and architectural coating. Such activities would require graders, scrapers, and tractors during site preparation; graders, dozers, and tractors during grading; pavers, rollers, mixers, tractors, and paving equipment during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical noise levels associated with individual construction equipment are listed in *Table 4.13-2, Typical Construction Noise Levels*.

Table 4.13-2: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 80 feet from Source[1]	Typical Noise Level (dBA) at 100 feet from Source[1]
Air Compressor	80	76	74
Backhoe	80	76	74
Compactor	82	78	76
Concrete Mixer	85	81	77
Concrete Pump	82	78	76
Concrete Vibrator	76	72	79
Dozer	85	81	82
Generator	82	78	77
Grader	85	81	79
Impact Wrench	85	81	76
Jack Hammer	88	84	79
Loader	80	76	79
Paver	85	81	82
Pneumatic Tool	85	81	95
Pump	77	73	89
Roller	85	81	79
Saw	76	72	71
Scraper	85	81	84
Shovel	82	78	89
Truck	84	80	79

Note:
1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1+20Log(d_1/d_2)$
Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

As shown in *Table 4.13-2*, exterior noise levels resulting from construction site equipment could impact existing sensitive receptors in the vicinity. Sensitive uses near the project include existing adjacent

residential uses to the east and west as close as 80 feet from potential construction site noise sources. However, these noise sources are temporary and would occur during the daytime. Although construction noise would be acoustically dispersed throughout the project site and not concentrated in one area near surrounding sensitive uses, mitigation is required to minimize impacts.

Implementation of Mitigation Measure **MM NOI-1** would ensure that all construction equipment is equipped with properly operating and maintained mufflers and other state required noise attenuation devices, helping to reduce noise at the source. The highest anticipated construction noise level of 97 dBA is expected to occur during the demolition phase. **MM NOI-1** would attenuate construction site noise levels. Construction noise impacts would be less than significant with mitigation.

St. Mary's Road would remain open during construction; however, there may be temporary lane closures on St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road during non-commute times, and there may be one-way traffic control at night during stage construction switchovers. Access to adjacent and adjoining properties would be maintained during the duration of construction activities. Noise impacts during construction would be potentially significant. However, **MM NOI-1** would further reduce construction vehicle trip noise because it requires construction equipment to be equipped with noise attenuation devices. Therefore, impacts due to construction vehicle trips would be less than significant.

Operations

Long-Term Mobile Noise Impacts

St. Mary's Road is an existing roadway with heavy congestion and inadequate intersection level of service (LOS). The project would provide congestion relief at the St. Mary's Road and Rheem Boulevard and to improve stopping sight distance and visibility at the Rheem Boulevard and Bollinger Canyon Road intersections. The project is proposed to alleviate the current congestion, reduce intersection delays and queues, improve multimodal safety and to better accommodate pedestrian and bicycle traffic.

The project proposes improvements to two existing intersection Rheem Boulevard and Bollinger Canyon Road to alleviate traffic congestion. As stated above, construction of the proposed project would include two roundabout intersections with diameters of 120 feet and 80 feet. Both roundabouts would have landscaped center medians, a circulating roadway and one lane approaches on St. Mary's Road. The project does not propose any roadway expansions or additional lanes, and therefore would not increase vehicular capacity in the project vicinity. Furthermore, the project does not involve a trip generating land use. Thus, impacts would be less than significant in this regard and no mitigation is required.

Long-Term Stationary Noise Impacts

Construction noise impacts would cease upon project completion. Long-term stationary source noise impacts would not occur because the project would continue to operate at current noise levels and not cause an exceedance of an established noise standard. Moreover, no stationary equipment or other aboveground facilities would be constructed as part of the project. Therefore, no impact would occur in this regard.

Mitigation Measure

MM NOI-1: Prior to issuance of a Grading Permit, the Town shall demonstrate, to the satisfaction of the Director of Public Works or Town Engineer that the project complies with the

following:

- Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state required noise attenuation devices.
- Property owners and occupants located within 200 feet of the Project boundary shall be sent a notice, at least 15 days prior to commencement of construction of each phase, regarding the construction schedule of the proposed project. A sign, legible at 50 feet shall also be posted at the project construction site. All notices and signs shall be reviewed and approved by the Town of Moraga Development Services Department, prior to mailing or posting and shall indicate the dates and duration of construction activities, as well as provide a contact name and a telephone number where residents can inquire about the construction process and register complaints.
- Prior to issuance of any Grading or Building Permit, the Contractor shall provide evidence that a construction staff member will be designated as a Noise Disturbance Coordinator and will be present on-site during construction activities. The Noise Disturbance Coordinator is responsible for responding to local complaints about construction noise. When a complaint is received, the Noise Disturbance Coordinator shall notify the Town within 24-hours of the complaint, determine the cause (e.g. starting too early, bad muffler, etc.), and implement reasonable measures to resolve the complaint as deemed acceptable by the Public Works Department. All notices sent to residential units surrounding the construction site and all signs posted at the construction site shall include the contact name and the telephone number for the Noise Disturbance Coordinator.
- Prior to issuance of any Grading or Building Permit, the Project Applicant shall demonstrate to the satisfaction of the Town Engineer that construction noise reduction methods shall be used where feasible. These reduction methods include shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and electric air compressors and similar power tools.
- Construction haul routes shall be designed to avoid noise sensitive uses (e.g. residences, convalescent homes, etc.) to the extent feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact.

Construction

Since the project will not have any groundborne vibration or noise associated with operational activities, increases in groundborne vibration levels from the project would be primarily associated with short-term construction-related activities. Project construction has the potential to result in varying degrees of temporary groundborne vibration, depending on the equipment used and operations involved. The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e. 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience cosmetic damage (e.g. plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any construction vibration damage.

Table 4.13-3, Typical Construction Equipment Vibration Levels, lists vibration levels at 25 feet for typical construction equipment. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in *Table 4.13-3*, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 0.089 in/sec PPV at 25 feet from the source of activity. The nearest sensitive receptors are the single-family residences approximately 80 feet from the active construction zone.

Table 4.13-3: Typical Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 50 Feet (in/sec)[1]
Large Bulldozer	0.089	0.031
Loaded Trucks	0.076	0.027
Rock Breaker	0.059	0.021
Jackhammer	0.035	0.012
Small Bulldozer/ Tractors	0.003	0.001

Notes:
1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual,* 2018; D = the distance from the equipment to the receiver.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

As shown in *Table 4.13-3*, the highest vibration levels are achieved during demolition and grading. This construction activity is expected to take place during the removal of existing pavement. As construction would not located closer than 50 feet from adjacent sensitive receptors, construction equipment vibration velocities would not exceed the FTA's 0.20 PPV threshold. In general, other construction activities would

occur throughout the project site and would not be concentrated at the point closest to the nearest residential structure. Therefore, vibration impacts associated with the project would be less than significant.

