



Comprehensive Advanced Planning Initiative

Draft Environmental Impact Report

SCH #2022020106

prepared by

Town of Moraga

Planning Department

329 Rheem Boulevard

Moraga, California 94556

Afshan Hamid, Planning Director

prepared with the assistance of

Rincon Consultants, Inc.

449 15th Street, Suite 303

Oakland, California 94612

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Acronyms and Abbreviations

AASHTO	Association of State Highway and Transportation Officials
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ABAG	Association of Bay Area Government
AFY	Acre Feet Per Year
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BCDC	San Francisco Bay Conservation and Development Commission
BMPs	Best Management Practices
Btu	British Thermal Units
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resource Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGEU	California Gas and Electric Utilities
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CWA	Clean Water Act
dB	decibel

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DMA	Disaster Mitigation Act
DPM	Diesel Particulate Matter
DNL	Day-Night Average Level
DOC	California Department of Conservation
DOF	California Department of Finance
DWR	California Department of Water Resources
EAP	Energy Action Plan
EBMUD	East Bay Municipal Utility District
EIA	Energy Information Administration
EIR	Environmental Impact Report
EO	Executive Order
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWh	Gigawatt hours
GWP	Global warming potential
HFCs	Hydrofluorocarbon
HMP	Hazard Mitigation Plan
HUD	Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of Service
MCE	Marin Clean Energy
MCL	Maximum Contaminant Level
MLD	Most Likely Descendant
MMBtu	Million Btu
MMRP	Mitigation Monitoring and Reporting Program
MMT	Million metric tons

Mpg	Miles per gallon
MS4	Municipal Separate Storm Sewer System
MTC	Metropolitan Transportation Commission
N ₂ O	Nitrous Oxides
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NFIP	National Flood Insurance Program
NHTSA	National Highway Traffic and Safety Administration
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
O ₃	Ozone
PDA	Priority Development Areas
PFCs	Perfluorocarbon
PG&E	Pacific Gas and Electric
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
PM ₁₀	Particulate matter less than 10 microns in diameter
PPV	peak particle velocity
RMS	root mean squared
ROG	Reactive Organic Gases
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel Efficient
SAF Plan	State Alternative Fuels Plan
SCS	Sustainable Communities Strategy
SB	Senate Bill
SCH	State Clearinghouse
SF ₆	Sulfur Hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFRWQCB	San Francisco Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SP	Service Population
SWPPP	Stormwater Pollution Prevention Plan

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SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TDML	Total Maximum Daily Load
TCR	Tribal Cultural Resources
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UWMP	Urban Water Management Plan
VdB	Vibration decibels
VMT	vehicle miles traveled
WQS	Water Quality Standards

Executive Summary

This document is an Environmental Impact Report (EIR) analyzing the environmental effects of the proposed Planning Initiative. This section summarizes the characteristics of the Planning Initiative, alternatives to the Planning Initiative, and the environmental impacts and mitigation measures.

Project Synopsis

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Project Description

This EIR has been prepared to examine the potential environmental effects of the Planning Initiative. The following is a summary of the full project description, which can be found in Section 2.0, *Project Description*.

The Planning Initiative is a long-range planning effort that will shape the future of development and economic growth in Moraga. These efforts include adoption of the Town's updated Housing Element, associated conforming amendments to the Moraga 2002 General Plan, amendments to the Moraga 2002 General Plan Safety and Conservation Elements, rezoning of key sites within the Town, and new zoning designations for Bollinger Canyon.

The Housing Element is one of the State-mandated elements of the General Plan. The Housing Element Update under the Planning Initiative would plan for development between 2023 and 2031 and bring the element into compliance with State legislation passed since the previous Housing Element was adopted. Part of the Planning Initiative would require amendments to the 2002 General Plan as rezoning to accommodate the Housing Element Update would cause changes in land use, revisions to the definitions of land use categories, and changes to the residential development potential estimates included in the Town's 2002 General Plan. Additionally, the General Plan Safety and Circulation Elements would be updated to account for Assembly Bill 747, Senate Bill 99, and Senate Bill 743.

To achieve the Town's Regional Housing Needs Allocation (RHNA) of 1,118 units the Town would focus rezoning in the Moraga Center area and Rheem Park area. Some sites would be rezoned to allow for additional residential development, while others would be rezoned from commercial only to mixed-use zoning designations. Unrelated to the Housing Element necessitated rezones, the Bollinger Canyon Study Area would be provided new zoning designations to allow for limited residential development.

Project Objectives

The Planning Initiative seeks to accomplish the following objectives:

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- A State-certified Housing Element for 2023-2031 that responds to local and regional needs.
- An internally-consistent, easy-to-use General Plan that is legally compliant and addresses emerging issues.
- Updated long-range planning policies and programs that respond to recent State legislation related to vehicle miles traveled, climate change and resilience, fire hazards, evacuation, and other pertinent topics.
- General Plan land use and zoning designations for the Bollinger Canyon Study Area.
- Rezoning consistent with the Housing Element to meet the Town’s RHNA.
- Opportunities for meaningful public participation, including the engagement of residents who have not historically participated in planning processes.
- New objective development standards consistent with state law.

Alternatives

As required by CEQA, this EIR examines alternatives to the Planning Initiative. Studied alternatives include the following three alternatives. Based on the alternatives analysis, Alternative 3 was determined to be the environmentally superior alternative.

- Alternative 1: No Project
- Alternative 2: Employment-Focused Growth
- Alternative 3: Clustered Bollinger Canyon Development

Alternative 1: No Project

The No Project Alternative assumes there is no change in zoning or General Plan land use designations for the parcels identified by the Planning Initiative. Current uses on the sites would continue under this alternative, with buildout of the proposed Housing Opportunity Sites regulated by existing zoning and General Plan designations. No development would occur within the Bollinger Canyon Study Area since existing zoning and General Plan designations require a study to determine the appropriate number of units that the area can support prior to development. Buildout of the proposed Housing Opportunity Sites under existing zoning would result in less residential development and reduced population growth than under the Planning Initiative (refer to Table 6-1). This alternative would not accomplish any of the project objectives.

Alternative 2: Employment-Focused Growth

Alternative 2 assumes that nine of the Housing Opportunity Sites identified under the Planning Initiative would be developed for office/retail uses instead of residential uses. Figure 6-1 depicts the Housing Opportunity Sites that would be used for office/retail uses under Alternative 2. These sites are vacant or currently used for office or commercial purposes, and are listed in Table 6-2.

Development would occur within the Bollinger Canyon Study Area as envisioned in the Planning Initiative and described in Section 2, Project Description. The purpose of Alternative 2 is to achieve the Town’s RHNA obligations while creating jobs and services in the vicinity of housing to reduce VMT. Buildout of Alternative 2 would result in fewer residential units and would generate less population than under the Planning Initiative (refer to Table 6-1) but would increase office/retail development by approximately 176,000 square feet and add 516 employment opportunities to the town. Alternative 2 would accomplish all of the project objectives.

Alternative 3: Clustered Bollinger Canyon Development

Alternative 3 assumes that buildout would be the same as proposed under the Planning Initiative, except development within the Bollinger Canyon Study Area would be required to be clustered. The exact location of clustered development is not specified under Alternative 3, but development would likely cluster adjacent to existing residential development west of the Bollinger Canyon Study Area or near Bollinger Canyon Road. The purpose of Alternative 3 is to reduce impacts to biological resources, cultural resources, geology and soils, hydrology and water quality, tribal cultural resources, and utilities by minimizing ground disturbance and maximizing remaining contiguous open space within the Study Area. Buildout of Alternative 3 would result in the same number of residential units and level of population growth as under the Planning Initiative (refer to Table 6-1). Alternative 3 would accomplish all of the project objectives.

Refer to Section 6, *Alternatives*, for the complete alternatives analysis.

Areas of Known Controversy

The EIR scoping process did not identify any areas of known controversy for the Planning Initiative. Responses to the Notice of Preparation of a Draft EIR and input received at the EIR scoping meeting held by the Town are summarized in Section 1, *Introduction*.

Issues to be Resolved

There are no issues to be resolved at this time

Issues Not Studied in Detail in the EIR

The following issue areas are determined to have less-than-significant impacts due to the unique conditions of the Town of Moraga and thus are not analyzed in detail. Fuller descriptions of these areas can be found in Section 4.18, *Effects Found Not to be Significant*.

- Agricultural and Forestry Resources
- Mineral Resources
- Noise (airport-related)

Summary of Impacts and Mitigation Measures

Table ES-1 summarizes the environmental impacts of the Planning Initiative, proposed mitigation measures or implementation programs, and residual impacts (the impact after application of mitigation or implementation program, if required). Impacts are categorized as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per *CEQA Guidelines* Section 15093.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under *CEQA Guidelines* Section 15091.

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- **Less than Significant.** An impact that may be adverse but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact.** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures/Implementation Programs, and Residual Impacts

Impact	Mitigation Measures/Implementation Program	Residual Impact
Aesthetics		
<p>Impact AES-1. Implementation of the Housing Element would result in new development that could affect scenic vistas. However, strategic siting of Housing Opportunity Sites within urbanized areas of the town, along with compliance with the Town’s Design Guidelines, Municipal Code, and 2002 General Plan policies would ensure that development would not have a substantial adverse effect on scenic vistas. Impacts would be less than significant.</p>	None required	Less than significant
<p>Impact AES-2. Implementation of the Bollinger Canyon Rezoning would result in new development that could have adverse effects on scenic vistas. However, compliance with the Town’s Design Guidelines, Municipal Code, and 2002 General Plan policies would ensure that new development does not have a substantial adverse effect on scenic vistas. Impacts would be less than significant.</p>	None required	Less than significant
<p>Impact AES-3. Development facilitated by the Housing Element would not substantially degrade existing visual character or quality of public views through strategic siting within developed areas of the town and compliance with Moraga Municipal Code, applicable Design Guidelines, and 2002 General Plan goals and policies. Impacts would be less than significant.</p>	None required	Less than significant
<p>Impact AES-4. Development facilitated by the Bollinger Canyon Rezoning would not substantially degrade existing visual character or quality of public views of development sites due to the clustering of sites adjacent to existing residential development in the northwestern portion of the study</p>	None required	Less than significant

Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>area; the large minimum lot sizes in the central and northeastern portions of the study area; and the maintenance of open space in other portions of the study area, as well as through compliance with Moraga Municipal Code, applicable Design Guidelines, and 2002 General Plan goals and policies. Impacts would be less than significant.</p>		
<p>Impact AES-5. Development facilitated by Housing Element would introduce new sources of light and glare. With adherence to existing ordinances that regulate light and glare for new development, impacts would be less than significant.</p>	None required	Less than significant
<p>Impact AES-6. Development facilitated by the Bollinger Canyon Rezoning would introduce new sources of light and glare. Given the low-intensity of development and with adherence to existing ordinances that regulate light and glare for new development, impacts would be less than significant.</p>	None required	Less than significant
Air Quality		
<p>Impact AQ-1. The Housing Element would be consistent with BAAQMD's 2017 Clean Air Plan and impacts would be less than significant.</p>	None required	Less than significant
<p>Impact AQ-2. The Bollinger Canyon Rezone would not be consistent with BAAQMD's 2017 Clean Air Plan and impacts would be significant and unavoidable.</p>	No feasible mitigation measures identified	Significant and unavoidable
<p>Impact AQ-3. Construction of development facilitated by the Housing Element would result in the temporary generation of air pollutants, which would affect local air quality. Policies in the Moraga 2002 General Plan incorporate the BAAQMD Basic Construction Measures, which would reduce construction emissions. Impacts would be less than significant. Operation of the Housing Element would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard because the</p>	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Housing Element’s VMT per resident for the Town of Moraga would decrease from the baseline year to the buildout year. Impacts would be less than significant.</p>		
<p>Impact AQ-4. Construction of development facilitated by the Bollinger Canyon Rezoning would result in the temporary generation of air pollutants, which would affect local air quality. Policies in the Moraga 2002 General Plan incorporate the BAAQMD Basic Construction Measures, which would reduce construction emissions. Impacts would be less than significant. Operation of the Bollinger Canyon Rezoning would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than Significant</p>
<p>Impact AQ-5. Development facilitated by the Housing Element could potentially expose sensitive receivers to toxic air contaminants during construction. New sensitive receivers from the Housing Element could be exposed to Toxic air contaminants. However, the Housing Element would adhere to policies in the Moraga 2002 General Plan that would limit incompatible land uses in proximity to each other and minimize health risks from sources of TAC upon sensitive Receivers. Impacts would be less than significant with mitigation.</p>	<p>AQ-1 Construction Equipment Emission Control Measures Based on BAAQMD <i>CEQA Guidelines</i> (2017), construction-related TAC and PM impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors. Construction activity from the projects developed under the Housing Element or Bollinger Canyon Rezone that are within 1,000 feet of sensitive receptors; utilize more than three pieces of construction equipment simultaneously onsite; have a duration of construction longer than two months; and exclude Tier 4 construction equipment shall be required to prepare an HRA assessment. An HRA shall be conducted prior to the issuance of a permit to construct. The applicant would be required to have it prepared by a third party or if Town staff would be capable. The HRA would be reviewed by the Town in-house, or a contracted consultant. If the findings of the HRA assessment exceed BAAQMD health risk thresholds, then development projects under the Housing Element or Bollinger Canyon Rezone shall incorporate the following construction equipment emission control measures to the maximum extent feasible:</p> <ul style="list-style-type: none"> ▪ Implement diesel construction equipment meeting CARB Tier 4 emission standards for off-road heavy-duty diesel engines. If use of Tier 4 equipment is not feasible, diesel construction equipment meeting Tier 3 emission standards shall be used. Tier 3 equipment shall use a Level 3 diesel particulate filter. 	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<ul style="list-style-type: none"> ▪ Perform periodic site inspections during construction to verify compliance of Tier 4 or Tier 3 equipment. ▪ Use alternative fueled or catalyst equipped diesel construction equipment. ▪ Minimize idling time. ▪ Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use. ▪ Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). ▪ Curtail construction during periods of high-ambient-pollutant concentrations; this may include ceasing of construction activity during the peak-hour vehicular traffic on adjacent roadways. <p>Implement activity management (e.g., rescheduling activities to reduce short-term impacts).</p>	
<p>Impact AQ-6. Construction and operation TAC emission from the development facilitated by Bollinger Canyon Rezoning would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact AQ-7. Construction and operation of the development facilitated by the Housing Element would not result in substantial other emissions, such as odors and impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact AQ-8. Construction and operation of the development facilitated by the Bollinger Canyon Rezoning would not result in substantial other emissions, such as odors and impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Biological Resources</p>		
<p>Impact BIO-1. Implementation of the Housing Element may result in direct or indirect impacts to special-status plant species or their associated habitats including impacts to migratory bird nest sites. Impacts would be less than significant with mitigation.</p>	<p>BIO-1 Biological Resources Screening and Assessment For development projects facilitated by the Housing Element that would require vegetation trimming or removal, prior to consideration of the application, the project applicant shall hire a qualified biologist to perform a preliminary biological resources screening, for the Town’s review and approval, to determine whether the project has any potential to impact special status biological resources, inclusive of special status plants and animals, sensitive vegetation communities, jurisdictional waters (including creeks, drainages, streams, ponds, vernal pools, riparian areas and other wetlands), critical habitat, wildlife movement area, or biological resources protected under local or regional ordinances. If it is determined that the project has no potential to impact biological resources, no further action is required under this mitigation measure.</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>If the project would have the potential to impact biological resources, a qualified biologist shall conduct a project-specific biological analysis to document the existing biological resources within a project footprint plus a minimum buffer of 50 feet around the project footprint, as is feasible, and to determine the potential impacts to those resources, as approved by the Town. The project-specific biological analysis shall evaluate the potential for impacts to all biological resources including, but not limited to special status species, nesting birds, wildlife movement, sensitive plant communities, critical habitats, and other resources judged to be sensitive by local, State, and/or federal agencies. If the project would have the potential to impact these resources, additional measures may be required and recommendations developed to enhance wildlife movement (e.g., installation of wildlife friendly fencing), as applicable, to reduce impacts to less than significant levels. Pending the results of the project-specific biological analysis, Town review, design alterations, further technical studies (e.g., protocol surveys) and consultations with the USFWS, NMFS, CDFW, and/or other local, State, and federal agencies may be required.</p> <p>BIO-2 Pre-Construction Bird Surveys, Avoidance, and Notification</p> <p>For construction activities at development sites under the Housing Element initiated during the bird nesting season (February 1 – September 15) involving removal of vegetation or other nesting bird habitat, including abandoned structures and other man-made features, a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot and shall include a buffer around the construction site at a distance determined by a qualified biologist. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in California Bay Area communities (i.e., qualified biologist). If nests are found, an avoidance buffer shall be determined by a qualified biologist dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site. The buffer shall be demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to demarcate the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within the buffer until the biologist has confirmed that breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist on the basis that the encroachment will not be detrimental to an active nest. A report summarizing the pre-construction survey(s) shall be prepared by a qualified biologist and shall be</p>	