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

Less Than Significant Impact. The nearest airports to the project site are the Oakland International Airport located approximately 12 miles southwest of the project and Buchanan Field Airport located approximately 10 miles northeast of the site. The project is not within 2.0 miles of a public airport or within an airport influence zone. Additionally, there are no private airstrips located within the project vicinity. Therefore, the project would not expose people residing or working in the project area to excessive airport- or airstrip-related noise levels. Impacts in this regard would be less than significant and no mitigation is required.

Cumulative Impacts

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the proposed project in combination with ambient growth and other related development projects. As noise levels decrease as distance from the source increases, only projects in the nearby area could combine with the proposed project to potentially result in cumulative noise impacts.

The project's construction activities, when properly mitigated, would not result in a substantial temporary increase in ambient noise levels. The Town of Moraga does not have noise level standards, however it recommends construction not occur between 5:00 p.m. and 8:00 a.m. There would be periodic, temporary, noise impacts that would cease upon completion of construction activities. The project would contribute to other proximate construction noise impacts if construction activities were conducted concurrently. However, based on the noise analysis above, the project's construction-related noise impacts would be less than significant following compliance with local regulations and mitigation measures outlined in this study. Construction activities at other planned and approved projects would be required to take place during daytime hours, and the Town and project applicants would be required to evaluate construction noise impacts and implement mitigation, if necessary, to minimize noise impacts. Each project would be required to comply with the applicable Town of Moraga Municipal Code limitations on allowable hours of construction. Therefore, project construction would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable.

4.14 Population and Housing

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

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. The proposed project would have no effect on population growth as it is a roadway improvement project to improve the physical and operational characteristics of the St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road. Because the proposed project is a roadway improvement project and no residential housing is proposed, the project would not directly induce population. The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which may indirectly induce population.

Temporary employment associated with the project would be limited to construction crews and no long-term, permanent jobs would be created. Growth in the Town is expected to occur with or without the proposed project. Therefore, impacts associated with substantial unplanned population growth would be less than significant.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would construct improvements along an existing roadway and would not result in the displacement or relocation of businesses and residences. Thus, there would be no impacts associated with displacing substantial numbers of existing people or housing.

Cumulative Impacts

The analysis of potential impacts indicated that no significant impacts would result from the proposed project. As a result, no cumulative impacts related to population and housing would occur.

4.15 Public Services

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
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?			X	
ii) Police protection?			X	
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X

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

i. Fire protection?

Less Than Significant Impact. Fire protection, rescue and emergency medical services for the project site are provided by the Moraga-Orinda Fire District (MOFD). The MOFD provides a full range of emergency response services including but not limited to structural fire suppression, wildland fire suppression, response to hazardous materials incidents, urban search and rescue, water rescue, vehicle disentanglement, mine-tunnel rescue, technical and trench rescue, incident management, and basic and advanced life support emergency medical services (MOFD, 2018a). The MOFD currently has 64 regular

employees, six temporary employees, 30 volunteers, and five Board of Directors. The District responds to over 3,000 incidents annually from five fire stations, which house five paramedic engine companies, one (cross-staffed) paramedic truck company, four paramedic ambulances (3 of which are cross-staffed), and one Battalion Chief (MOFD, 2018b). Station 42 is located at 444 Moraga Road, approximately 1.04 miles northwest of the project site, and is the closest fire station to the project site.

The proposed project would include improvements to the existing road network at Rheem Boulevard and Bollinger Canyon Road, along St. Mary's Road. The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, provide designated facilities separated from the vehicular traffic for pedestrians and bicycles, improve intersection capacity, reduce overall delays and improve safety. The proposed improvements are designed to balance the needs of the pedestrian with vehicular and bicycle traffic to achieve traffic calming, flow management and reduce the risk of traffic-related accidents. The proposed project is a roadway improvement project and does not propose any residential housing that would induce population growth and increase fire protection services.

During construction, emergency access to the project site could be affected. Temporary lane closures and construction-related traffic could delay or obstruct the movement of emergency vehicles. The contractor would be required to coordinate with the Town, County of Contra Costa, and MOFD to ensure emergency access to the project site is maintained. Standard management practices would be implemented during construction to maintain the efficiency of fire protection services to ensure adequate fire protection staffing, performance levels, and facilities, and redirect emergency vehicle routes. Therefore, impacts to fire protection services would be less than significant.

ii. Police protection?

Less Than Significant Impact. The Moraga Police Department provides crime prevention and law enforcement services within the Town of Moraga. The Police Department is located at 329 Rheem Boulevard, approximately 1.44 miles from the project site. The Moraga Police Department currently has 12 sworn officers, four reserve officers and two civilians (Moraga Police Department, 2019). In addition to patrol cars, the Moraga Police Department operates a variety of vehicles in the Town. The Police Department also utilizes Trek mountain bikes equipped with emergency equipment uses for special events and for patrol of parks and shopping centers.

The proposed project would include improvements to the existing road network at Rheem Boulevard and Bollinger Canyon Road, along St. Mary's Road. The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, provide designated facilities separated from the vehicular traffic for pedestrians and bicycles, improve intersection capacity, reduce overall delays and improve safety. The proposed improvements are designed to balance the needs of the pedestrian with vehicular and bicycle traffic to achieve traffic calming, flow management and reduce the risk of traffic-related accidents. The proposed project is a roadway improvement project and does not propose any residential housing that would induce population growth and increase fire protection services.

As discussed above, emergency access to the project site could be affected by project construction. Temporary lane closures and construction-related traffic could delay or obstruct the movement of emergency vehicles. The contractor would be required to coordinate with the Town, County of Contra

Costa, and MOFD to ensure emergency access to the project site is maintained. Standard management practices would be implemented during construction to maintain the efficiency of police protection services to ensure adequate police protection staffing, performance levels, and facilities, and redirect emergency vehicle routes. Therefore, impacts to police protection services would be less than significant.

iii. Schools?

No Impact. The Town of Moraga is served by the Moraga School District. The Moraga School District (MSD) serves elementary and intermediate school students. The nearest schools to the project site are St. Mary's College of California, Mulberry Tree Preschool, Growing Tree Preschool. The nearest school to the project site is St. Mary's College of California, located at 1928 St. Mary's Road, approximately 550 feet. The project site is located just north of St. Mary's College campus.

As discussed above, the project site is served by the MSD. Because the proposed project is improvements to the physical and operational characteristics an existing roadway network, no new residents are anticipated that would produce demand for new schools. Thus, no impacts would occur.

iv. Parks?

No Impact. The Town of Moraga has two parks and one special use area: Moraga Commons, Rancho Laguna, and Hacienda de las Flores (special use area). The Town also manages the Mulholland Ridge Open Space Preserve, a 250-acre open space area, along Donald Drive on the boundary of Orinda and Moraga. The nearest park to the project site is Moraga Commons Park, located at 1425 St. Mary's Rd, approximately 0.98 mile southwest from the project site.

As discussed above, the nearest park to the project site is Moraga Commons Park, which is located approximately 0.98 mile southwest from the project site. Because the proposed project would provide improvements to the physical and operational characteristics of an existing roadway network, no new residents are anticipated that would produce demand for new park facilities. Thus, no impacts would occur.

v. Other public facilities?

No Impact. The Moraga Library is located at 1500 St. Mary's Road, approximately 0.72 mile west of the project site. The Library and is open Tuesdays to Sundays and closed on Mondays. The Library's hours are 12pm to 8pm on Tuesdays and Thursdays, 10am to 6pm on Wednesdays, and 1pm to 5pm on Fridays and Sundays (Contra Costa County Library, 2019).

As discussed above, the Town's library is located approximately 0.72 mile west of the project site. Because the proposed project is improvements to the physical and operational characteristics an existing roadway network, no new residents are anticipated that would produce demand for new library facilities. Thus, no impacts would occur.

Cumulative Impacts

The proposed project is not projected to have an increase in immediate population because it is a roadway improvement project. The potential cumulative impacts to public services is evaluated based upon the consideration of the proposed project together with similar effects from other past, present, and reasonably foreseeable probable future projects. The proposed project is included in the Town of

Moraga's Capital Improvement Project (CIP) and intended to meet the traffic needs in the area based on local land use plans. The proposed project would bring the roadway into conformance and would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which is consistent with the Town's General Plan Circulation Element Policy C1.1 to ensure public safety for all roadway users through roadway design, construction, and maintenance of all roadways in the Town. The project is consistent with current applicable land use plans, policies, and regulations. The proposed project would not result in incremental effects to public services or facilities. Therefore, the proposed project would not result in cumulatively considerable impacts to public services or facilities.

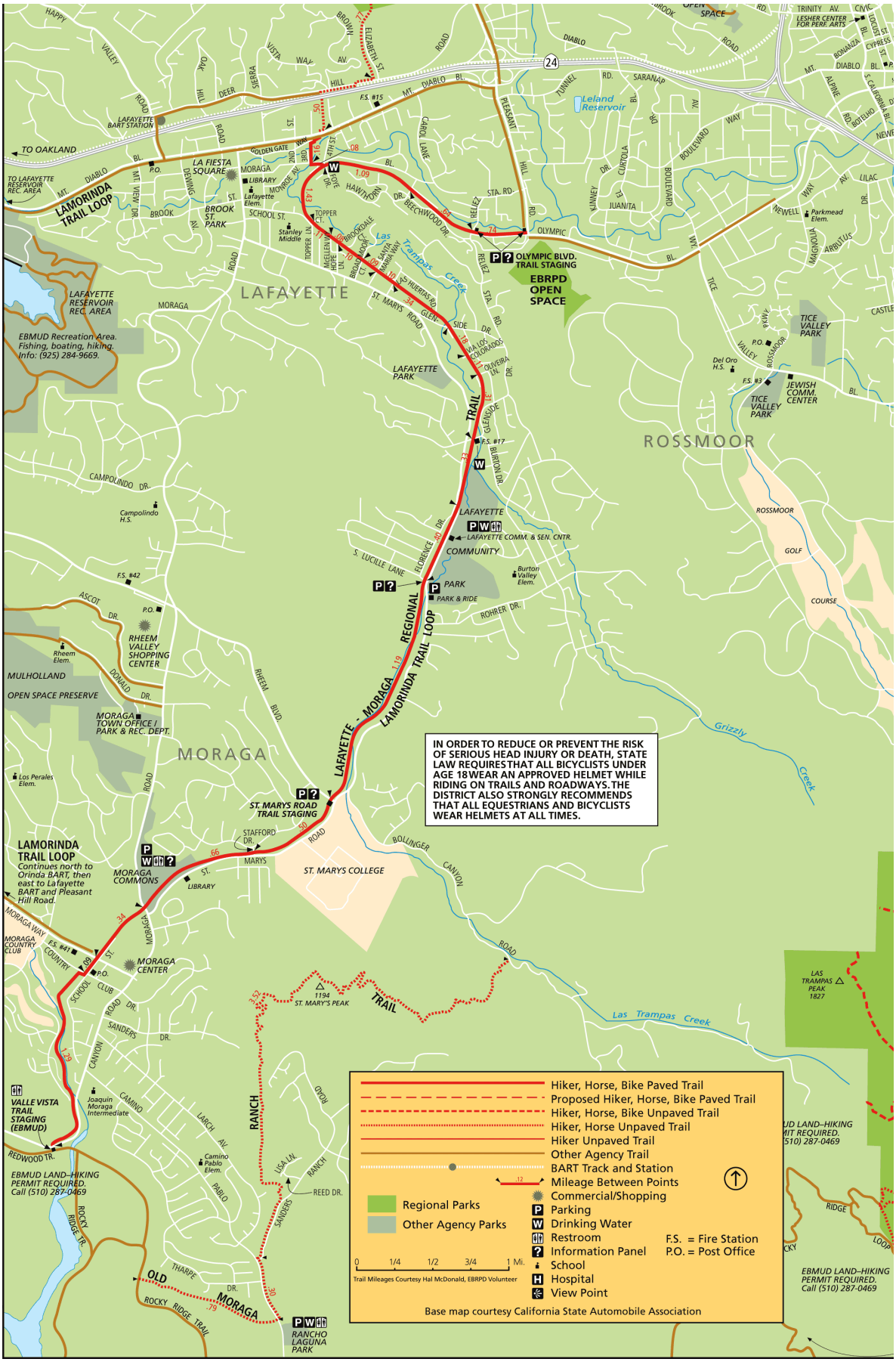
4.16 Recreation

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?			**X**	
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?			**X**	

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

Less Than Significant Impact. The Town of Moraga provides local parks and recreational facilities: Moraga Commons (approximately 0.98 mile southwest from the project site), Rancho Laguna (approximately 2.47 miles south of the project site), and Hacienda de las Flores (approximately 1.05-miles northwest of the project site). Moraga Commons is the Town's primary and central community park (Town of Moraga, 2016b). In addition, the East Bay Regional Park District (EBRPD) owns and operates regional parks and recreational facilities in the vicinity. The nearest parks and recreational facility operated by the EBRPD to the project site is the Lafayette-Moraga Regional Trail as shown in *Figure 4.16-1, Lafayette-Moraga Regional Trail Map*. The trail is a 7.65-mile linear park that parallels St. Mary's Road through Lafayette and Moraga and is located approximately 30 feet west of St. Mary's Road. The trail is intended for hiking, bicycling, and equestrian use (EBRPD, 2018). The trail crosses the project site, at the intersection of St. Mary's Road / Rheem Boulevard via an at-grade cross walk. Other nearby EBRPD facilities to the project site is the Old Moraga Ranch Trail, a 4.61-mile-long trail intended for hiking and equestrian use that extends through the Moraga Hills south of St. Mary's College.