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>submitted to the Town prior to the commencement of construction activities.</p> <p>Future project site plans proposed at development sites shall include a statement acknowledging compliance with the federal MBTA and California Fish and Game Code that includes avoidance of active bird nests and identification of Best Management Practices to avoid impacts to active nests, including checking for nests prior to construction activities during February 1 to September 15 and what to do if an active nest is found so that the nest is not inadvertently impacted during grading or construction activities.</p> <p>BIO-3 Roosting Bat Surveys and Avoidance Prior to Removal</p> <p>Prior to tree or vacant structure removal, a qualified biologist shall conduct a focused survey of all trees and structures to be removed or impacted by construction activities to determine whether active roosts of special-status bats are present on site. Tree or structure removal shall be planned for either the spring or the fall and timed to ensure both suitable conditions for the detection of bats and adequate time for tree and/or structure removal to occur during seasonal periods of bat activity exclusive of the breeding season, as described below. Trees and/or structures containing suitable potential bat roost habitat features shall be clearly marked or identified. If no bat roosts are found, the results of the survey will be documented and submitted to the Town within 30 days of the survey, after which no further action will be required.</p> <p>If day roosts are present, the biologist shall prepare a site-specific roosting bat protection plan to be implemented by the contractor following the Town’s approval. The plan shall incorporate the following guidance as applicable:</p> <ul style="list-style-type: none">▪ When possible, removal of trees/structures identified as suitable roosting habitat shall be conducted during seasonal periods of bat activity (outside the breeding and hibernation periods), including the following:<ul style="list-style-type: none">a) Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs.b) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs.▪ If a tree/structure must be removed during the breeding season and is identified as potentially containing a colonial maternity roost, then a qualified biologist shall conduct acoustic emergence surveys or implement other appropriate methods to further evaluate if the roost is an active maternity roost. Under the biologist’s guidance, the contractor shall implement measures similar to or better than the following:	

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<ul style="list-style-type: none"> a) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure. b) If it is found that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the breeding season (April 15 to August 31). ▪ Tree removal procedures shall be implemented using a two-step tree removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on day one. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed to not return to the roost that night. The remainder of the tree is removed on day two. ▪ Prior to the demolition of vacant structures within the project site, a qualified biologist shall conduct a focused habitat assessment of all structures to be demolished. The habitat assessment shall be conducted enough in advance to ensure the commencement of building demolition can be scheduled during seasonal periods of bat activity (see above), if required. If no signs of day roosting activity are observed, no further actions will be required. If bats or signs of day roosting by bats are observed, a qualified biologist will prepare specific recommendations such as partial dismantling to cause bats to abandon the roost, or humane eviction, both to be conducted during seasonal periods of bat activity, if required. ▪ If the qualified biologist determines a roost is used by a large number of bats (large hibernaculum), bat boxes shall be installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultation with CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately. 	
<p>Impact BIO-2. Future development facilitated by the Bollinger Canyon Rezoning may result in direct or indirect impacts to special-status plant species or their associated habitats including impacts to migratory bird nest sites. Impacts would be less than significant with mitigation.</p>	<p>Mitigation measures BIO-1 through BIO-3 would be required.</p> <p>BIO-4 Alameda Whipsnake Pre-Construction Surveys and Impact Avoidance</p> <p>If required pursuant to Mitigation Measure BIO-1, and in areas determined by the Biological Resources Screening and Assessment as likely to contain suitable habitat for Alameda whipsnake near proposed work areas a qualified biologist shall conduct a focused pre-construction survey</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>within 14 days prior to initiation of construction activities within the Bollinger Canyon Study Area. The USFWS and CDFW will be notified should any Alameda whipsnake be observed within any site of future development. Additionally, the following mitigation measures will be implemented to reduce impacts to the Alameda whipsnake:</p> <ul style="list-style-type: none">▪ Prior to the start of construction, wildlife exclusion fencing (e.g., Animex or Ertec brand fencing) will be installed along the project footprint boundary. The location, extent, and specifications of the wildlife exclusion fencing will be identified by a qualified biologist and included on the final project plans. The fencing will remain in place throughout the duration of the construction activities and will be regularly inspected and fully maintained. Repairs to the fence will be made within 24 hours of discovery. Upon completion of construction activities, the fence will be completely removed; the area cleaned of debris and trash and returned to natural conditions.▪ Construction crew shall be trained during the WEAP training to check beneath the staged equipment each morning prior to commencement of daily construction activities. Should Alameda whipsnake occur within the staging areas, construction activities shall be halted until the Alameda whipsnake vacates the project site on its own and approval to begin again is provided by the USFWS and CDFW.▪ A qualified biologist shall be present during grading activities. Should Alameda whipsnake be observed within the project site, the USFWS and CDFW shall be notified, and construction shall be halted until the Alameda whipsnake exits the site and approval to begin again is provided by the USFWS and CDFW.▪ To prevent the entrapment of Alameda whipsnake and other wildlife, monofilament plastics shall not be used for erosion control.▪ All construction activities shall take place during daylight hours or with suitable light so that whipsnakes can be seen. Vehicle speeds on the construction site shall not exceed five miles per hour.▪ Site vegetation management shall take place prior to tree removal, grading, excavation, or other construction activities. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed. Areas shall be re-mowed if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period.	

Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact BIO-3. Implementation of the Housing Element may adversely impact riparian habitat, other sensitive natural communities, or protected wetlands. Implementation of federal, State, and local regulations and policies would reduce impacts to riparian habitat and wetlands. However, impacts could be significant and mitigation measures would be required.</p>	<p>BIO-5 Conduct Jurisdictional Delineation</p> <p>If required pursuant to Mitigation Measure BIO-1, and in areas determined by the Biological Resources Screening and Assessment as likely to impact waters, wetlands, or riparian habitat a jurisdictional delineation shall be required. A qualified biologist shall complete a jurisdictional delineation of all features within the project site. The jurisdictional delineation shall determine the extent of the jurisdictions for CDFW, USACE, and RWQCB, and shall be conducted in accordance with the requirement set forth by each agency. The result shall be a preliminary jurisdictional delineation report that shall be submitted to the implementing agency, USACE, RWQCB, and CDFW, as appropriate, for review and approval. Jurisdictional areas shall be avoided to the maximum extent possible. If jurisdictional areas are expected to be impacted, then the RWQCB would require a WDRs permit and/or WQC (depending upon whether the feature falls under federal jurisdiction). If CDFW asserts its jurisdictional authority, then a LSAA pursuant to Section 1600 et seq. of the CFGC would also be required prior to construction within the areas of CDFW jurisdiction. If the USACE asserts its authority, then a permit pursuant to Section 404 of the CWA would likely be required.</p> <p>BIO-6 Perform Restoration for Impacts to Waters and Wetlands</p> <p>If waters and/or wetlands cannot be avoided and will be impacted by construction, a compensatory mitigation program shall be implemented. Impacts to waters and wetlands shall be mitigated through one or more options to meet the required amount of mitigation as required based on direct impacts from project development under the mitigation ratios outlined below. Mitigation for impacts to waters and wetlands can be achieved through the acquisition and in-perpetuity management of similar habitat and/or through the in-lieu funding of such through an existing mitigation bank. Funding and management of internal mitigation areas can be managed internally. Funding and management of off-site mitigation lands shall be provided through purchase of credits from an existing, approved mitigation bank or land purchased by implementing entity and placed into a conservation easement or other covenant restricting development (e.g., deed restriction). Internal mitigation lands and/or in-lieu funding sufficient to acquire lands shall provide habitat at a minimum ratio of 1:1 for impacted lands, comparable to habitat to be impacted by individual project activity. Compensatory mitigation for sensitive vegetation communities can be combined with other compensatory mitigation (e.g., sensitive vegetation communities) as applicable. All temporary impacts to waters and wetlands shall be fully restored to natural condition.</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact BIO-4. Future development facilitated by the Bollinger Canyon Rezoning may adversely impact riparian habitat, other sensitive natural communities, or protected wetlands. Implementation of federal, State, and local regulations and policies would reduce impacts to riparian habitat and wetlands. However, impacts could be significant and mitigation measures would be required.</p>	<p>Mitigation Measures BIO-5 through BIO-6, described under Impact BIO-3, would be required.</p>	<p>Less than significant</p>
<p>Impact BIO-5. Implementation of the Housing Element would avoid impacts to wildlife movement corridors by conserving Open Space in the Town as directed by policies in the General Plan. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact BIO-6. Development facilitated by the Bollinger Canyon Rezoning may result in substantial impacts to wildlife movement through habitat modification during construction or due to density increases the area. Impacts would be significant and unavoidable.</p>	<p>BIO-7 Project Design for Wildlife Connectivity</p> <p>If required pursuant to Mitigation Measure BIO-1, and in areas determined by the Biological Resources Screening and Assessment in Bollinger Canyon that provide wildlife movement corridors, projects shall be designed to minimize impacts to wildlife as set forth below and determined by the Town. Fencing or other project components shall not block wildlife movement through riparian or other natural habitat. Where fencing or other project components that may disrupt wildlife movement is required for public safety concerns, they shall be designed to permit wildlife movement by incorporating design features that include one or more of the following, as required based on site-specific conditions:</p> <ul style="list-style-type: none"> ▪ A minimum 16 inches between the ground and the bottom of the fence to provide clearance for small animals. ▪ A minimum 12 inches between the top two wires, or top the fence with a wooden rail, mesh, or chain link instead of wire to prevent animals from becoming entangled. ▪ If privacy fencing is required near open space areas, openings at the bottom of the fence measure at least 16 inches in diameter shall be installed at reasonable intervals to allow wildlife movement, or the fence may be installed with the bottom at least 16 inches above the ground level. ▪ If fencing or other project components must be designed in such a manner that wildlife passage would not be permitted, wildlife crossing structures shall be incorporated into the project design as appropriate. ▪ Lighting installed as part of any project shall be designed to be minimally disruptive to wildlife. 	<p>Significant and unavoidable</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>BIO-8 Maintain Connectivity in Drainages</p> <p>No permanent structures that would impede wildlife movement shall be placed within any drainage or riverine feature in the Bollinger Canyon Study Area (i.e., no hardened caps or other structures in the stream channel perpendicular to stream flow that would be exposed or at moderate to high risk of exposure because of natural bed scour during high flow events, and thereby potentially create impediments to passage). In addition, upon completion of construction within any drainage or riverine feature, areas of stream channel and banks that are temporarily impacted shall be returned to pre-construction contours and in a condition that allows for unimpeded passage through the area. If water is to be diverted around work sites, a diversion plan shall be submitted to the Town for review and approval prior to issuance of project construction permits/approvals. The diversion shall be designed in such a way as to not impede movement while the diversion is in place.</p> <p>BIO-9 Construction Best Management Practices to Minimize Disruption to Wildlife</p> <p>The following construction BMPs shall be incorporated into all grading and construction plans in the Bollinger Canyon Study Area to minimize temporary disruption of wildlife:</p> <ul style="list-style-type: none"> ▪ A 20 mile per hour speed limit shall be designated in all construction areas. ▪ Daily construction work schedules shall be limited to daylight hours only. ▪ Mufflers shall be used on all construction equipment and vehicles shall be in good operating condition. ▪ All trash shall be placed in sealed containers and shall be removed from the project site a minimum of once per week. ▪ No pets shall be permitted on project site during construction. 	
<p>Impact BIO-7. Development facilitated by the Housing Element would be required to conform with applicable local policies protecting biological resources. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact BIO-8. Development facilitated by the Bollinger Canyon Rezoning would be required to conform with applicable local policies protecting biological resources. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact BIO-9. Implementation of the Housing Element would not conflict with an adopted HCP, NCCP, or other approved local, regional, or state</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>habitat conservation plan. No impact would occur.</p>		
<p>Impact BIO-10. Future development facilitated by the Bollinger Canyon Rezoning would not conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. No impact would occur.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Cultural Resources</p>		
<p>Impact CUL-1. Development facilitated by the Housing Element may result in the alteration or demolition of historical resources in the Plan Area. Proposed Implementation Programs in the Housing Element would reduce impacts to historical resources. Impacts would be less than significant.</p>	<p>Implementation Program CR-A: Historical and Archaeological Resources Survey. Retain a qualified cultural resource specialist to conduct a historical and archaeological resource survey prior to issuance of a grading permit in a previously undisturbed area. Mitigation may include but is not limited to avoidance of discovered cultural resources; relocation, rehabilitation, or alteration consistent with the Secretary of the Interior’s Standards for the Treatments of Historic Properties; and/or data recovery mitigation or documentation that offsets the loss of the resource.</p> <p>Implementation Program CR-B: Protect Potential Historic and Archaeological Resources. Retain a qualified cultural resource specialist to conduct site-specific analysis and implement feasible mitigation or avoidance for development that may impact a listed, eligible, or potentially eligible historic structure (older than 45 years) or resource or archaeological resource.</p> <p>Implementation Program CR-C: Construction Monitoring. Retain a qualified cultural resource specialist to monitor construction activities that involve ground-disturbing activities greater than 12 inches in depth and occur within 60 feet of a potentially significant cultural resource.</p> <p>Implementation Program CR-D: Unanticipated Discovery of Cultural Resources. Suspend all earth-disturbing work within 60 feet of identified cultural resources. Retain a qualified cultural resources specialist to design and implement feasible mitigation. Mitigation may include but is not limited to avoidance of discovered cultural resources, archaeological testing to determine California Register of Historical Resources eligibility, consultation with descendant communities, and/or implementation of a treatment plan to offset the loss of the resource.</p>	<p>Less than significant</p>
<p>Impact CUL-2. Development facilitated by the Bollinger Canyon Rezoning may result in the alteration or demolition of historical resources in the Plan Area. Proposed Implementation Programs would reduce impacts to historical resources. Impacts to historical resources would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact CUL-3. Development facilitated by the Housing Element would have the potential to impact archaeological resources in the Plan Area. With implementation of proposed Implementation Programs requiring surveys for and protection of archaeological resources, impacts would be less than significant</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact CUL-4. Development facilitated by the Bollinger Canyon Rezoning would have the potential to impact archaeological resources in the Study Area. With implementation of proposed implementation programs requiring surveys for and protection of archaeological resources, impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact CUL-5. Development facilitated by the Housing Element could result in damage to or destruction of human burials in the Plan Area. However, compliance with existing regulations on human remains would ensure less than significant impacts.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact CUL-6. Development facilitated by the Bollinger Canyon Rezoning could result in damage to or destruction of human burials in the Study Area. However, compliance with existing regulations on human remains would ensure less than significant impacts.</p>	<p>None required</p>	<p>Less than significant</p>
Energy		
<p>Impact ENG-1. Development facilitated by the Housing Element would not result in a significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact ENG-2. Development facilitated by the Bollinger Canyon Rezoning would not result in a significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
Impact ENG-3. The Housing Element would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.	None required	Less than significant
Impact ENG-4. Bollinger Canyon Rezoning would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.	None required	Less than significant
Geology and Soils		
Impact GEO-1. Development facilitated by the Housing Element would not be subject to rupture of a known earthquake fault. There would be no impact.	None required	No impact
Impact GEO-2. Development facilitated by the Bollinger Canyon Rezoning would not be subject to rupture of a known earthquake fault; therefore, there would be no impact.	None required	No impact
Impact GEO-3. Development facilitated by the Housing Element could be located in areas that would be exposed to seismic events, including ground shaking, liquefaction, and landslides. Compliance with the CBC and Safety Element policies would reduce ground shaking, liquefaction, and landslide hazards. However, with required adherence to existing policies and regulations that require geologic hazard investigations where warranted, control siting of development, and require safe construction practices, impacts would be less than significant.	None required	Less than significant
Impact GEO-4. Development facilitated by the Bollinger Canyon Rezoning could be located in areas that would be exposed to seismic events, including ground shaking, liquefaction, and landslides. Compliance with the CBC, Grading Ordinance, and Safety Element policies would reduce impacts related to ground shaking, liquefaction, and landslide hazards. However, with required adherence to existing policies and regulations that require geologic hazard investigations where warranted, control siting of	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
development, and require safe construction practices, impacts would be less than significant.		
Impact GEO-5. Development facilitated by the Housing Element would include ground disturbance such as excavation and grading that would result in loose or exposed soil. Disturbed soil could be eroded by wind or during a storm event, which would result in the loss of topsoil. Adherence to permit requirements, Town regulations, and General Plan policies would ensure that this impact would be less than significant.	None required	Less than significant
Impact GEO-6. Development facilitated by the Bollinger Canyon Rezoning would include ground disturbance such as excavation and grading that would result in loose or exposed soil. Disturbed soil could be eroded by wind or during a storm event, which would result in the loss of topsoil. Adherence to permit requirements, Town regulations, and General Plan policies would ensure that this impact would be less than significant.	None required	Less than significant
Impact GEO-7. Development facilitated by the Housing Element could be located on a geologic unit or soil that is unstable or could become unstable resulting in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Compliance with the CBC and Safety Element policies would reduce hazards resulting from expansive soils and impacts would be less than significant.	None required	Less than significant
Impact GEO-8. Development facilitated by the Bollinger Canyon Rezoning could be located on a geologic unit or soil that is unstable or could become unstable resulting in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Compliance with the CBC and Safety Element policies would reduce hazards resulting from expansive soils and impacts would be less than significant.	None required	Less than significant

Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact GEO-9. Development facilitated by the Housing Element would mostly occur on or near developed sites that would be served by existing sanitation infrastructure. New development is not anticipated to include the use of septic systems. Therefore, impacts related to the use of septic tanks or alternative wastewater disposal systems would be less than significant.</p>	None required	Less than significant
<p>Impact GEO-10. Development facilitated by the Bollinger Canyon Rezoning may use septic tanks or alternative wastewater disposal systems. General Plan policy would require new development to connect to a sewage system. However, if a sewer connection is demonstrated as not feasible, a competent technical expert must determine viability and safety of a septic system. By adhering to recommendations provided by a qualified technical expert regarding the use of onsite septic systems on a potential development site, Impacts related to the use of septic tanks or alternative wastewater disposal systems would be less than significant.</p>	None required	Less than significant
<p>Impact GEO-11. Development facilitated by the Housing Element has the potential to impact paleontological resources. Proposed Implementation Program PAL-A in the Housing Element would reduce impacts to paleontological resources. Impacts would be less than significant.</p>	<p>Implementation Program PAL-A: Paleontological Survey. Retain a qualified professional paleontologist to determine the project's potential to significantly impact paleontological resources. Mitigation may be required to reduce impacts to paleontological resources during ground disturbing activities.</p>	Less than significant
<p>Impact GEO-12. Development facilitated by the Bollinger Canyon Rezoning has the potential to impact paleontological resources. Proposed Implementation Program PAL-A would reduce impacts to paleontological resources. Impacts would be less than significant.</p>	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
Greenhouse Gas Emissions		
<p>Impact GHG-1. GHG emissions from development facilitated by the Housing Element would not exceed the BAAQMD interpolated 2031 project-level or plan-level thresholds. This impact would be less than significant.</p>	None required	Less than significant
<p>Impact GHG-2. GHG emissions from development facilitated by the Bollinger Canyon Rezoning would not exceed the BAAQMD interpolated 2031 project-level or plan-level thresholds. This impact would be less than significant.</p>	None required	Less than significant
<p>Impact GHG-3. The Housing Element would be consistent with GHG reduction goals contained in the CARB 2017 Scoping Plan, ABAG/MTC Plan Bay Area 2050, and Moraga 2002 General Plan. The Housing Element would not conflict with State policies or regulations. Impacts would be less than significant.</p>	None required	Less than significant
<p>Impact GHG-4. Development facilitated by the Bollinger Canyon Rezoning would not be consistent with GHG reduction goals contained in the CARB 2017 Scoping Plan, and Moraga 2002 General Plan. Development facilitated by the Bollinger Canyon Rezoning would conflict with the transportation policies in State and local plans by locating residents in a high VMT per capita area and far from transit services and alternative modes of transportation. Impacts would be Significant and Unavoidable.</p>	Mitigation Measure TRA-1	Significant and unavoidable
Hazards and Hazardous Materials		
<p>Impact HAZ-1. Development facilitated by the Housing Element could involve the use, storage, disposal, or transportation of hazardous materials. Upset or accident conditions in the Plan Area could involve the release of hazardous materials into the environment. Compliance with existing regulations and mitigation would ensure that impacts would be less than significant.</p>	<p>HAZ-1 Property Assessment – Phase I and II Environmental Site Assessment</p> <p>Prior to the start of construction (i.e., demolition or grading) of development at the Housing Opportunity Sites on or adjacent to the two open and active cleanup sites (Moraga Cleaners and Laundry [SWRCB No. T10000012913] and Rheem Valley Shopping Center [SWRCB No. T10000012758]), the project applicant shall retain a qualified environmental professional, as defined by ASTM International E-1527 to prepare a project area Phase I Environmental Site Assessment (ESA) in accordance with standard ASTM methodologies, to assess the land use history of the project site that will be affected. If either of the two sites have been closed on</p>	Less than significant

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>SWRCB’s GeoTracker, then this mitigation shall not be required.</p> <p>After the site-specific Phase I ESA has been completed, the determination of specific areas that require a Phase II ESA (i.e., soil, groundwater, soil vapor subsurface investigations) shall be evaluated by the project applicant. The Phase II ESA shall be completed prior to construction and shall be based on the results of the Phase I ESA. Specifically, if the Phase I ESA identifies recognized environmental conditions or potential concern areas, the project applicant shall retain a qualified environmental consultant, California Professional Geologist or California Professional Engineer, to prepare a Phase II ESA of the project site to determine whether the soil, groundwater, and/or soil vapor has been impacted at concentrations exceeding regulatory screening levels for commercial/industrial land uses.</p> <p>As part of the Phase II ESA, the qualified environmental consultant shall screen the analytical results against the San Francisco Regional Water Quality Control Board environmental screening levels (ESL). These ESLs are risk-based screening levels for direct exposure of a construction worker under various depth and land use scenarios. The lead agency shall review and approve the Phase I ESA prior to construction (i.e., demolition and grading).</p> <p>If the Phase II ESA for the development site indicates that contaminants are detected in the subsurface at the project site, the project applicant shall take appropriate steps to protect site workers and the public. This may include the preparation of a Soil Management Plan for Impacted Soils prior to project construction.</p> <p>If the Phase II ESA for the contaminant site indicates that contaminants are present at concentrations exceeding hazardous waste screening thresholds for contaminants in soil and/or groundwater (California Code of Regulations [CCR] Title 22, Section 66261.24 Characteristics of Toxicity), the project applicant shall take appropriate steps to protect site workers and the public. This may include the completion of remediation at the project prior to onsite construction.</p>	
<p>Impact HAZ-2. Development facilitated by the Bollinger Canyon Rezoning could involve the use, storage, disposal, or transportation of hazardous materials. Upset or accident conditions in the Bollinger Canyon Study Area could involve the release of hazardous materials into the environment. Compliance with existing regulations would ensure that impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact HAZ-3. Development facilitated by the Housing Element could result in the release of potentially hazardous materials within 0.25 mile of a school. However, compliance with regulations related to hazardous materials would minimize the risk of releases and exposure to these materials. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HAZ-4. Development facilitated by the Bollinger Canyon Rezoning could result in the release of potentially hazardous materials within 0.25 mile of a school. However, compliance with regulations related to hazardous materials would minimize the risk of releases and exposure to these materials. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HAZ-5. Development facilitated by the Housing Element would be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5. Compliance with applicable regulations and mitigation would minimize impacts from development on previously unknown contaminated sites. impacts would be less than significant with mitigation.</p>	<p>Mitigation Measure HAZ-1 would be required.</p>	<p>Less than significant</p>
<p>Impact HAZ-6. Development facilitated by the Bollinger Canyon Rezoning would not be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5. Compliance with applicable regulations would minimize impacts from development on previously unknown contaminated sites and impacts would be less than significant impact.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HAZ-7. The Housing Element Area is not located in an airport land use plan or in the vicinity of a private airstrip. No impacts related to safety hazard or excessive noise due to airports would occur.</p>	<p>None required</p>	<p>No impact</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
Impact HAZ-8. The Bollinger Canyon Study Area is not located in an airport land use plan or in the vicinity of a private airstrip. No impacts related to safety hazard or excessive noise due to airports would occur.	None required	No impact
Impact HAZ-9. Development facilitated by the Housing Element would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.	None required	Less than significant
Impact HAZ-10. Development facilitated by the Bollinger Canyon Rezoning would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.	None required	Less than significant
Hydrology		
Impact HYD-1. Development facilitated by the Housing Element would not violate water quality standards or Waste Discharge Requirements, or otherwise substantially degrade surface or groundwater quality. Individual development projects would be required to comply with best management practices in accordance with State and local regulations and permit requirements. Impacts would be less than significant.	None required	Less than significant
Impact HYD-2. Development facilitated by the Bollinger Canyon Rezoning would not violate water quality standards or Waste Discharge Requirements, or otherwise substantially degrade surface or groundwater quality. Individual development projects would be required to comply with best management practices in accordance with State and local regulations and permit requirements. Impacts would be less than significant.	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact HYD-3. Development facilitated by the Housing Element would not interfere substantially with groundwater supplies and recharge and the Planning Initiative would not impede sustainable groundwater management of local groundwater basins. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HYD-4. Development facilitated by the Bollinger Canyon Rezoning would not interfere substantially with groundwater supplies and recharge and the Planning Initiative would not impede sustainable groundwater management of local groundwater basins. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HYD-5. Development facilitated by the Housing Element may alter drainage patterns and increase runoff but would not result in substantial erosion or siltation on or off site, increased flooding on or off site, contribute increased runoff that would exceed the capacity of existing or planned stormwater systems, or contribute substantial additional sources of polluted runoff. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HYD-6. Development facilitated by the Bollinger Canyon Rezoning may alter drainage patterns and increase runoff on individual Housing Opportunity Sites but would not result in substantial erosion or siltation on or off site, increased flooding on or off site, contribute increased runoff that would exceed the capacity of existing or planned stormwater systems, or contribute substantial additional sources of polluted runoff. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact HYD-7. Development facilitated by the Housing Element could alter drainage patterns on or increase runoff. Development within an area at risk from inundation by flood hazard would be required to comply with applicable 2002 General Plan goals and policies to prevent impedance or redirection of flood</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
flows or release of pollutants due to project inundation. The Housing Opportunity Sites in areas at risk from post-wildfire flooding would be required to comply with applicable State, County, and Town regulations and policies to reduce impacts from redirection of post-fire flows. Impacts would be less than significant.		
Impact HYD-8. Development facilitated by the Bollinger Canyon Rezoning could alter drainage patterns on or increase runoff. However, no areas of the Bollinger Canyon Study Area are within a 100-year or 500-year floodplain. Nonetheless, development would be at risk from post-wildfire flooding and would be required to comply with applicable State, County, and Town regulations and 2002 General Plan policies to reduce impacts from redirection of post-fire flows. Impacts would be less than significant.	None required	Less than significant
Impact HYD-9. Development facilitated by the Housing element would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Compliance with the basin plan would be a requirement of all development facilitated by the Planning Initiative. Impacts would be less than significant.	None required	Less than significant
Impact HYD-10. Development facilitated by the Bollinger Canyon Rezoning would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Compliance with the basin plan would be a requirement of all development facilitated by the Bollinger Canyon Rezoning. Impacts would be less than significant.	None required	Less than significant
Land Use and Planning		
Impact LU-1. Implementation of the Housing Element would continue orderly development in the Plan Area and would not physically divide an established community. Impacts would be less than significant.	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact LU-2. Development facilitated by the Bollinger Canyon Rezoning would continue orderly development in the Plan Area and would not physically divide an established community. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact LU-3. The Housing Element would not result in a significant environmental impact due to a conflict with Plan Bay Area 2050 or the Moraga 2002 General Plan. This impact would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact LU-4. Development facilitated by the Bollinger Canyon Rezoning would not result in a significant environmental impact due to a conflict with Plan Bay Area 2050 or the Moraga 2002 General Plan. Therefore, this impact would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Noise</p>		
<p>Impact NOI-1. Construction of individual projects facilitated by the Housing Element would temporarily increase noise levels, potentially affecting nearby noise-sensitive land uses. provisions in the Moraga Municipal Code would limit construction noise disturbance to the extent feasible. However, construction noise may still exceed noise standards and impacts would be significant and unavoidable.</p>	<p>NOI-1 Construction Noise Reduction Measures The Town shall include the following measures to minimize exposure to construction noise as standard conditions of approval:</p> <ol style="list-style-type: none"> 1. Mufflers. During excavation and grading construction phases, construction equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers consistent with manufacturers' standards. 2. Stationary Equipment. Stationary construction equipment shall be placed so that emitted noise is directed away from the nearest sensitive receivers. 3. Equipment Staging Areas. Equipment staging shall be located in areas that will create the greatest distance feasible between construction-related noise sources and noise-sensitive receivers. 4. Smart Back-up Alarms. Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction. 5. Signage. For the duration of construction, the applicant or contractor shall post a sign in a construction zone that includes contact information for individuals who desire to file a noise complaint. 6. Temporary Noise Barriers. Where necessary to meet the FTA criterion of 80 dBA $L_{eq}(8 Hr)$ for daytime construction affecting residential uses, erect temporary noise barriers at a height of 12 feet minimum to block the line-of-sight between 	<p>Significant and unavoidable</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>construction equipment and receptors. Barriers shall be constructed with a solid material that has a density of at least 1.5 pounds per square foot with no gaps from the ground to the top of the barrier.</p> <p>The Town shall confirm that these measures are implemented during construction by monitoring the project at least once per month.</p>	
<p>Impact NOI-2. Construction of development facilitated by the Bollinger Canyon Rezoning would temporarily increase noise levels but would not affect noise-sensitive land uses. Further, provisions in the Moraga Municipal Code would limit construction noise disturbance to the extent feasible. Construction would not exceed noise standards and impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact NOI-3. Development facilitated by the Housing Element would introduce new operational noise sources. Stationary operational noise levels would be reduced with mitigation and impacts would be less than significant. Impacts from operational traffic noise levels would be significant and unavoidable.</p>	<p>Mitigation Measure TRA-1 would be required</p>	<p>Significant and unavoidable</p>
<p>Impact NOI-4. Development facilitated by the Bollinger Canyon Rezoning would introduce new Operational noise sources but the increase of noise levels would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact NOI-5. Development facilitated by the Housing Element could temporarily generate groundborne vibration during construction, potentially affecting nearby land uses. Construction vibration from pile drivers may disturb people or damage buildings. However, impacts would be less than significant with mitigation.</p>	<p>NOI-2 Vibration Control Plan</p> <p>Prior to issuance of a building permit for a project requiring pile driving during construction within 135 feet of fragile structures such as historical resources, 100 feet of non-engineered timber and masonry buildings (e.g., most residential buildings), or within 75 feet of engineered concrete and masonry (no plaster); a vibratory roller within 25 feet of any structure; or a dozer or other heavy earthmoving equipment within 15 feet of any structure, the project applicant shall prepare a vibration analysis to assess and mitigate potential vibration impacts related to these activities. This vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer. The vibration levels shall not exceed FTA architectural damage thresholds (e.g., 0.12 in/sec PPV for fragile or historical resources, 0.2 in/sec PPV for non-engineered timber and masonry buildings, and 0.3 in/sec PPV for engineered concrete and masonry). If vibration levels would exceed this threshold, alternative uses such as drilling piles as opposed to pile driving, static rollers as opposed to vibratory rollers, and lower</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>horsepower dozers shall be used. If necessary, construction vibration monitoring shall be conducted to ensure vibration thresholds are not exceeded.</p> <p>Where vibration monitoring is determined to be necessary, a pre-construction baseline survey shall be conducted at buildings and structures within the screening distances by a licensed structural engineer. The condition of existing potentially affected properties shall be documented by photos and description of existing condition of building facades, noting existing cracks. A vibration monitoring and construction contingency plan shall be developed to identify where monitoring would be conducted, set up a vibration monitoring schedule, and define structure-specific vibration limits. Construction contingencies would be identified for when vibration levels approach the limits. If vibration levels approach limits, the contractor shall suspend construction and implement contingencies to either lower vibration levels or secure the affected structure.</p> <p>Where historic structures are involved, the engineer shall provide a shoring design or other methods to protect such buildings and structures from potential damage. At the conclusion of vibration causing activities, the qualified structural engineer hired by the applicant shall issue a follow-up letter describing damage, if any, to impacted buildings. The letter shall include recommendations for repair, as may be necessary, in conformance with the Secretary of the Interior Standards. Repairs shall be undertaken and completed by the contractor and monitored by a qualified structural engineer in conformance with all applicable codes including the California Historical Building Code (Part 8 of Title 24).</p> <p>A Statement of Compliance signed by the applicant and owner is required to be submitted to the Contra Costa County Building Department at plan check and prior to the issuance of any permit. The Vibration Control Plan, prepared as outlined above, shall be documented by a qualified structural engineer, and shall be provided to the Town upon request. A Preservation Director shall be designated, and this person's contact information shall be posted in a location near the project site that it is clearly visible to the nearby receptors most likely to be disturbed. The Director would manage complaints and concerns resulting from activities that cause vibrations. The severity of the vibration concern should be assessed by the Director, and if necessary, evaluated by a qualified noise and vibration control consultant.</p>	
<p>Impact NOI-6. Development facilitated by the Bollinger Canyon Rezoning could temporarily generate groundborne vibration during construction, but vibration would be below distinctly perceptible vibration levels for humans and structures.</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
Impacts would be less than significant.		
Population and Housing		
<p>Impact POP-1. Development facilitated by the Housing Element could accommodate an additional 5,067 new residents and 1,770 new housing units in the Town. This would exceed Plan Bay Area 2040 population and housing forecasts but would be consistent with the Town's RHNA allocation. ABAG's next Plan Bay Area would incorporate the Housing Element Update, and therefore, resulting growth would be anticipated and would not result in unplanned population growth. Impacts would be less than significant.</p>	None required	Less than significant
<p>Impact POP-2. Development facilitated by the Bollinger Canyon Rezoning could accommodate an additional 135 new residents and 51 new housing units in the Town. When considered in conjunction with the increase in population and housing units facilitated by the Housing Element Update, this would exceed Plan Bay Area 2040 population and housing forecasts. ABAG's next Plan Bay Area would incorporate growth projected by the Housing element and Development facilitated by the Bollinger Canyon Rezoning, and therefore, resulting growth would be anticipated and would not result in unplanned population growth. Therefore, impacts would be less than significant.</p>	None required	Less than significant
<p>Impact POP-3. Development facilitated by the Housing Element would not result in the displacement of a substantial number of existing people or housing units to accommodate the planned increase in development intensity since the proposed rezoning of properties would allow for an overall increase in housing units as compared to existing conditions. Impacts would be less than significant.</p>	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact POP-4. Development facilitated by the Bollinger Canyon Rezoning would not result in the displacement of a substantial number of existing housing units to accommodate the planned increase in development intensity since the proposed rezoning of the area would allow for an overall increase in housing units as compared to existing conditions. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Public Services and Recreation</p>		
<p>Impact PS-1. Development facilitated by the Housing Element would increase the population in the town, which would increase demand for fire protection services. However, this increase would not require additional and/or expanded fire protection facilities. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact PS-2. Development facilitated by the Bollinger Canyon Rezoning would increase the population in the Study Area, which would increase demand for fire protection services. However, this increase would not require additional and/or expanded fire protection facilities. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact PS-3. Development facilitated by the Housing Element would increase the population in the town, which would increase demand for police protection services. However, this increase would not require additional and/or expanded police protection facilities. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact PS-4. Development facilitated by the Bollinger Canyon Rezoning would increase the population in the Study Area, which would increase demand for police protection services. However, this increase would not require additional and/or expanded police protection facilities. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact PS-5. Development facilitated by the Housing Element would increase the population in the planning area, which could result in the need for additional and/or expanded school facilities. However, Government Code 65995 (b) would require funding for the provision or expansion of new school facilities to offset impacts from the Housing Element. Therefore, this impact would be less than significant.</p>	None required	Less than significant
<p>Impact PS-6. Development facilitated by the Bollinger Canyon Rezoning would increase the population in the Study Area, which could result in the need for additional and/or expanded school facilities. However, Government Code 65995 (b) would require funding for the provision or expansion of new school facilities to offset impacts from the Bollinger Canyon Rezoning. Therefore, this impact would be less than significant.</p>	None required	Less than significant
<p>Impact PS-7. Development facilitated by the Housing Element would increase the population in the town, which would increase demand for parks and recreation services. However, the Town would not exceed its threshold of three acres of parkland per 1,000 residents. Therefore, this impact would be less than significant.</p>	None required	Less than significant
<p>Impact PS-8. Development facilitated by the Bollinger Canyon Rezoning would increase the population in the Study Area, which would increase demand for parks and recreation services. However, the Town would not exceed its threshold of three acres of parkland per 1,000 residents. Therefore, this impact would be less than significant.</p>	None Required	Less than significant
<p>Impact PS-9. Development facilitated by the Housing Element would increase the population in the town which would increase demand for the use of public facilities such as libraries. However, any future plans to expand public facilities such as the Moraga Library would be subject to environmental review under CEQA and given that the Moraga Library is on an infill site expansion is unlikely</p>	None required	Less than significant