The nearest park to the project site is Moraga Commons Park, located at 1425 St. Mary's Rd, approximately 0.98 mile southwest from the project site. The nearest recreational facility, aside from Moraga Commons Park, is the Lafayette-Moraga Regional Trail that runs parallel and approximately 30 feet west of St. Mary's Road. As discussed above, the Lafayette/Moraga Regional Trail runs parallel to St. Mary's Boulevard and crosses the intersection of St. Mary's Road / Rheem Boulevard via an at-grade cross



Source: East Bay Regional Park District, 2018

Figure 4.16-1: Lafayette-Moraga Regional Trail Map

St. Mary's Road Double Roundabouts Project

Kimley»Horn
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walk. The existing crossing is marked with white striping and does not have any lighting or sign features. Currently, there are gaps in the pedestrian network, with limited sidewalks along most of the project corridor. This results in unsafe pedestrian movements through the project site. The proposed project would improve the physical and operational characteristics of the St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road and realign the existing trail crossing to allow for safe pedestrian and bicycle crossings. The new trail crossing at Rheem Boulevard would realign the trail crossing to be located approximately 40 feet west of the existing trail crossing. The new crossing would connect to the existing trail. Improvements to the at-grade cross walk on St. Mary's Road/ Rheem Boulevard would create a safer environment for pedestrian and bicyclists to cross by improving visibility and with decreased approaching vehicular speeds. Access to the Lafayette-Moraga Regional Trail may experience temporary detours at the St. Mary's Road/ Rheem Boulevard crossing during improvements, but access would remain throughout the construction period. Thus, impacts would be less than significant.

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

Less Than Significant Impact. As discussed above, the proposed project would improve the physical and operational characteristics of the roadway network along St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road. The proposed improvements include realigning an existing trail crossing to allow for safe pedestrian and bicycle crossings. Because the proposed project is a roadway improvement project and no residential housing is proposed, the project would not directly induce population. The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which may indirectly induce population. In addition, the proposed project does not include construction or expansion of recreational facilities but includes improvements to an existing trail crossing that would create safer pedestrian and bicycle crossings. Because the proposed project would not require the construction or expansion of recreational facilities, the project would not increase a demand for recreational facilities. Thus, impacts would be less than significant.

Cumulative Impacts

The proposed project would not result in an increased use of recreational facilities or require construction or expansion of existing recreational facilities. Therefore, no cumulative impacts on recreational facilities would result from project implementation.

4.17 Transportation

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

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. The proposed project would make improvements identified in the Town's Capital Improvement Program (CIP) and local land use plans to improve current traffic congestion, reduce intersection delays and queues, improve multimodal safety and to better accommodate pedestrian and bicycle traffic. A Traffic Impact Analysis (TIA) Memorandum was prepared by Kimley-Horn in January 2019 and is included as Appendix J. The TIA study analyzed the potential impacts related to the project based on standards and methodologies set forth by the Town of Moraga, the Contra Costa Transportation Authority (CCTA), and the 2010 Highway Capacity Manual (HCM). The study intersections were reviewed to determine the existing traffic operations at the side-street-stop-controlled (SSSC) intersections: St. Mary's Road/ Rheem Boulevard and St. Mary's Road/ Bollinger Canyon Road. Evaluations were conducted using the AM and PM peak hour traffic volumes from the Bollinger Valley Final EIR for all study scenarios at the two study intersections.

The TIA analyzed multiple scenarios in the AM and PM peak hours to determine the potential project impacts associated with traffic:

- Existing (2017) Conditions – Based on traffic counts derived from the *Bollinger Valley Project Final EIR* and existing roadway geometry and traffic control.

- Existing (2017) Plus Project Conditions – Based on existing traffic volumes added to the proposed roadway geometry and traffic control assumed for this scenario.
- Cumulative (2040) Conditions – Based on future year traffic projections which were derived from the *Bollinger Valley Project Final EIR*. This scenario assumes roadway geometry and traffic control present in the forecast horizon.
- Cumulative (2040) Plus Project Conditions – Based on future year traffic projections added to the proposed roadway geometry and traffic control assumed for this scenario.

Analysis of significant environmental impacts at these intersections were based on the concept of Level of Service (LOS). The LOS of an intersection is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of service were determined using methods defined in the Highway Capacity Manual, 2010 (HCM) and appropriate traffic analysis software. The traffic study concluded that all study intersections function within acceptable LOS standards under Existing Plus Project and Cumulative Plus Project scenarios. Thus, the project is not expected to create any significant impacts at the study intersections or on pedestrian and bicycle access and circulation. Therefore, the proposed project would have a less than significant impact and no mitigation measures are required.

Transit Facilities

The County Connection provides transit services within Moraga and nearby cities in Central Contra Costa County. The following County Connection routes operate near the proposed project but do not operate through the study intersections: Route 6 and Route 250.

Roadway

The TIA analyzed the LOS of the AM and PM peak hour traffic conditions for the two study intersections. The Existing and Cumulative (2040) conditions were analyzed in Synchro software using the HCM 2010 methodology and the Existing Plus Project and Cumulative Plus Project conditions were evaluated in Sidra Intersection software using the HCM 2010 methodology. The analysis found that the study intersections would operate at an acceptable LOS under all traffic conditions, except Cumulative (2040) Conditions. Under Cumulative (2040) traffic conditions, there would be no new geometry improvements to the study intersections, therefore Existing lane geometry was used to evaluate the scenario for Cumulative (2040) conditions. *Table 4.17-1, Summary of Traffic Conditions for Intersection Scenarios*, compares the traffic conditions and provides LOS results for each scenario analyzed for the two study intersections.

Table 4.17-1: Summary of Traffic Conditions for Intersection Scenarios

Intersection	Conditions of Scenarios									
	AM Peak		PM Peak		AM Peak			PM Peak		
	LOS	Delay	LOS	Delay	LOS	Delay	Change in Delay	LOS	Delay	Change in Delay
	Existing (2017)				*Existing Plus Project (Roundabouts)*					
St. Mary's Road. / Rheem Boulevard	A	3.6	A	3.9	A	5.6	-12.9	A	6	-14.4
Worst Approach	C	18.5	C	20.4						
St. Mary's Road. / Bollinger Canyon Road	A	1.5	A	0.9	A	5.6	-10.9	A	5.8	-10.4
Worst Approach	C	16.5	B	16.2						
	Cumulative (Long-Term 2035)				*Cumulative (Long-Term 2035) Plus Project (Roundabouts)*					
St. Mary's Road. / Rheem Boulevard	A	5.3	A	9.4	A	7.1	-23.5	A	7.8	-49.9
Worst Approach	**D**	**30.6**	**F**	**57.7**						
St. Mary's Road. / Bollinger Canyon Road	A	3.8	A	2.4	A	6.8	-19.4	A	7.7	-18.7
Worst Approach	**D**	**26.2**	**D**	**26.4**						
Note: Intersections that are operating below acceptable levels are shown in **BOLD**.										

The results of the traffic analysis concluded that the proposed project is not expected to create any significant impacts at the two study intersections. The study intersections are expected to operate at acceptable levels of service in the Existing Plus Project and Cumulative Plus Project conditions. The proposed project improvements include a roundabout at the St. Mary's Road/ Rheem Boulevard intersection and a mini-roundabout at the St. Mary's Road/ Bollinger Canyon Road intersection.

Bicycle Facilities

The project includes several improvements to the bicycle facilities such as a proposed bicycle route is along St. Mary's Road between Stafford Road to the outside of the Moraga town limits. The project also proposes to install bicycle routes along Rheem Boulevard between St. Mary's Road and Moraga Road and along Bollinger Canyon Road between St. Mary's Road and north of Valley Hill Drive. The proposed roundabouts would accommodate bicyclists by allowing users to choose their path of travel. Cyclists who have experience and confidence riding on the roadway can travel through the facility as a vehicle by merging with other vehicular traffic and occupying the lane within the roundabout itself. Other cyclists that may not feel comfortable riding within the travel lane can access the shared-use pathway with bike ramps and travel through the roundabout and cross as a pedestrian. Since the project does not conflict with existing or planned bicycle services and facilities, the project would have a less than significant impact on bicycle circulation.

Pedestrian Facilities

The project includes several improvements to the pedestrian facilities such as a new trail crossing at Rheem Boulevard, which would realign the Lafayette/ Moraga Regional Trail crossing to be located approximately 40 feet west of the existing trail crossing. The new trail crossing would allow for safe pedestrian and bicycle crossings west of the proposed roundabout by improving visibility and with

decreased approaching vehicular speeds. In addition, a new sidewalk is proposed along the east side of St. Mary's road, starting near the Bollinger Canyon Road intersection and connecting to the regional trail on the south side of the proposed roundabout at the Rheem Boulevard intersection. The new sidewalk installation would allow for safe pedestrian crossings for the users on Bollinger Canyon Road. Pedestrian improvements would also include a pedestrian refuge island separating the inbound and outbound vehicles on the Rheem Boulevard leg of the intersection, making it safer for pedestrians to cross one direction of travel at a time. Since the project does not conflict with existing or planned pedestrian services and facilities, the project would have a less than significant impact on pedestrian circulation.

The proposed project would provide transportation improvements and would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. No significant impacts would occur, and no mitigation is required. Therefore, impacts in this regard are less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact. The proposed project is a transportation project that would improve current traffic congestion, reduce intersection delays and queues, improve multimodal safety and to better accommodate pedestrian and bicycle traffic. The proposed project is a transportation project that would improve pedestrian and bicycle access at the project site and reduce vehicular speeds, intersection delays and provide efficient circulation for all travel modes. The project would not generate any new traffic trips. The project would provide improvements to pedestrian and bicycle access to an existing trail by realigning the existing trail crossing to allow for safe pedestrian and bicycle crossings. Construction operations associated with the proposed project would require implementation of traffic control plans prior to the start of construction, discussed below in Section 4.17(d), and access to adjacent and adjoining properties would be maintained during the duration of construction activities. Consistent with State CEQA Guidelines Section 15064.3(b)(2), the proposed project is a transportation project that proposes improvement and enhancements to the existing roadway network. The proposed project would improve access to all travel modes by constructing improvements that facilitate multi-modal transit to and from Rheem Boulevard and Bollinger Canyon Road, along St. Mary's Road. These improvements would improve pedestrian, bicycle, and vehicular access at the project site and in addition create safer access for non-motorized travel at the project area. For these reasons, the project's effect on vehicle miles traveled is considered to have a less than significant impact. As such, the project is consistent with and potential impacts are considered less than significant.

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

Less Than Significant Impact. The proposed roadway improvements would be consistent with Town standards, including the Town's CIP and local land use plans. The existing lane geometry configuration at the study intersections (project site) lacks acceptable sight distance due to horizontal and vertical constraints. The existing roadway geometry and topography at these closely spaced intersections has insufficient stopping sight distance with visibility issues approaching the Rheem Boulevard and Bollinger Canyon Road intersections, which in turn, result in high accident rates and decreased safety. The proposed improvements include roundabout geometry that will be designed in a way to decrease approaching

speeds at these intersections and improve visibility, subsequently improving traffic operations and safety. The new design features would not create hazards to traffic, as the proposed project would improve current traffic conditions. No significant impacts would occur, and no mitigation is required.

d) Result in inadequate emergency access?

Less Than Significant Impact. The proposed project improvements would improve current traffic congestion, reduce intersection delays and queues, improve multimodal safety and better accommodate pedestrian and bicycle traffic. During construction a traffic control plan would be prepared as part of the Town's requirements for an Encroachment and Transportation Permit, which is generally required for any construction within the public right-of-way, including repair of sidewalks, connection of a new underground gas or water service or widening of a driveway. The traffic control plan would be required to address emergency access during construction including temporary road and lane closures at the project site. The project would implement the following general condition during construction of the project to ensure that impacts from construction on emergency access would be less than significant.