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>to result in significant impacts. Therefore, this impact would be less than significant.</p>		
<p>Impact PS-10. Development facilitated by the Bollinger Canyon Rezoning would increase the population in the town, which would increase demand for the use of public facilities such as libraries, possibly resulting in the need for additional open hours and staffing and the expansion of the Moraga Library. However, any future plans to expand the Moraga Library would be subject to environmental review under CEQA and given that the Moraga Library is on an infill site expansion is unlikely to result in significant impacts. Therefore, this impact would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
Transportation		
<p>Impact TRA-1. The Housing Element would not conflict with an applicable program, plan, ordinance, or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, Roadway, bicycle, and pedestrian facilities. This impact would be less than significant impact.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact TRA-2. Development facilitated by the Bollinger Canyon Rezoning would not conflict with an applicable program, plan, ordinance, or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This impact would be less than significant impact.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact TRA-3. The Housing Element would generate home-based VMT per resident that is greater than 85 percent of the countywide average home-based VMT per resident. Impacts would be significant and unavoidable.</p>	<p>TRA-1 Implement VMT Reduction Measures Individual housing project development proposals that do not screen out from VMT impact analysis shall provide a quantitative VMT analysis using the methods applied in this EIR, with modifications if appropriate based on future changes the Town of Moraga practices and CCTA VMT analysis methodology guidelines. Projects which result in a significant impact shall include measures to reduce VMT. These shall include travel demand management measures and physical measures to reduce VMT, including but not limited to the measures below, which have been identified as potentially VMT reducing in the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission</p>	<p>Significant and unavoidable</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (December 2021). Potential VMT reduction estimates are included below, but detailed requirements, calculation steps, and limitations are described in the CAPCOA Handbook. In addition, application of one or more transportation demand measures (TDM) is generally expected to result in a net VMT reduction of 10 percent or less for development projects in suburban settings such as Moraga.</p> <ul style="list-style-type: none"> ▪ Unbundle parking costs (i.e., sell or lease parking separately from the housing unit). Effectiveness: up to 15.7 percent reduction in GHG from VMT per the CAPCOA Handbook. ▪ Provide car-sharing, bike sharing, or scooter sharing programs. Effectiveness: 0.15 – 0.18 percent reduction in GHG from VMT for car share, 0.02 – 0.06 percent for bike share, and 0.07 percent for scooter share, per the CAPCOA Handbook. The higher car share and bike share values are for electric car and bike share programs. Note that these effectiveness rates are based on available research and analysis prepared by CAPCOA. ▪ Subsidize transit passes for residents of affordable housing. Effectiveness: up to 5.5 percent reduction in GHG from VMT per the CAPCOA Handbook. <p>In addition to the on-site measures noted above, individual housing projects that are above the VMT threshold could potentially contribute to future VMT mitigation fee programs, banks, or exchanges. No regional VMT mitigation programs currently exist; however, the CCTA is currently evaluating different mitigation program frameworks which may lead to a countywide or sub-regional VMT mitigation program. Should such a program be implemented, development projects could potentially pay into a fee program or purchase mitigation credits to achieve needed VMT mitigation instead of, or in addition to, onsite TDM measures.</p>	
<p>Impact TRA-4. Development facilitated by the Bollinger Canyon Rezoning would generate home-based VMT per resident that is greater than 85 percent of the countywide average home-based VMT per resident. Impacts would be significant and unavoidable.</p>	<p>Mitigation Measure TRA-1 would be required</p>	<p>Significant and unavoidable</p>
<p>Impact TRA-5. The Housing Element would not result in designs for on-site circulation, access, and parking areas that fail to meet Town or industry standard design guidelines. Impacts would be less than significant</p>	<p>None required</p>	<p>Less than significant</p>

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Impact	Mitigation Measures/Implementation Program	Residual Impact
<p>Impact TRA-6. Development facilitated by the Bollinger Canyon Rezoning would not result in designs for on-site circulation, access, and parking areas that fail to meet Town or industry standard design guidelines. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact TRA-7. The Housing Element would not result in inadequate emergency access to development sites. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact TRA-8. Development facilitated by the Bollinger Canyon Rezoning would not result in inadequate emergency access to development sites. Impacts would be less than significant.</p>	<p>None required</p>	<p>Less than significant</p>
<p>Tribal Cultural Resources</p>		
<p>Impact TCR-1. Development facilitated by the Housing Element in the Moraga Center and Rheem Park areas may involve grading and excavation during construction, which has the potential to uncover previously unidentified tribal cultural resources. Implementation of proposed Implementation Programs in the Housing Element would reduce impacts to tribal cultural resources to a less than significant level.</p>	<p>Implementation Programs CR-A through CR-C, and Implementation Program TCR-A: Suspension of Work Around Tribal Cultural Resources. Suspend all earth-disturbing work within 60 feet of identified cultural resources of Native American origin. Retain a qualified cultural resource specialist and consult with an appropriate Native American representative to design and implement feasible mitigation.</p> <p>Implementation Program TCR-B: Tribal Cultural Resource Treatment Plan. Retain a qualified cultural resource specialist, in consultation with appropriate Native American representative, to design a tribal cultural resource treatment plan in the event an unanticipated archaeological resource that may be considered a tribal cultural resource is identified during construction.</p>	<p>Less than significant</p>
<p>Impact TCR-2 Development facilitated by the Bollinger Canyon Rezoning may involve grading and excavation during construction, which has the potential to impact previously unidentified tribal cultural resources. Proposed Implementation Programs would reduce impacts to a less than significant level.</p>	<p>Implementation Programs CR-A through CR-C and TCR-A and TCR-B would be required</p>	<p>Less than significant</p>
<p>Utilities and Service Systems</p>		
<p>Impact UTIL-1. Development facilitated by the Housing Element would increase demand for water, wastewater treatment, storm water drainage, electric power, natural gas, and telecommunications. However, existing utility systems would have capacity to serve the project.</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
Relocation or construction of new or expanded facilities resulting in significant environmental impacts would not occur, and adequate water supply and wastewater capacity exists to serve the project's demand. Impacts would be less than significant.		
Impact UTIL-2. Development facilitated by the Bollinger Canyon rezoning would increase demand for wastewater treatment, storm water drainage, electric power, natural gas, and telecommunications. In addition, the Bollinger Canyon Study area is not currently served by utility providers, and new infrastructure would need to be extended in previously undeveloped areas to accommodate the development facilitated by the Bollinger Canyon Rezoning. Even with implementation of mitigation measures, impacts would be significant and unavoidable.	Mitigation Measures BIO-1 through BIO-9 Implementation Programs CR-A through CR-D Implementation Program PAL-A and Implementation Programs TCR-A and TCR-B would be required	Significant and unavoidable
Impact UTIL-3. Development facilitated by the Housing Element would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure. The Housing Element would not impair the attainment of solid waste reduction goals and development facilitated by the project would comply with federal, State, and local statutes and regulations related to solid waste. Impacts would be less than significant.	None required	Less than significant
Impact UTIL-4. Development facilitated by the Bollinger Canyon Rezoning would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure. The Bollinger Canyon Rezoning would not impair the attainment of solid waste reduction goals and development facilitated by the Bollinger Canyon Rezoning would comply with federal, State, and local statutes and regulations related to solid waste. Impacts would be less than significant.	None required	Less than significant

Impact	Mitigation Measures/Implementation Program	Residual Impact
Wildfire		
<p>Impact WFR-1. Development facilitated by the Housing Element would be in and near an SRA or Very High FHSZs. Compliance with applicable State and local regulations relating to evacuation would reduce the extent to which the project would impair emergency response and evacuation. Nonetheless, this impact would be significant and unavoidable.</p>	<p>WFR-1 Develop Wildfire Assessment Plan and Guidelines</p> <p>The Town shall require a Wildfire Assessment Plan and Guidelines prior to approval of projects where deemed necessary to protect public safety. The Plan and Guidelines shall be developed for the project site, approved by MOFD, and shall address but shall not be limited to the following:</p> <ul style="list-style-type: none"> ▪ Well-maintained, fire district approved landscape and vegetation management plan. ▪ Adequate roadway and driveway widths, designed to accommodate two-way traffic and large firefighting apparatus. ▪ Adequate water supply and water flow for firefighting efforts. ▪ Vegetation modification zones surrounding the community. ▪ Buildings are built to current Building Code standards, ignition-resistant eaves, ember resistant construction, defensible space, residential fire sprinklers, a Class A ignition-resistant roof, dual pane (one being tempered) glass windows, and chimneys with spark arrestors containing a minimum of 0.5-inch screen. 	<p>Significant and unavoidable</p>
<p>Impact WFR-2. Development facilitated by the Bollinger Canyon Rezoning would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Compliance with applicable State and local regulations relating to evacuation would reduce the extent to which the project would impair emergency response and evacuation. Nonetheless, this impact would be significant and unavoidable.</p>	<p>Mitigation Measure WFR-1 would be required</p>	<p>Significant and unavoidable</p>
<p>Impact WFR-3. Development facilitated by the Housing Element would expose project occupants and structures to wildfire risks for sites located in or near Very High FHSZs. Wildfire risk would be significant and unavoidable.</p>	<p>WFR-2 Construction Wildfire Risk reduction</p> <p>The Town of Moraga shall require the following measures during project construction:</p> <ol style="list-style-type: none"> 1. Construction activities with potential to ignite wildfires shall be prohibited during red-flag warnings issued by the National Weather Service for the site. Example activities include welding and grinding outside of enclosed buildings. 2. Portable pumps shall be available onsite during project construction. Portable pumps shall be maintained to function according to manufacturer specifications. Construction personnel shall receive training on the proper methods of using a fire extinguisher. 3. Construction equipment powered by internal combustion engines shall be equipped with spark arresters. The spark arresters shall be maintained 	<p>Significant and unavoidable</p>

Impact	Mitigation Measures/Implementation Program	Residual Impact
	<p>pursuant to manufacturer recommendations to ensure adequate performance.</p> <p>At the Town’s discretion, additional wildfire risk reduction requirements may be required during construction. The Town shall review and approve the project-specific methods to be employed prior to building permit approval.</p> <p>WFR-3 Project Design Wildfire Risk Reduction</p> <p>Project landscape plans shall include fire-resistant vegetation native to Contra Costa County and/or the local microclimate of the site and prohibit the use of fire-prone species, especially non-native, invasive species.</p>	
<p>Impact WFR-4. The Bollinger Canyon Study Area is located near a Very High FHSZ. Development facilitated by the Bollinger Canyon Rezoning would expose project occupants and structures to wildfire risks. Wildfire risk would be significant and unavoidable.</p>	<p>Mitigation Measures WFR-2 and WFR-3 would be required</p>	<p>Significant and unavoidable</p>

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1 Introduction

This document is a Program Environmental Impact Report (EIR) that analyzes the Town of Moraga's (Town) proposed Comprehensive Advanced Planning Initiative (hereafter also referred to as "Planning Initiative"). The Planning Initiative includes the adoption of the Town's 6th cycle Housing Element Update; amendments to the Land Use, Community Design, Public Safety, Open Space, Circulation, Growth Management and Conservation Elements of the Moraga 2002 General Plan; and rezoning of key sites within the Town's jurisdiction including the Moraga Center area, Rheem Park area and, and Bollinger Canyon Study Area.