General Condition for Public Work's Encroachment and Transportation Permit

PW #3: TRAFFIC—Traffic and pedestrian access control must be in place prior to start of work. No traffic cones are to be left overnight. Barricades with flashers are to be used. Traffic Control plan shall be in accordance with latest CA MUTCD and Pedestrian access plan shall be in accordance with the latest ADA requirements. Traffic shall be permitted to pass through the work area at all times. Complete street closures must be approved by the Town Engineer or approved agent.

Proposed project improvements would require the roadway to be relocated, partially outside the existing right-of-way. St. Mary's Road would remain open during construction; however, there may be temporary lane closures on St. Mary's Road, Rheem Boulevard, and Bollinger Canyon Road during non-commute times, and there may be one-way traffic control at night during stage construction switchovers. Access to adjacent and adjoining properties would be maintained during the duration of construction activities. Bus access would also be maintained. As discussed above, the proposed project would implement traffic control plans as a general condition and coordinate with the Town Public Work's Department to ensure emergency access is maintained during the construction phase of the project. The proposed project would not hinder the evacuation or egress during an emergency. Therefore, impacts are considered less than significant.

Cumulative Impacts

The TIA addresses both the project-specific and the project's contribution to cumulative impacts and found no significant impacts. The study intersections function within acceptable LOS standards under the existing plus project and cumulative plus project analysis scenario. Therefore, the proposed project would not result in incremental effects to transportation that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. Potential impacts are not cumulatively considerable and less than significant.

4.18 Tribal Cultural Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?		**X**		
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?		**X**		

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

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

Less Than Significant Impact with Mitigation Incorporated. Tribal cultural resources as defined in Public Resources Code section 5020.1(k) have not been previously identified within the project area and are considered unlikely to be present given the historical agricultural use of the site. The project site is undeveloped and does contain any existing structures or extant historical tribal cultural resources with the potential for inclusion on the California Register of Historical Resources or a local register. Mitigation Measures **MM CUL-1** and **MM CUL-2** have been included with the project to ensure construction monitoring occurs during excavation and ground disturbing activities. As such, potential impacts on historic tribal cultural resources are considered less than significant.

Mitigation Measures

See Mitigation Measures **MM CUL-1** and **MM CUL-2** in Section 4.5(b).

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less Than Significant Impact with Mitigation Incorporated. No tribal cultural resources, as identified in Public Resources Code Section 5024.1 have been previously identified on the site, and are considered unlikely to be present given the historical agricultural use of the site. However, the proposed project has the potential to impact unknown tribal cultural resources because grading activities may result in the discovery of unknown cultural resources that are buried beneath the ground surface. To reduce this potentially significant impact to a less than significant level, all construction related impacts of soil shall be monitored in accordance with Mitigation Measures **MM CUL-1** and **MM CUL-2**.

Mitigation Measures

See Mitigation Measures **MM CUL-1** and **MM CUL-2** in Section 4.5(b).

Cumulative Impacts

The proposed project could result in potential site-specific impacts to unknown archaeological, cultural, and tribal cultural resources. Other projects within the cumulative study area also have the potential to result in damage and/or loss to such resources. The combination of the proposed project as well as past, present, and reasonably foreseeable projects in the Town of Moraga and Contra Costa County would be required to comply with all applicable State, federal, and County and local regulations concerning preservation, salvage, or handling of cultural and paleontological resources, including compliance with required mitigation. Similar to the proposed project, these projects also would be required to implement and conform to mitigation measures, which would be likely to reduce impacts to less than significant. Although in the process of development, some known or unknown resources may be lost, it is not anticipated that these impacts would be cumulatively considerable. In addition, implementation of Mitigation Measures **MM CUL-1** and **MM CUL-2**, would reduce project-specific impacts to a less than significant level. Therefore, the project's contribution to cumulative impacts would be less than significant.

4.19 Utilities and Service Systems

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

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact. The Town's wastewater is treated by Central Contra Costa Sanitary District (CCCSD) at their treatment plant located at 5019 Imhoff Place in the City of Martinez, approximately 10.38 miles northeast of the proposed project site. The East Bay Municipal Utility District (EBMUD) operates and maintains the potable water system for 1.4 million customers in Alameda and Contra Costa counties (EBMUD, 2019). Pacific Gas and Electric Company (PG&E) provide electrical services to the Town of Moraga. PG&E provides natural gas services to the Town of Moraga.

The proposed project would provide traffic, transit, pedestrian and bicycle improvements which would not generate wastewater, electric power, natural gas, or telecommunications facilities. Implementation of the proposed project would be expected to generate nominal additional water demand during the temporary, short-term construction phase; however, the improvements provided by the proposed project would be for existing facilities and operations would not be expected to increase the demand for water, wastewater, electric power, natural gas, or telecommunications facilities. Thus, the proposed project can be served by the existing facilities and no new or expanded water, wastewater, electric power, natural gas, or telecommunications facilities would be required. The project would involve the relocation of utilities to construct components of the project. None of the utility relocations would create new significant effects.

The proposed project does not propose new residential, commercial, industrial, recreational, or other uses that would substantially increase the demand for potable water or wastewater treatment. Additionally, the operation of the proposed project would not generate demand for water because no drinking fountains, toilets, other water-dependent facilities are planned. Relatively minor amounts of water would be used during construction; however, these construction water demands would be temporary and only occur for a duration of 12 months. Construction of the proposed project would result in a negligible increase of wastewater generated for portable toilets provided for construction personnel. Therefore, the impacts related to an increased demand for water and wastewater are less than significant and no mitigation is required.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The proposed traffic, transit, pedestrian and bicycle improvements within the project site would not include design features that would generate significant additional water demand. As discussed above, the proposed project would not have an impact on water supplies. The proposed project would improve the physical and operational characteristics of the St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road and realign an existing trail crossing (Lafayette-Moraga Regional Trail) to allow for safe pedestrian and bicycle crossings. The proposed project does not propose new residential, commercial, industrial, recreational, or other uses that would substantially increase the demand for potable water or wastewater treatment. Additionally, the operation of the proposed project would not generate demand for water because no drinking fountains, toilets, other water-dependent facilities are planned. Relatively minor amounts of water would be used during construction; however, these construction water demands would be temporary and only occur for a duration of 12 months. Water used during construction to minimize dust would be recycled water and would not use the Town's potable water supply. Thus, the proposed project can be served by the existing entitlements and resources and no new or expanded water entitlements would be required. Impacts would not occur, and mitigation is not required.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. The Town's wastewater is treated by Central Contra Costa Sanitary District (CCCSD) at their treatment plant located at 5019 Imhoff Place in the City of Martinez, approximately 10.38 miles northeast of the proposed project site. As discussed above, the proposed project would provide traffic, transit, pedestrian and bicycle improvements within the project site which would not generate wastewater. Although the improvements would improve circulation and access at the project site, these improvements are included in prior planning documents and would not generate unplanned population growth which could produce demand in excess of the existing wastewater capacity. Furthermore, the project would not include design features that would generate significant additional wastewater. Thus, impacts would be less than significant, and no mitigation is required.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. The Central Contra Costa Solid Waste Authority (CCCSWA), doing business as RecycleSmart, provides solid waste recycling and refuse services for Contra Costa County. RecycleSmart has contracted with Republic Services for the collection, transfer and disposal of residential and commercial garbage, recycling and organics and Mt. Diablo Recycling for the processing of residential and commercial recyclable materials (RecycleSmart, 2019). All solid waste is transported to the Contra Costa Transfer and Recovery Station in Martinez. From this facility, the waste is taken to the Keller Canyon Landfill. Keller Canyon Landfill is located at 901 Bailey Road in Contra Costa County near Pittsburg, CA. This land fill is 2,600 acres and handles at maximum 3,500 tons of waste per day (CalRecycle, 2019). The maximum permitted capacity is 75,018,280 cubic yards. Based on the current rate of disposal, the landfill has more than 10 years of remaining capacity left (CalRecycle, 2019).

Implementation of the proposed project would not be expected to generate additional solid waste during the operational phase. The project would only generate construction waste during the construction of the project. As such, the project would be required to comply with the Town's Construction and Demolition Debris Recycling Ordinance (Town Code Chapter 15.08).

The proposed project would generate solid waste as a result of removing roadway materials, vegetation, and some utility infrastructure. These materials would be disposed of or recycled by CCCSWA/RecycleSmart. As discussed above, RecycleSmart has contracted with Republic Services for the collection, transfer and disposal of residential and commercial garbage, recycling and organics and Mt. Diablo Recycling for the processing of residential and commercial recyclable materials. All solid waste is transported to the Contra Costa Transfer and Recovery Station in Martinez. From this facility, the waste is taken to the Keller Canyon Landfill. The rate of solid waste generated by the proposed project is not expected to be a significant impact since generation of solid waste would be minor and would only be required during the temporary, short-term construction period. Furthermore, county long-term landfill capacity is available well beyond the project construction period without the need for additional solid waste disposal facilities. This nominal incremental increase in solid waste disposal at the Keller Canyon Landfill would not be considered cumulatively considerable. Therefore, due to the type of construction, the short term temporary impacts, and the available capacity in the receiving landfill, the project would

not be expected to result in inadequate landfill capacity impacts would be less than significant and no mitigation is required.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. Implementation of the proposed project would be expected to generate additional waste during the temporary, short-term construction phase, as well as the operational phase, but it would not be expected to result in inadequate landfill capacity. As discussed above, the proposed project would generate solid waste as a result of removing roadway materials, vegetation, and some utility infrastructure. These materials would be disposed of or recycled by CCCSWA/RecycleSmart. All solid waste is transported to the Contra Costa Transfer and Recovery Station in Martinez. From this facility, the waste is taken to the Keller Canyon Landfill.

According to CalRecycle, the landfill has a maximum throughput of 75,018,280 cubic yards, and the landfill has a remaining capacity of approximately 63,408,410 cubic yards. Thus, the proposed project's solid waste disposal needs can be met by Kelly Canyon Landfill. The proposed project would be required to adhere to Town ordinances with respect to waste reduction and recycling. As a result, no impacts related to State and local statues governing solid waste are anticipated and no mitigation is required.

Cumulative Impacts

Utilities are generally provided or delivered on a local level but often originate from sources outside of the Town as part of a regional distribution system. Similar to the project, other projects within the Town would be required to adhere to the Standard Conditions of Approval related to water efficiency, utilities services and plans, and drainage, Therefore, implementation of the project would not result in a cumulatively considerable contribution to impacts on water supply and wastewater, stormwater, or solid waste generation.

The coordination process associated with the preparation of development and infrastructure plans is intended to ensure that adequate resources are available to serve both individual projects and cumulative demand for resources and infrastructure as a result of cumulative growth and development in the area. Individual projects are subject to review for utility capacity to avoid unanticipated interruptions in service or inadequate supplies. Other planned projects are subject to connection and service fees to assist in facility expansion and service improvements triggered by an increase in demand. The proposed project would not result in incremental impacts to utilities or service systems, that taken in sum with past, present, and reasonably foreseeable projects, would not result in significant cumulative utility impacts.

4.20 Wildfire

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

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The Town's revised Emergency Operations Plan was recently approved by Moraga's Town Council in August 2018. The Town's Emergency Operations Plan (EOP) establishes an Emergency Management Organization and assigns functions and tasks consistent with California's Standardized Emergency Management System (Town of Moraga, 2018). The plan establishes protocols required to effectively respond to, manage, and recover from major emergencies and or disasters. The proposed project would bring the roadway into conformance and would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes. The project design would still be subject to review by the Moraga-Orinda Fire District (MOFD) to meet standards for emergency vehicle access and emergency response needs established in the EOP.

The Contra Costa County's Community Wildfire Protection Plan (CWPP) prepared by the Diablo Fire Safe Council and updated in 2014 in coordination with MOFD and other agencies, provides a regional plan for reducing the risk of loss of life and property due to catastrophic fire in the County. A CWPP is a collaboratively developed plan that identifies wildland fire hazards, prioritizes way to reduce those hazards and recommends measures for homeowners and communities to reduce ignitability of structures. More specifically, the CWPP in accordance with the Healthy Forest Restoration Act, elects stakeholders to define WUI evacuation routes, staging areas and other important resources and infrastructure to reduce risk from wildland fire in WUI zones. This extended area is referred to as "CWPP WUI". The plan also proposes to collaboratively develop and foster best practices and actions to mitigate risk factors, such as: organizing and educating communities about the fire environment, explaining good practices to residents to help organize evacuation protocols and drills, collaboration with PG&E to develop programs that curtail accidental ignitions, and conduct workshops with residents and project contractors to provide information about defensible space and fire-resistant landscaping.

The proposed project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) as designated by CALFIRE (California Department of Forestry and Fire Protection, 2009). The project site is located within a Local Responsibility Area (LRA) and fire protection in the Town is provided by Moraga-Orinda Fire District (MOFD). Additionally, the project site is located within the Wildland-Urban Interface (WUI), which is the zone of transition between unoccupied land and human development (ABAG, 2003).