This section discusses (1) the project and EIR background; (2) the legal basis for preparing an EIR; (3) the scope and content of the EIR; (4) issue areas found not to be significant; (5) the lead, responsible, and trustee agencies; and (6) the environmental review process required under the California Environmental Quality Act (CEQA). The Planning Initiative is described in detail in Section 2.0, *Project Description*.

1.1 Environmental Impact Report Background

This document is a Program EIR. *CEQA Guidelines* Section 15168(a) states that:

A Program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in a chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria, to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

As a programmatic document, this EIR presents a town wide assessment of the impacts of the Planning Initiative. Analysis of site-specific impacts of individual projects is not required in a Program EIR, unless components of the program are known in sufficient detail. Specific projects are not currently defined to the level that would allow for such an analysis, and therefore specific analysis may be required at time of project application. Individual specific environmental analysis and additional studies of each project will be performed as necessary by the Town prior to each project being considered for approval. This Program EIR serves as a first-tier CEQA environmental document supporting second-tier environmental documents, if required, for development facilitated by the Planning Initiative.

Project applicants implementing subsequent projects may be required by the Town to undertake future environmental review depending on the results of the analysis in this Program EIR and requirements of the mitigation measures. If project applicants are required to prepare subsequent environmental documents, they may reference the appropriate information from this Program EIR regarding secondary effects, cumulative impacts, broad alternatives and other relevant factors. If the Town finds that implementation of a later activity would have no new effects and that no new mitigation measures would be required, that activity would require no additional CEQA review and a consistency finding would be prepared. Where subsequent environmental review is required, such review would focus on significant effects specific to the project, or its site, that have not been considered in this Program EIR (*CEQA Guidelines* Section 15168).

CEQA Guidelines Section 15151 provides the following standards related to the adequacy of an EIR:

“An Environmental Impact Report should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to decide which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have looked not for perfection; but for adequacy, completeness, and a good faith effort at full disclosure.”

CEQA Guidelines Section 15146 provides the following additional standards related to the degree of specificity of an EIR:

“The degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR.

- (a) An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy.
- (b) An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption, or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow.”

1.1.1 Streamlining Under *CEQA Guidelines* 15183

“*CEQA* mandates that projects that are consistent with the development density established by existing zoning, community plan, or general plan policies for which an EIR was certified shall not require additional environmental review, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site.” (*CEQA Guidelines* 15183). This streamlines the review of such projects and reduces the need to prepare repetitive environmental studies. Projects may be eligible for this process if the project is consistent with the existing zoning, community plan or general plan policies for which an EIR was certified. Examination of environmental effects shall be limited to those peculiar to the project or its site; environmental effects not analyzed in a prior EIR for which the project is consistent; potentially significant off-site and/or cumulative impacts which the EIR failed to evaluate; and previously identified significant effects where substantial new information demonstrates more severe impacts than anticipated by the EIR.

The intent of this Program EIR is to enable development facilitated by the project to use *CEQA Guidelines* Section 15183 to streamline future *CEQA* compliance. Projects that meet the requirements of Section 15183 would require no additional *CEQA* review, but applicants would be responsible for implementing applicable mitigation measures, including site-specific environmental studies. The recommended mitigation measures, once adopted by the Town Council, will be implemented on a project-specific basis as part of the entitlement or building permit application process.

1.1.2 Other Tiering Opportunities

For other types of projects proposed to be carried out or approved by a lead agency within the Town, the lead agency may use this Program EIR for the purposes of other allowed CEQA tiering (PRC Sections 21068.5, 21093-21094, *CEQA Guidelines* 15152, 15385). Tiering is the process by which general matters and environmental effects in an EIR prepared for a policy, plan, program, or ordinance are relied upon by a narrower second-tier or site-specific EIR (PRC Section 21068.5). Moreover, by tiering from this Program EIR (once certified by the Town Council), a later tiered EIR would not be required to examine effects that (1) were mitigated or avoided in this EIR, or (2) were examined at a sufficient level of detail in this Program EIR to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project (PRC Section 21094).

1.2 Purpose and Legal Authority

The proposed Planning Initiative requires the discretionary approval of the Moraga Town Council; therefore, the project is subject to the environmental review requirements of CEQA. In accordance with *CEQA Guidelines* Section 15121 (California Code of Regulations, Title 14), the purpose of this EIR is to serve as an informational document that:

“...will inform public agency decision makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.”

This EIR is to serve as an informational document for the public and Town of Moraga decision makers. The process will include public hearings before the Planning Commission and Town Council to consider certification of a Final EIR and approval of the Planning Initiative.

1.3 Public Review and Participation Process

The Town of Moraga distributed a Notice of Preparation (NOP) of the EIR for a 30-day agency and public review period starting on February 3, 2022 and ending on March 7, 2022. In addition, the Town held an EIR Scoping Meeting on February 16, 2022. The meeting, held from 6:00 PM to 6:30 PM, was aimed at providing information about the Planning Initiative to members of public agencies, interested stakeholders and residents/community members. Due to the COVID-19 pandemic, the virtual meeting was held through an online meeting platform and a call-in number. The Town received letters from agencies in response to the NOP during the public review period and one letter from the general public. The NOP is presented in Appendix A of this EIR, along with the NOP responses received. Table 1-1 on the following page summarizes the content of the letters and verbal comments and where the issues raised are addressed in the EIR.

Table 1-1 NOP Comments and EIR Response

Committer	Comment/Request	How and Where It Was Addressed
Agency Comments		
<p>California Department of Transportation (Caltrans)</p>	<p>Requests that a travel demand analysis be prepared, and that the Caltrans' Transportation Impact Study Guide be reviewed.</p> <hr/> <p>Requests that the Town determine that the Comprehensive Advanced Planning Initiative is consistent with California Government Code Section 65088-65089.10 Congestion Management.</p> <hr/> <p>Requests that the Town gain determination of conformity from the Contra Costa Transportation Authority to determine that the Town of Moraga's Comprehensive Advanced Planning Initiative is consistent with and conforms to the Regional Transportation Plan Consistency Requirements of the County's Congestion Management Plan</p> <hr/> <p>Encourages sufficient allocation of fair share contributions toward multimodal and regional transit improvements to fully mitigate cumulative impacts to regional transportation.</p> <hr/> <p>States the if Caltrans facilities are impacted by the project, then those facilities must meet American Disabilities Act Standards after project completion. The project must maintain bicycle and pedestrian access during construction</p>	<p>These topics are addressed in Section 4.14, <i>Transportation</i>.</p>
<p>East Bay Municipal Utility District (EBMUD)</p>	<p>States that portions of the Comprehensive Advanced Planning Initiative area are located outside the EBMUD current service area and would need to be annexed into EMBUD's current service prior to receiving water service from EMBUD.</p> <hr/> <p>Notes that all new multi-unit structures shall be individually metered or sub-metered in compliance with California State Senate Bill 7 (SB 7) and EMBUD water services shall be conditions for all development projects within the Housing Element Update that are subject to SB 7. These development projects would only be released after the project sponsor has satisfied all requirements and provided evidence of conformance with SB 7.</p>	<p>This is a comment on the project and not on the scope of the EIR. Issues related to annexation into EBMUD service area are addressed in Section 4.16, <i>Utilities and Service Systems</i>.</p>

Commenter	Comment/Request	How and Where It Was Addressed
	States that project sponsors for individual projects within the Comprehensive Advanced Planning Initiative would be required to contact EMBUD's New Business Office to request a water service estimate for the proposed development.	
	Requests that project sponsors for individual projects must submit copies to EBMUD of all known information regarding soil and groundwater quality within or adjacent to the project boundary and a legally sufficient, complete, and specific written remediation plan for the removal, treatment, and disposal of contaminated soil and groundwater if evidence of contamination is discovered. No design piping or services would be provided until the contamination is adequately characterized and remediate to EMBUD standards.	This is a comment on the project and not on the scope of the EIR. Contaminated soil and groundwater issues are addressed in Section 4.8, <i>Hazards and Hazardous Materials</i> .
	Requests that the Town include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325 "Model Water Efficient Landscape Ordinance (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495) to conserve water.	This is a comment on the project and not on the scope of the EIR. Water conservation is addressed in Section 4.16, <i>Utilities and Service Systems</i> .
Native American Heritage Commission (NAHC)	States that the proposed project is subject to the requirements and provisions under Assembly Bill (AB 52) and State Bill 18 for tribal cultural resources.	Consultation required by AB 52 and SB 18 was carried out by the Town of Moraga. Subsequent issues are discussed in Section 4.4, <i>Cultural Resources</i> , and Section 4.15, <i>Tribal Cultural Resources</i> , of this EIR.
Public Comments		
David R. Bruzzone	States that changing the fire trails on Saint Mary's Road, Driftwood Drive, Joseph Drive, Valley Hill Drive, Cattle Chute Road, Hunsaker Canyon Road into actual roads would increase fire safety.	This is a comment on the project and not on the scope of the EIR. Impacts related to traffic and wildfire are addressed in Section 4.14, <i>Transportation</i> and Section 4.17, <i>Wildfire</i> , respectively.
	States that the Advanced Planning Initiative is undercounting above moderate housing units by not giving LU density to Bollinger Valley and the Town is not accommodating affordable accessory dwelling units proposed in the Bruzzone Bollinger Valley application.	This is a comment on the proposed project; it is not relevant to the EIR as it does not pertain to a specific environmental factor.
	Says that the Advanced Planning Initiative draft EIR should evaluate and restudy the Moraga Center Specific Plan (MCSP) EIR to confirm that it complies with and is consistent with the new vehicle miles traveled traffic and circulation standards	The MCSP underwent environmental review pursuant with CEQA and was adopted by the Town in 2010. Vehicle miles traveled related to the Planning Initiative are addressed in Section 4.14, <i>Transportation</i> .

1.4 Scope and Content

As discussed in Section 1.3, *Public Review and Participation Process*, a NOP was prepared and circulated (Appendix A), and responses received on the NOP were considered when setting the scope and content of the environmental information in the Program EIR. Sections 4.1 through 4.17 address the resource areas outlined in the bullet points below. Section 5, *Other CEQA Required Discussions*, covers topics including growth-inducing effects, irreversible environmental effects, and significant and unavoidable impacts. Environmental topic areas addressed in this Program EIR include:

1. Aesthetics
2. Air Quality
3. Biological Resources
4. Cultural Resources
5. Energy
6. Geology and Soils
7. Greenhouse Gas Emissions
8. Hazards and Hazardous Materials
9. Hydrology and Water Quality
10. Land Use and Planning
11. Noise
12. Population and Housing
13. Public Services and Recreation
14. Transportation
15. Tribal Cultural Resources
16. Utilities and Service Systems
17. Wildfire

In preparing the Program EIR, use was made of pertinent Town policies and guidelines, certified EIRs and adopted CEQA documents, and other background documents. A full reference list can be found in Section 7, *References*.

Two impacts listed on Appendix G of the CEQA Guidelines, Agriculture and Forestry Resources and Mineral Resources, were determined not to be significantly affected by the Planning Initiative and are analyzed with brevity within Section 4.18, *Effects Found Not to be Significant*.

The alternatives section of the EIR (Section 6) was prepared in accordance with *CEQA Guidelines* Section 15126.6 and focuses on alternatives capable of eliminating or reducing significant adverse effects associated with the project while feasibly attaining most of the basic project objectives. In addition, the alternatives section identifies the “environmentally superior” alternative among the alternatives assessed. The alternatives evaluated include the CEQA-required “No Project” alternative and two alternative development scenarios for the project areas.

The level of detail contained throughout this EIR is consistent with the requirements of CEQA and applicable court decisions. *CEQA Guidelines* Section 15151 provides the standard of adequacy on which this document is based. The *Guidelines* state:

An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure.

1.5 Lead, Responsible, and Trustee Agencies

The *CEQA Guidelines* define lead, responsible and trustee agencies. The Town of Moraga is the lead agency for the project because it holds principal responsibility for approving the project.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over the project. The California Department of Housing and Community Development (HCD) reviews and determines whether the Housing Element Update, which is part of the Planning Initiative complies with State law but is not a responsible agency involved with CEQA. The Board of Forestry and Fire Protection (Board), which is a government-appointed body within the California Department of Forestry and Fire Protection (CalFire), is responsible for reviewing the Safety Element under Government Code section 65302.5. The Board reviews the Safety Element and responds to the Town with its findings regarding the uses of land and policies in State Responsibility Areas (SRAs) or Very High Fire Hazard Severity Zones (VHFHSZs) that will protect life, property, and natural resources from unreasonable risks associated with wildfires, and the methods and strategies for wildfire risk reduction and prevention within SRAs or VHFHSZs (Gov. Code, Section 65302.5, subd. (b)(3); California Board of Forestry and Fire Protection, 2022).

A trustee agency refers to a state agency having jurisdiction by law over natural resources affected by a project. There are no trustee agencies for the Program EIR itself. As a programmatic document, implementation of the proposed project would not directly cause development in areas where trustee agencies mentioned in *CEQA Guidelines* Section 15386 have jurisdiction. However, potential future development projects facilitated by the Planning Initiative could be located lands under trustee agency jurisdiction, at which time subsequent environmental review would occur.

1.6 Environmental Review Process

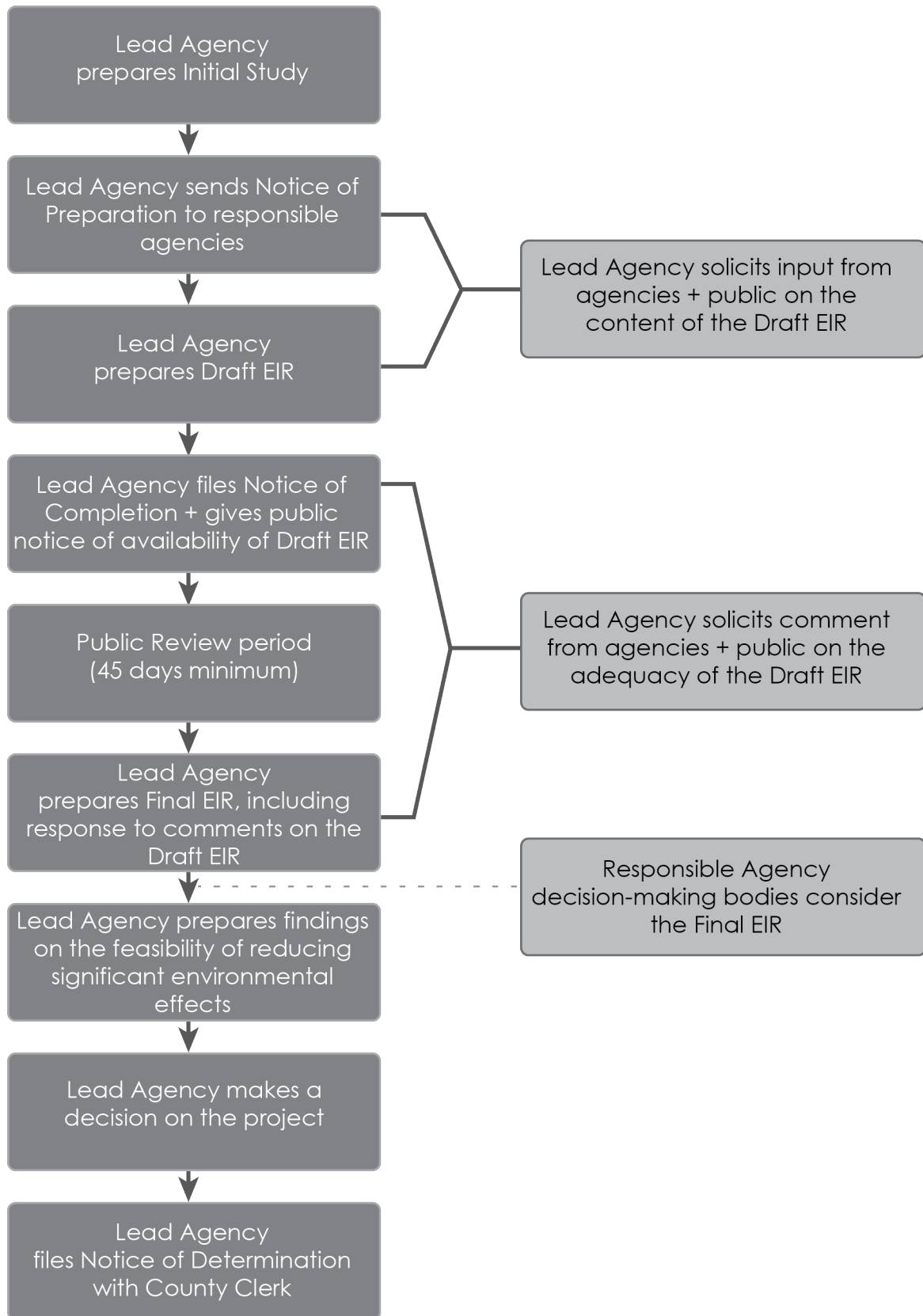
The environmental impact review process, as required under CEQA, is summarized below and illustrated in Figure 1-1. The steps are presented in sequential order.

1. **Notice of Preparation (NOP) and Initial Study.** After deciding that an EIR is required, the lead agency (Town of Moraga) must file a NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (*CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days.
2. **Draft EIR Prepared.** The Draft EIR must contain a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and h) discussion of irreversible changes.

Comprehensive Advanced Planning Initiative

3. **Notice of Completion (NOC).** The lead agency must file a NOC with the State Clearinghouse when it completes a Draft EIR and prepare a Public Notice of Availability of a Draft EIR. The lead agency must place the NOC in the County Clerk's office for 30 days (Public Resources Code Section 21092) and send a copy of the NOC to anyone requesting it (*CEQA Guidelines* Section 15087). Additionally, public notice of Draft EIR availability must be given through at least one of the following procedures: a) publication in a newspaper of general circulation; b) posting on and off the project site; and c) direct mailing to owners and occupants of contiguous properties. The lead agency must solicit input from other agencies and the public and respond in writing to all comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a Draft EIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days unless the State Clearinghouse approves a shorter period (Public Resources Code 21091).
4. **Final EIR.** A Final EIR must include a) the Draft EIR; b) copies of comments received during public review; c) list of persons and entities commenting; and d) responses to comments.
5. **Certification of Final EIR.** Prior to making a decision on a proposed project, the lead agency must certify that: a) the Final EIR has been completed in compliance with CEQA; b) the Final EIR was presented to the decision-making body of the lead agency; and c) the decision making body reviewed and considered the information in the Final EIR prior to approving a project (*CEQA Guidelines* Section 15090).
6. **Lead Agency Project Decision.** The lead agency may a) disapprove the project because of its significant environmental effects; b) require changes to the project to reduce or avoid significant environmental effects; or c) approve the project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (*CEQA Guidelines* Sections 15042 and 15043).
7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, the lead agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (*CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.
8. **Mitigation Monitoring Reporting Program.** When the lead agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.
9. **Notice of Determination (NOD).** The lead agency must file a NOD after deciding to approve a project for which an EIR is prepared (*CEQA Guidelines* Section 15094). A local agency must file the NOD with the County Clerk. The NOD must be posted for 30 days and sent to anyone previously requesting notice. Posting of the NOD starts a 30-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

Figure 1-1 Environmental Review Process



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2 Project Description

This section of the Environmental Impact Report (EIR) describes the key characteristics of the Comprehensive Advanced Planning Initiative, including the project proponent/lead agency, the geographic extent of the planning area, project objectives, required approvals, and the types and extent of forecasted development.

The Comprehensive Advanced Planning Initiative (Planning Initiative) involves:

- Adoption of the Town’s 2023-2031 Housing Element
- Rezoning of key sites within the Town’s jurisdiction including the Moraga Center Specific Plan and Rheem Park areas, along with objective design standards for Rheem Park
- Conforming amendments to the Moraga 2002 General Plan
- Amendments to the 2002 General Plan Safety and Conservation Elements to comply with new State laws
- Replacement of the “Study” General Plan, and zoning designations for Bollinger Canyon with new designations

2.1 Project Title

Town of Moraga Comprehensive Advanced Planning Initiative

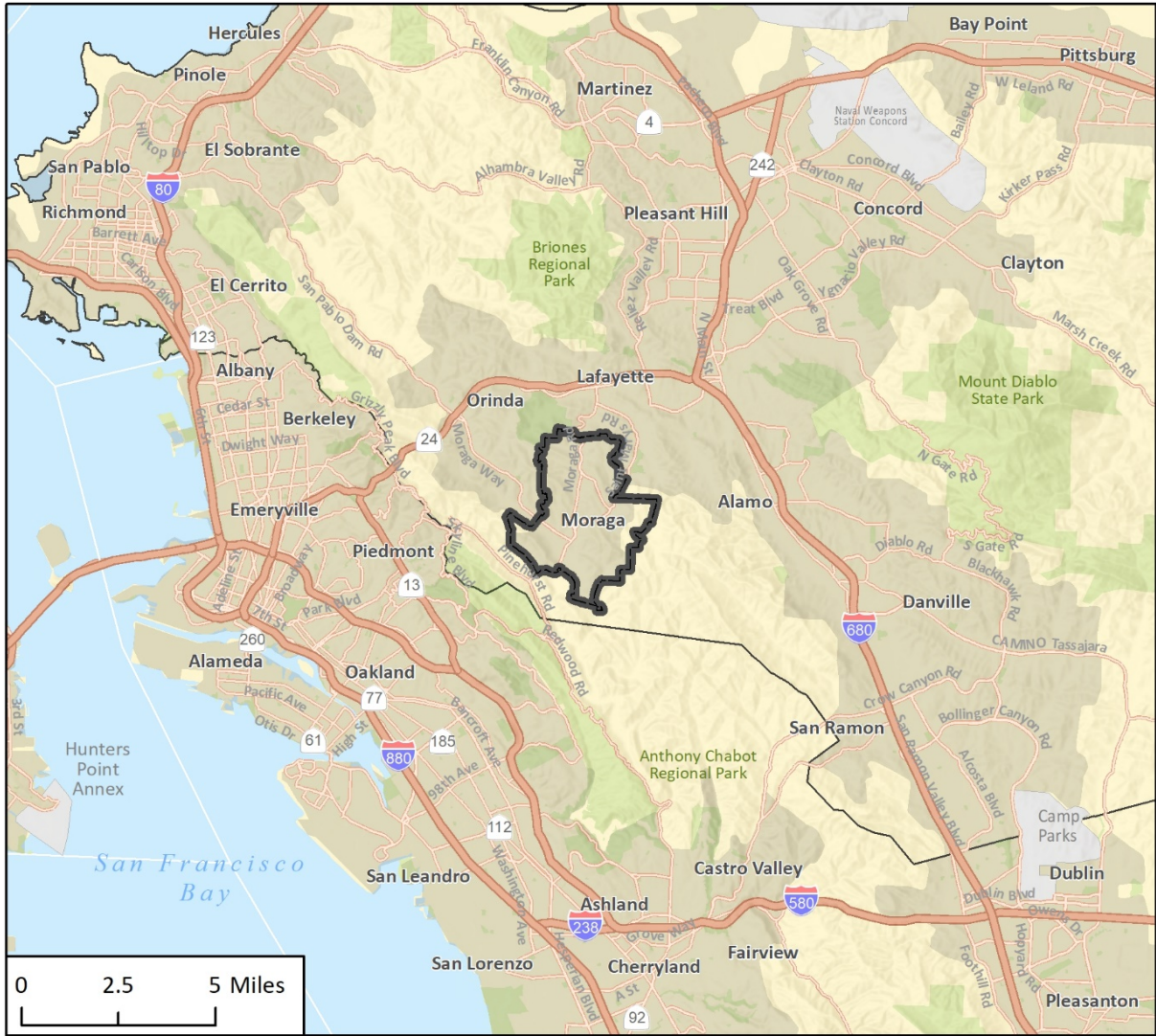
2.2 Lead Agency Name and Address

Afshan Hamid, AICP, Planning Director
Town of Moraga
Planning Department
329 Rheem Boulevard
Moraga, California 94556
(925) 888-7043

2.3 Project Location and Setting

Moraga is located in the greater East Bay region of the San Francisco Bay Area and is in the south-central portion of Contra Costa County (Figure 2-1). The Town is located approximately 15 miles east of San Francisco, 7 miles east of Oakland, and 9 miles east of the San Francisco Bay. The Town is bordered by unincorporated areas of Contra Costa County to the east and west and by East Bay Municipal Utility District watershed lands to the south. The closest cities are the City of Orinda to the northwest and City of Lafayette to the north and northeast.

Figure 2-1 Regional Location



Basemap provided by Esri and its licensors © 2022.

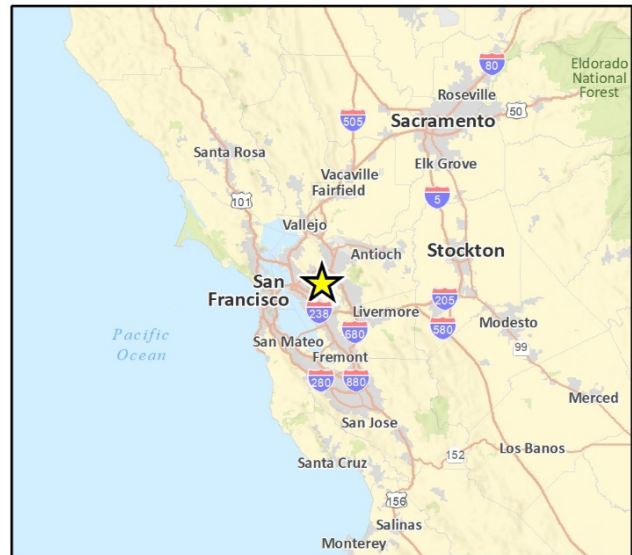


Fig X Regional

Moraga is accessible from State Route (SR) 24 to the north via Moraga Road through the City of Lafayette and from Moraga Way north through the City of Orinda. SR 24 provides access to the Central Bay Area to the west and to Interstate 680 to the east. The Town is also served by a surface street system ranging from wide, four-lane streets with medians to narrow, winding two-lane streets in the hills. The predominant street pattern in the Town is curvilinear and Moraga Road bisects the Town. Moraga also has a system of bike lanes, paths and routes throughout the Town that connect neighborhoods to schools, parks, and the two commercial areas in the Town.

The Planning Initiative applies to all lands within the Moraga Town limits as well as land within the Town's Sphere of Influence (SOI). The SOI is a boundary defining the probable future physical boundaries and service areas of the Town. This area is defined as the "Plan Area" for the Planning Initiative evaluated in this EIR. The Town's SOI, and thus Plan Area, extends in a few areas past the current Town limits into nearby unincorporated areas in the southern portion of the Town. Figure 2-2 illustrates the Plan Area boundaries, inclusive of the incorporated limits of Moraga and Moraga's SOI as delineated by the Contra Costa Local Agency Formation Commission.

2.4 Land Use and Regulatory Setting

2.4.1 Housing Element

The Housing Element is one of the State-mandated elements of the General Plan. The current 5th cycle Housing Element was adopted in 2015 and covers a planning period ending in early 2023. The Housing Element identifies the Town's housing conditions and needs, and establishes the goals, objectives, and policies that comprise the Town's strategy to accommodate projected housing needs, including the provision of adequate housing for low-income households and for special-needs populations (e.g., unhoused people, seniors, single-parent households, large families, and persons with disabilities).

Like all cities in the San Francisco Bay Area, the Town of Moraga is required to update the Housing Element of its General Plan to cover the 2023-2031 planning period. The Housing Element must address new state requirements, such as "affirmatively furthering fair housing" and ensuring compliance with permitting requirements in state law.

The 2023-2031 Housing Element would bring the element into compliance with State legislation passed since adoption of the 2015-2023 Housing Element and with the current Association of Bay Area Governments' (ABAG) Regional Housing Needs Assessment (RHNA). The ABAG Executive Board adopted the 6th cycle Final RHNA on December 16, 2021. It includes a "fair share" allocation for meeting regional housing needs for each community in the ABAG region.

The 2023-2031 Housing Element includes the following components, as required by State law

- Review of the 2015-2023 Housing Element to identify progress and evaluate the effectiveness of previous policies and programs.
- An assessment of the Town's population, household, and housing stock characteristics, existing and future housing needs by household types, and special needs populations.
- An analysis of resources and constraints related to housing production and preservation, including governmental regulations, infrastructure requirements and market conditions such as land, construction, and labor costs as well as restricted financing availability.