As discussed above, the proposed project is not located within a VHFHSZ; it is located within a LRA and fire protection in the Town is provided by MOFD. The project site is also located within the WUI, which is the zone of transition between unoccupied land and human development. The proposed project would be required to conform with requirements of the MOFD Ordinance 13-01, the 2013 California Building Code (Chapter 7A) and other applicable Town and MOFD policies involving best management practices (BMPs) for wildland fire risk areas. The proposed project would adhere to policies and measures regarding emergency response plans and evacuation routes outlined in the CWPP and the Town's EOP. Because the proposed project is a roadway improvement project and no residential housing is proposed, the project would not directly induce population, and therefore would not alter existing response times set by the Town's EOP. In addition, the proposed project would obtain applicable construction permits and ensure fire department and emergency access remain available during construction. Thus, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Conformance with existing requirements would ensure that potential impacts associated wildfire risks would not impair an adopted emergency response plan or emergency evacuation plan. Therefore, impacts would be less than significant, and no mitigation is required.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. The Town of Moraga is located in a valley and surrounded by hills. Prevailing winds that flow through the Town are generally from the west of northwest (Town of Moraga, 2018). A combination of dry summer wildland fuels, steep hilly terrain, low humidity and brisk afternoon risks make many locations in Moraga susceptible to a major wildland fire event (Town of Moraga, 2018).

As discussed above, the project is not located within a VHFSZ. The proposed project is a roadway improvement project and does include the construction of buildings, therefore the MOFD WUI fire conformance requirements would not specifically apply to the proposed project. However, the proposed project would be required to conform with requirements of the MOFD Ordinance 13-01, the 2013 California Building Code (Chapter 7A) and other applicable Town and MOFD policies involving best management practices (BMPs) for wildland fire risk areas. Conformance with existing requirements would ensure that potential impacts due to slope, prevailing winds, and other factors, would not exacerbate wildfire risks or expose project occupants to pollutant concentrations as a result of a wildfire or uncontrolled spread of wildfire. Therefore, impacts would be less than significant, and no mitigation is required.

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

Less than Significant Impact. As discussed above, the proposed project would improve the physical and operational characteristics of the St. Mary's Road intersections at Rheem Boulevard and Bollinger Canyon Road and realign an existing trail crossing (Lafayette-Moraga Regional Trail) to allow for safe pedestrian and bicycle crossings. The proposed project would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes, which would improve traffic flow and emergency responses and evacuation. The proposed project is included in the Town of Moraga's CIP and intended to meet the traffic needs in the area based on local land use plans. The proposed project would bring the roadway into conformance and would accommodate anticipated multimodal transportation increases by improving capacity for all travel modes. The MOFD, as part of the Town's process, will review all plans for adequate fire suppression, fire access, and emergency evacuation. Adherence to standard Town policies would reduce potential impacts to a level of less than significant, and no mitigation is required.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less than Significant Impact. As discussed above, the proposed Project is not located in a VHFHSZ as identified by CALFIRE. The project site is located within a LRA and the Wildland-Urban Interface (WUI) zone. The proposed project would include roadway improvements to enhance vehicular and traffic operations through an established urban area. The proposed project is consistent with the Town's local land use plans and is intended to meet the traffic needs in the area and improve capacity for all travel modes.

As discussed in Section 4.10 Hydrology and Water Quality, the proposed project would incorporate BMPs during construction and post-construction, to preserve the existing drainage pattern and flow of waters to off-site and downstream areas. Drainage design features would reduce the increased peak flow velocities caused by runoff, include erosion control measures and revegetation of slopes to reduce dispersal of sediment into Las Trampas Creek, and maintain post-construction runoff discharge rates and durations to pre-project conditions. The proposed project would not substantially alter the existing drainage pattern of the site or area, would not alter a stream or river, and would not result in substantial erosion or siltation on or off site. Therefore, the proposed project would not expose people or structures

to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Cumulative Impacts

The incremental effects of the project related to wildfire, if any, are anticipated to be minimal, and any effects would be site specific. Therefore, the proposed project would not result in incremental effects to wildfire that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. The proposed project would not result in cumulatively considerable impacts to or from wildfires.

4.21 Mandatory Findings of Significance

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Does the project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		**X**		
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)?			**X**	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			**X**	

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

Less than Significant Impact with Mitigation Incorporated. As described throughout the analysis above, the project would not result in any significant impacts that would substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal to the environment. All potentially significant impacts related to plant and animal species would be mitigated to a less than significant level. The project would be required to implement mitigation measures aimed at protecting special status species (Mitigation Measures **MM BIO-1** through **MM BIO-10**), which require avoidance or mitigation for the disturbance of sensitive habitats and plant and animal species. Through the full mitigation of biological impacts, the project would not result in any cumulative impacts, related to biological resources. These are less than significant impacts.

Mitigation Measures

See Mitigation Measures **MM BIO-1** through **MM BIO-10** in Section 4.4.

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. As described throughout the analysis above, the project would not result in any significant individual or cumulative impacts that would not be mitigated to less-than significant levels. Biological resources are addressed in Section 4.21(a), above. Some topics are intrinsically site-specific. In the case of these topics, by showing that an impact is less than significant with or without mitigation, the analysis shows that the project would not provide a substantial contribution to a cumulatively considerable impact. These topics include aesthetics, cultural resources, energy, geology and soils, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, transportation, tribal cultural resources, and wildfire. Other topics address potential contributions to a cumulatively considerable impact through their analysis. The topics which addressed whether the project would have a cumulatively considerable impact on a significant impact include air quality, greenhouse gas emissions, hazards and hazardous materials, and utilities and services systems. The above analyses found that potential contribution to a cumulatively considerable impact was either less than significant or could be reduced to less than significant with mitigation. Therefore, these are less-than-significant impacts.

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

Less Than Significant Impact. As described throughout the analysis above, the project would not result in any significant impacts that would have environmental effects which will cause substantial adverse effects on humans. The analysis in the relevant sections above provides standards and mitigation measures to reduce any potentially significant impacts on humans to less than significant levels. A variety of mitigation measures including those related to air quality, cultural resources, geotechnical hazards, hazardous materials, stormwater, and noise, ensure any adverse effects on humans are reduced to an acceptable standard. Therefore, these are less than significant impacts.

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Appendix A

Air Quality Assessment

Appendix B

Aquatic Resources Delineation Report

Appendix C

Biological Resources Study

Appendix D

Cultural Resources Survey Report

Appendix E

Preliminary Geotechnical Report

Appendix F

Greenhouse Gas Emissions Assessment

Appendix G

Water Quality Assessment Report

Appendix H

Floodplain Evaluation Report

Appendix I

Acoustical Assessment

Appendix J

Traffic Impact Analysis Memorandum