Figure 2-2 Plan Area

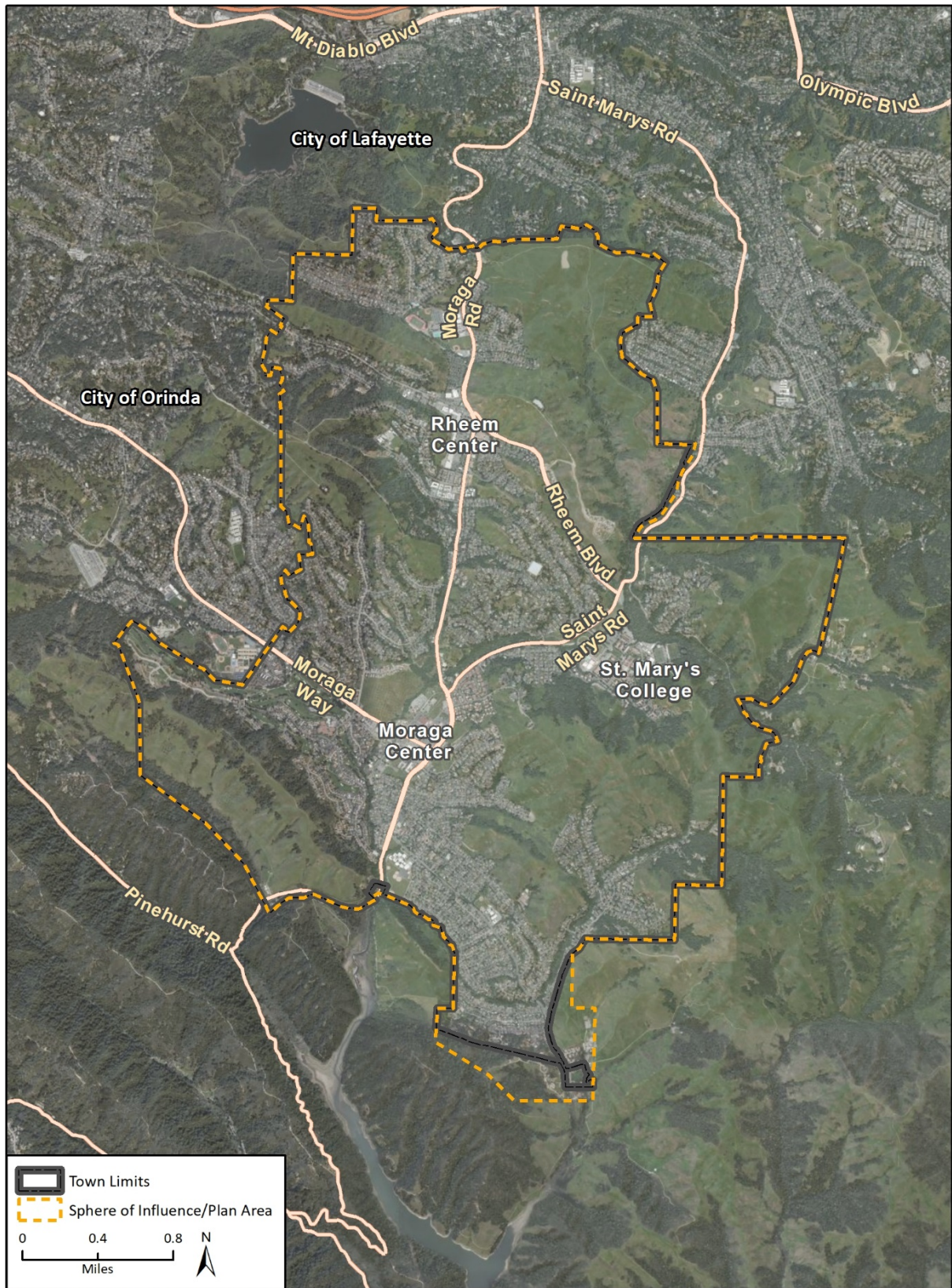


Fig 2 Plan Area

- Identification of the Town’s quantified objectives for the 6th cycle RHNA and inventory of sites determined to be suitable for housing.
- A Housing Plan to address the Town’s identified housing needs, including housing goals, policies, and programs to facilitate the 6th cycle Housing Element Update.

2.4.2 Moraga 2002 General Plan

The current Moraga 2002 General Plan is made up of eight chapters: Land Use, Community Design, Housing, Circulation, Open Space and Conservation, Public Safety, Community Facilities and Services, and Growth Management. Part of the Planning Initiative would require amendments to the 2002 General Plan as rezoning would cause changes in land use, revisions to the definitions of land use categories, and changes to the residential development potential estimates included in the Plan. In addition, editing of policies and implementation measures is needed to express the Town’s support for diverse housing types and ensure internal consistency with the updated Housing Element.

Amendments also are needed to comply with State mandates impacting the Safety and Circulation Elements. State mandates impacting the two Elements are associated with Assembly Bill (AB) 747, and Senate Bills (SB) 99 and 743. Moraga is not subject to the SB 1000 requirement to adopt an Environmental Justice Element, as the Town does not have areas identified as “disadvantaged communities.”

Approved in 2019, AB 747 requires each jurisdiction to review and update as necessary the Safety Element of its general plan to identify evacuation routes and capacity, safety, and viability under a range of emergency scenarios. This information must be included by January 1, 2022, or upon approval of the next update to the Local Hazard Mitigation Plan (LHMP). As of the date of this EIR Moraga has not yet updated its LHMP. Also approved in 2019, SB 99 requires jurisdictions, upon the next revision of the Housing Element on or after January 1, 2020, to review and update the Safety Element to include information identifying residential developments in hazard areas that do not have at least two emergency evacuation routes. In accordance with Senate Bill 379, Safety Elements must also include a climate change vulnerability assessment, measures to address vulnerabilities, and comprehensive hazard mitigation and emergency response strategies.

Additionally, SB 743 provides a new performance metric, vehicle miles traveled (VMT), for determining significant transportation impacts under the California Environmental Quality Act (CEQA). The State is shifting from measuring a project’s CEQA impact to drivers (level of service, LOS) to measuring the impact of driving (VMT) as it relates to achieving State goals of reducing greenhouse gas emissions, encouraging infill development, and improving public health through active transportation.

2.5 Characteristics of the Planning Initiative

The Planning Initiative includes an update to the Town’s Housing Element, rezoning of key sites within the Town’s jurisdiction, and amendments to the 2002 General Plan. The Planning Initiative would provide a cohesive long-term framework for future growth and development in the Town. The Initiative was catalyzed by the RHNA allocation, as well as Plan Bay Area 2050 and other initiatives that support denser housing in “Priority Development Areas” around the region. The Planning Initiative is meant to ensure the Town has a sufficient number of appropriately zoned sites to meet its housing allocation. It is also intended to provide supportive housing goals, policies,

programs, and quantitative objectives to meet the Town’s future housing needs. It is further intended to provide objective design and development standards so that projects may be approved more quickly and efficiently, thus reducing development costs and making housing easier to build.

The Town of Moraga is consolidating long range planning efforts through this initiative, namely the Housing Element Update and corresponding rezoning of the Moraga Center Specific Plan and Rheem Park areas, rezoning of the Bollinger Canyon Study Area, and 2002 General Plan amendments to achieve internal consistency and meet recent State requirements. Refer to Figure 2-3 for the location of the three study areas: Moraga Center Specific Plan area, Rheem Park area, and Bollinger Canyon Study Area. The Planning Initiative would ensure a refreshed vision for growth throughout the Town that meets the community’s needs. Each of the Planning Initiative’s components is described below.

2.5.1 Housing Element Update

The Housing Element Update presents a comprehensive set of housing policies and actions for the years 2023-2031. It would provide Moraga with a “road map” for accommodating its future housing demand and would guide decisions that impact housing for the next eight years. The document aims to achieve several overarching goals, including:

- Accommodating projected housing demand to meet RHNA, as mandated by the State
- Increasing housing production to meet this demand
- Improving housing affordability
- Preserving existing affordable housing
- Improving the safety, quality and condition of existing housing
- Facilitating the development of housing for all income levels and household types, including special needs populations; and
- Improving the livability and economic prosperity of all Moraga residents; and promoting fair housing choice for all.

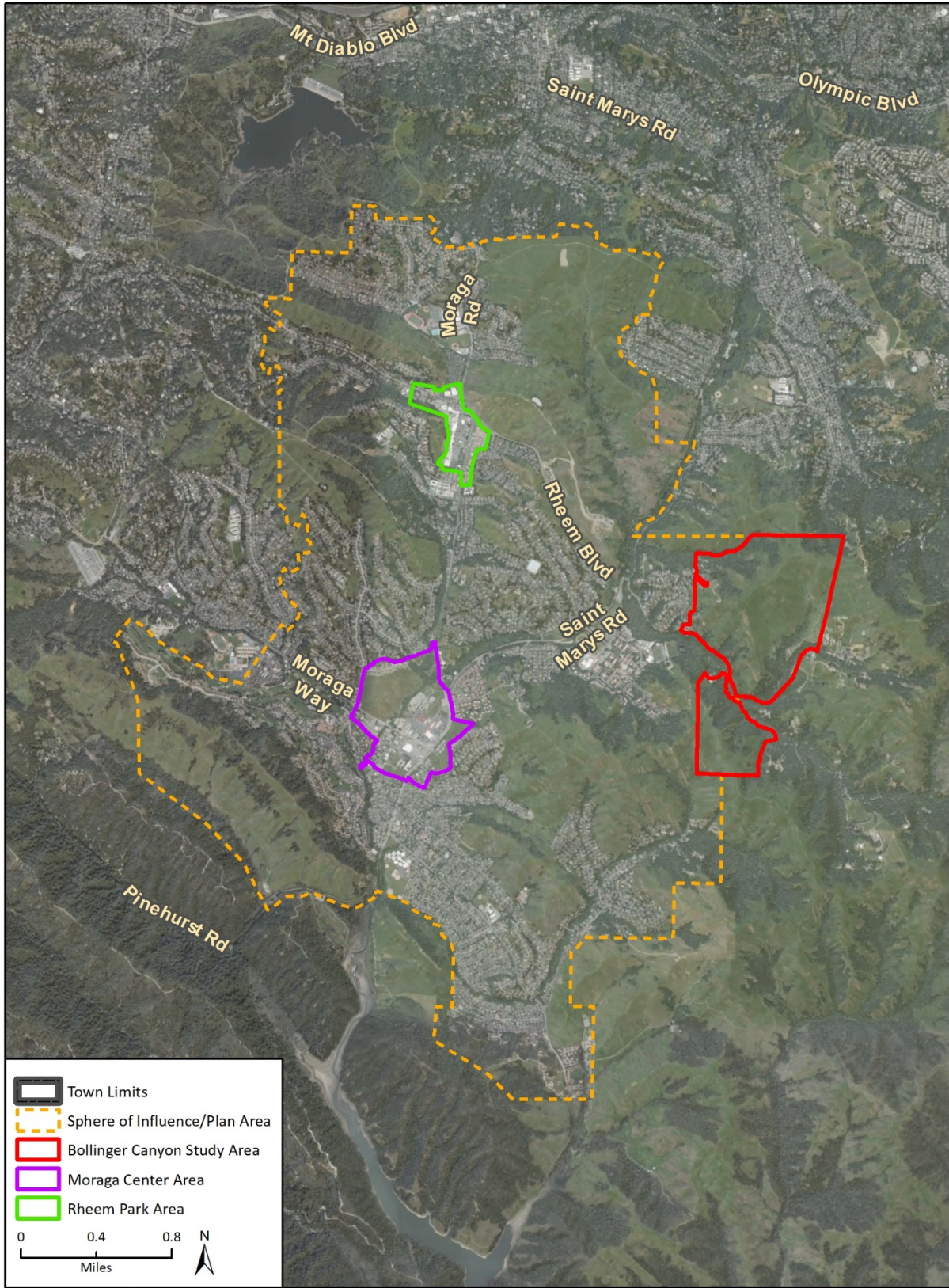
The Housing Element Update would be based on the Town’s RHNA, plus a buffer of units to ensure ongoing compliance with the No Net Loss provisions of State housing law. As shown in Table 2-1, the 2023-2031 RHNA for Moraga has been set at 1,118 housing units. This is an increase of more than 400 percent relative to the allocation for 2015-2022 and therefore requires the rezoning of the three areas as shown in Figure 2-3.

Table 2-1 RHNA Allocation and Percentage of Income Distribution for Moraga

Income Level	Percent of Area Median Income (AMI)	Units	Percent of RHNA
Very Low	0-50%	318	29%
Low	51-80%	183	16%
Moderate	81-120%	172	15%
Above Moderate	>120%	445	40%
Total	–	1,118	100%

Source: ABAG 2021

Figure 2-3 Planning Initiative Study Areas



The RHNA represents the minimum number of housing units that the Town is required to plan for in its housing element by providing “adequate sites” through the General Plan and zoning. The California Department of Housing and Community Development (HCD) requires local jurisdictions to identify enough future housing sites to not only cover the jurisdiction’s 6th cycle RHNA, but to also provide for additional buffer capacity above the RHNA. The buffer capacity is required to accommodate realistic production rates of affordable housing units; plus having the buffer can allow for instances when a smaller residential project may have to be considered for a given property or the use of a site for a purpose other than housing.

The “No Net Loss” Law (Government Code Section 65863) requires maintenance of sufficient sites to meet the RHNA for all income levels throughout the planning period. The recommendation from HCD is to adopt a housing site inventory with a buffer of at least 20 percent over the allocated RHNA. Moraga’s buffer exceeds this guideline. Consistent with the 2002 General Plan, the Town is strategically directing most residential growth to infill sites and sites in commercial areas that are already urbanized. This helps achieve complementary 2002 General Plan objectives such as supporting the Town’s shopping centers and businesses, creating community gathering places, encouraging walking and bicycling, and conserving hillsides and natural resources.

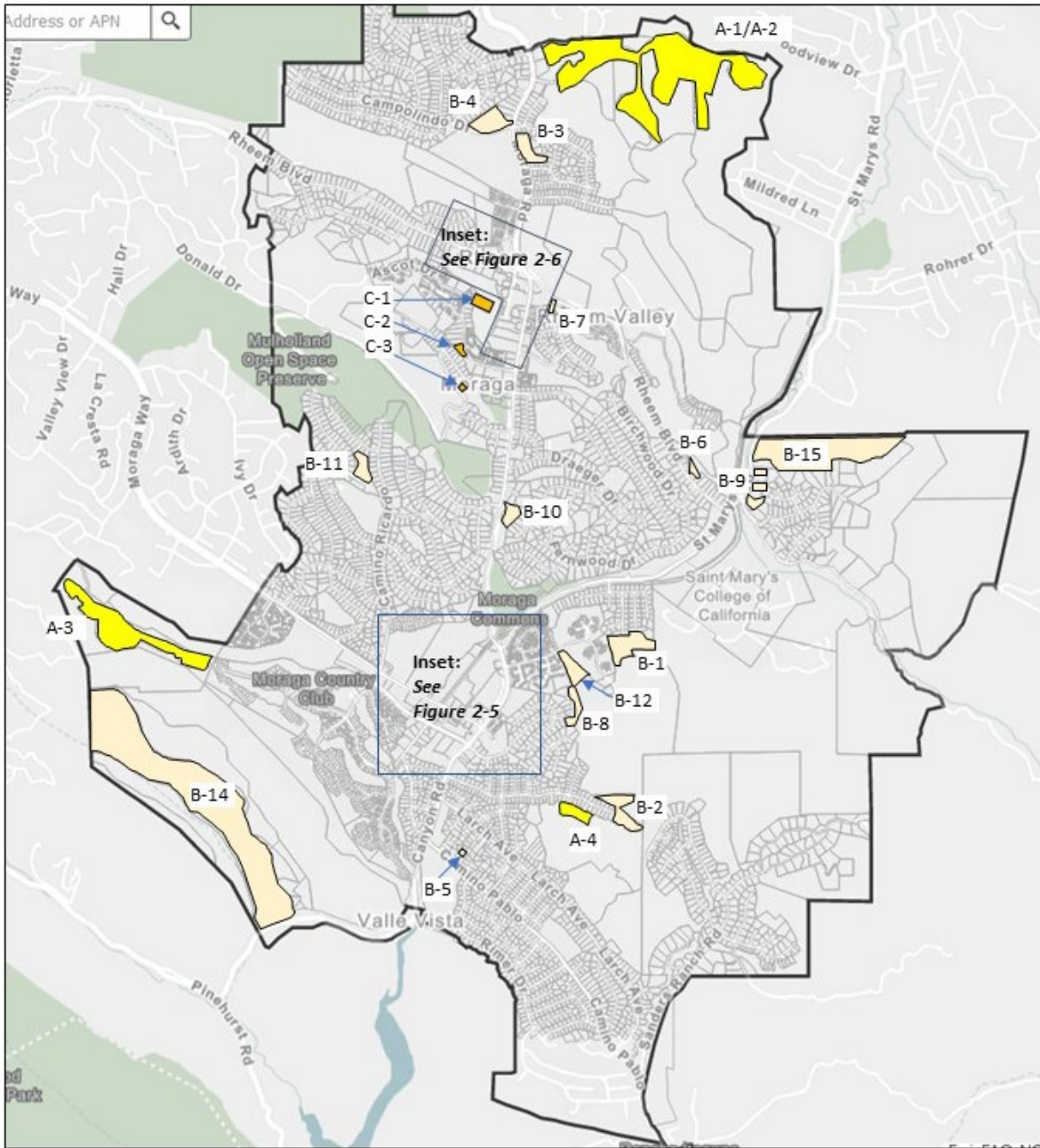
A summary of Housing Opportunity Sites is included in Table 2-2. Figure 2-4 shows the locations of proposed Housing Opportunity Sites, as well as previously approved projects expected to develop over the 2023-2031 time period. Figure 2-5 and Figure 2-6 shows the proposed sites in the Moraga Center and Rheem Park areas, respectively. The numbers correspond to a table listing all Housing Opportunity Sites in Appendix B.

The designation of a property as a Housing Opportunity Site does not mean it would be developed during 2023-2031, or that a specific project has been proposed there. It simply means the site has the potential to support housing during the 8-year time period, as well as physical characteristics that are conducive to housing development. The Housing Element includes proposed policies and programs to make development on these sites more viable. This is particularly true on the higher density and mixed use sites. Some of these sites would require rezoning to produce the number of required units; this is addressed in Section 2.5 *Rezoning*, below.




Some of the Housing Element programs are carried forward from the existing 2015-2023 Housing Element while others have been newly added. New programs typically respond to new State laws, the findings of the Housing Needs Assessment and Constraints Analysis, evolving market conditions, and the higher RHNA assignment given to Moraga.

Many of the new measures respond directly to the constraints analysis and include specific actions to amend zoning regulations, develop new zoning regulations, or modify processes and procedures (such as the Planned Development process). Some of the programs would be implemented concurrently with the adoption of the Housing Element, but most are scheduled for implementation during the first three years of the planning period.

Figure 2-4 Housing Opportunity Sites



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-  Approved ("Pipeline") Projects
-  Low Density Opportunity Sites
-  Medium Density Opportunity Sites

See Appendix for key to sites

Figure 2-5 Housing Opportunity Sites: Moraga Center Area

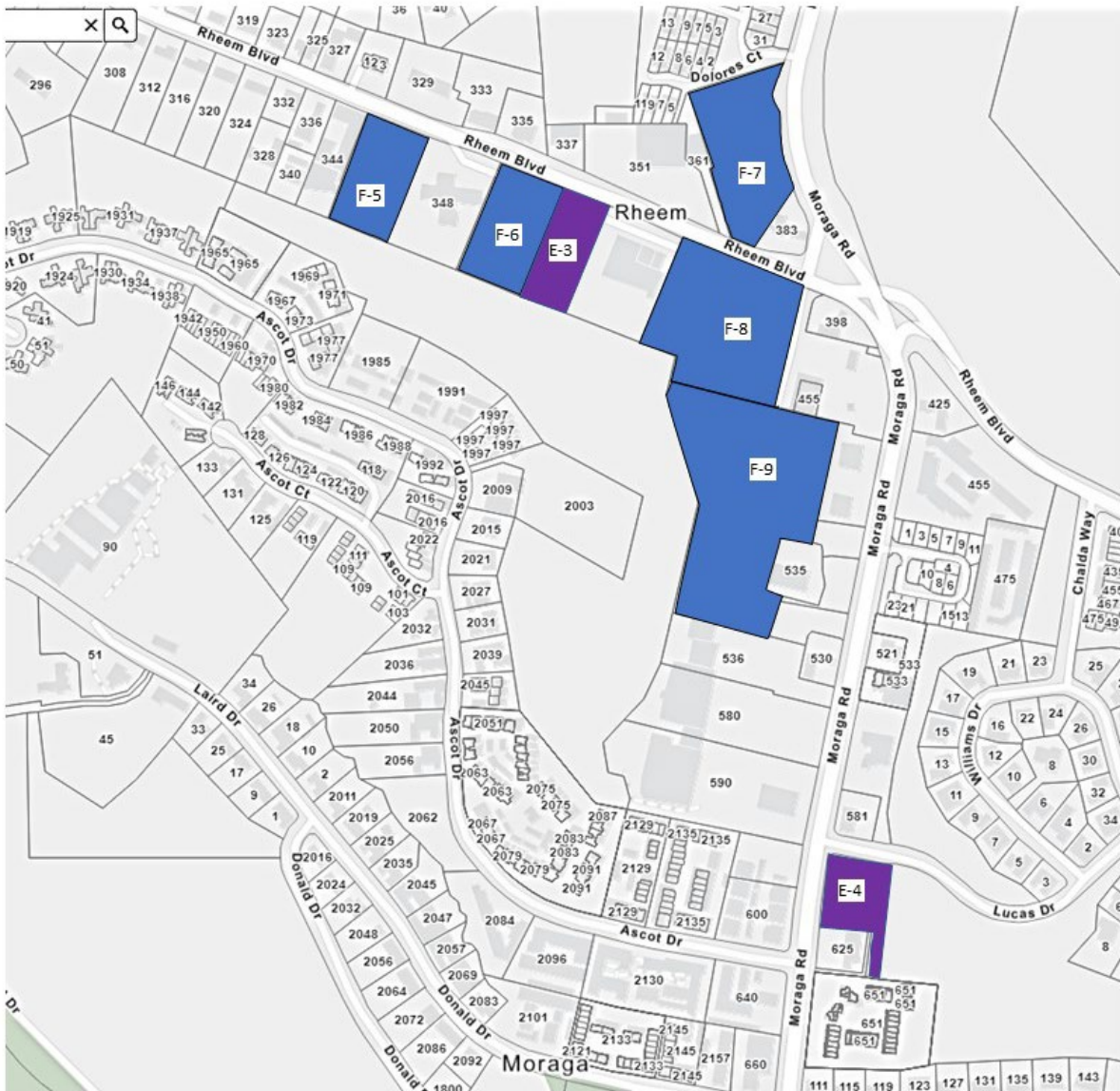


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- Vacant Low Density (3 DUA)
- Vacant Medium Density (6 DUA and 12 DUA)
- Vacant High Density (20 DUA and 24 DUA)
- Vacant Mixed Use (24 DUA)
- Non-Vacant Mixed Use (24 DUA)

See Appendix for key to sites

Figure 2-6 Housing Opportunity Sites: Rheem Park Area



LEGEND



Vacant Mixed Use (24 DUA)
 Non-Vacant Mixed Use (24 DUA)

See Appendix for key to sites

Among the major program recommendations are:

- Complete the update of the 2002 Moraga General Plan
- Amend the Moraga zoning code and map to create the capacity to meet the RHNA and comply with state law for specific housing types
- Monitor activity on the housing sites to ensure no net loss of capacity to meet the RHNA
- Prepare a public realm plan (in lieu of a Specific Plan) for Rheem Park

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- Reassess development standards, such as the scenic corridor regulations to reduce constraints to housing sites
- Amend parking requirements for studios and one-bedroom apartments
- Adopt an inclusionary housing ordinance
- Implement the MCSP
- Facilitate Accessory Dwelling Unit (ADU) production
- Provide outreach to affordable housing developers
- Explore partnerships with St Mary’s College
- Seek increased access to affordable housing subsidies
- Promote shared housing and rental of rooms in private homes
- Increase awareness of the County Neighborhood Preservation Program
- Improve the efficiency of development review procedures
- Consider fee waivers and deferrals for affordable housing
- Pursue grants to improve infrastructure
- Allow co-housing and live work units
- Publicize senior housing resources
- Provide information for first-time homebuyers
- Provide referrals to agencies assisting persons experiencing homelessness
- Implement climate action plan measures to improve energy efficiency and reduce related costs
- Wildfire Safety and Emergency Preparedness Planning

For each program, the Housing Element identifies a measurable objective, a responsible party, a timeline, and a potential funding source.

Other Housing Element Considerations

As indicated in Table 2-2, the Housing Element site inventory also accounts for projects that have been fully entitled but not yet constructed (also called “pipeline” projects). The 225 units shown include Palos Colorados (123 single family homes plus 30 accessory dwelling units), Country Club Extension (65 single family homes), and Hetfield Estates (7 single family homes). These three projects were also listed in the 2015-2023 Housing Element but remain undeveloped. No changes to these three projects are proposed.

In addition to the 1,770 units of capacity shown in Table 2-2, the Town of Moraga also anticipates new housing may be created through the addition of Accessory Dwelling Units (ADUs) to existing homes. ADUs are an important tool to help meet local housing needs. The State enacted legislation in 2017 and 2019 to support the development of ADUs, including “by right” approval for units meeting certain criteria. For the 2023-2031 Housing Element Update, the Town is assuming five ADUs would be developed annually through 2023-2031 (a slight increase over production rates over the last four years) or about 40 ADUs would be developed over the planning period.¹ ADUs would be scattered throughout the Town’s single family neighborhoods. For the purposes of this EIR, ADUs are exempt under CEQA and have minimal environmental impacts as they are generally created by repurposing existing floor space or making minor additions to existing residences.

¹ The 40-unit figure excludes the 30 ADUs proposed to be created as part of the Palos Colorados development.

Table 2-2 Summary of Housing Opportunities and Impacts of Proposed Rezoning

Density	Estimated Buildout under Existing Zoning	Estimated Building under Proposed Zoning	Net Increase
Approved Projects (“Development Pipeline”)	225	225	0
Low Density Sites ¹	242	242	0
Medium Density Sites ²	200	200	0
High Density Sites ³	417	417	0
Mixed Use Sites ⁴	281	686	405
Total	1,365	1,770	405

¹ Includes 1 DUA, 1.5 DUA, 2 DUA, and 3 DUA areas

² Includes 6 DUA and 12 DUA areas

³ Includes R-20 A (R-24) and R-20 B areas. Note that for Housing Element purposes, these areas are presumed to develop at 16 DUA, per HCD guidelines for calculating “realistic capacity” on sites with minimum density requirements. However, zoning changes would increase maximum density from 20 DUA to 24 DUA on two of the sites.

⁴ Rheem and Moraga Center areas. For Housing Element purposes, these sites are presumed to develop at densities below the maximum allowed by zoning, consistent with HCD guidelines for calculating “realistic capacity.”

2.5.2 Rezoning

As noted above, meeting the RHNA would require strategic zoning changes. These changes fall into three categories:

- Increasing the allowable density in the R-20A, MCSP-MU-OR and MCSP-MU-RR zones from 20 units per acre to 24 units per acre.
- Allowing housing at densities of 24 units per acre where housing is currently not a permitted use in parts of Rheem Park.
- Rezoning several parcels in the MCSP-C zoning district to either MCSP-O or MCSP-R so that housing becomes a permitted use on these properties.

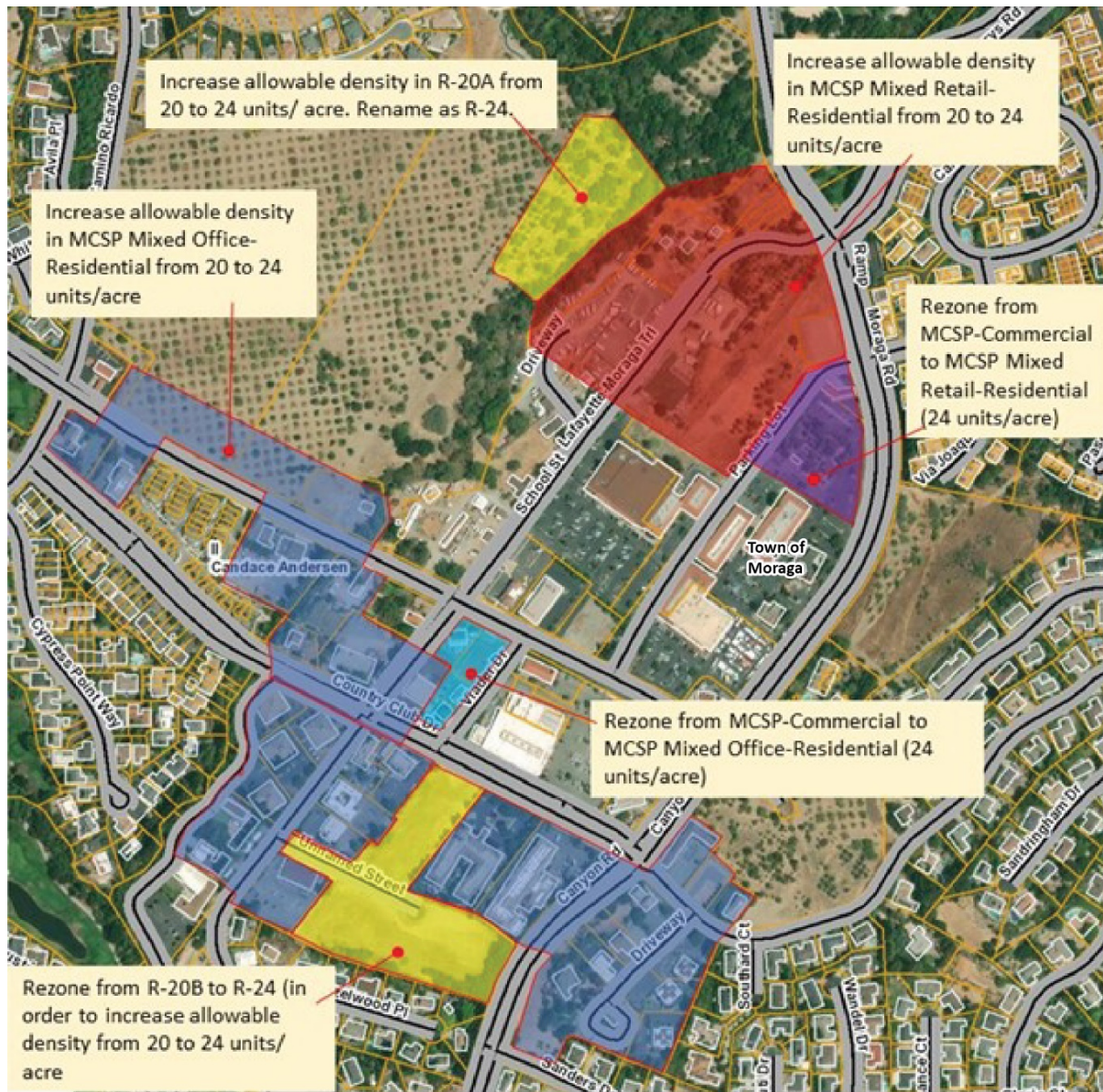
It is important to note that not every parcel within the rezoned areas is considered a “Housing Opportunity Site.” Zoning boundaries are used to define “districts” comprised of multiple parcels where particular uses are allowed, and particular development standards apply. Although all of the parcels in a given zoning district are subject to common regulations, each parcel contains unique uses and activities. Some parcels are vacant or underutilized and have the potential for housing. Others are developed with active uses and are likely to remain as they are today in the future. Development potential has only been calculated for those rezoned properties that are likely to redevelop with housing. For example, the Town offices are within one of the areas being rezoned—but they are not expected to redevelop by 2031.

Likewise, the 24 unit/acre zoning limit is subject to density bonuses, including those available under State law and those that could be provided by the Town through future incentive programs. Such bonuses could result in a larger number of housing units on individual sites than was presumed in the Housing Element. These larger yields are covered by this EIR to the extent that the total number of housing units produced in the Town does not exceed the total number of units presumed by the EIR. If a project would cause the Townwide “buildout” numbers in this EIR to be exceeded, additional environmental review would be required.

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Figure 2-7 and Figure 2-8 show proposed rezoning in the Moraga Center and Rheem Park areas. A description of the zoning changes is included below. Zoning changes are also proposed in the Bollinger Canyon Study Area, which is discussed in a later section of this Project Description.

Figure 2-7 Proposed Moraga Center Area Rezoning



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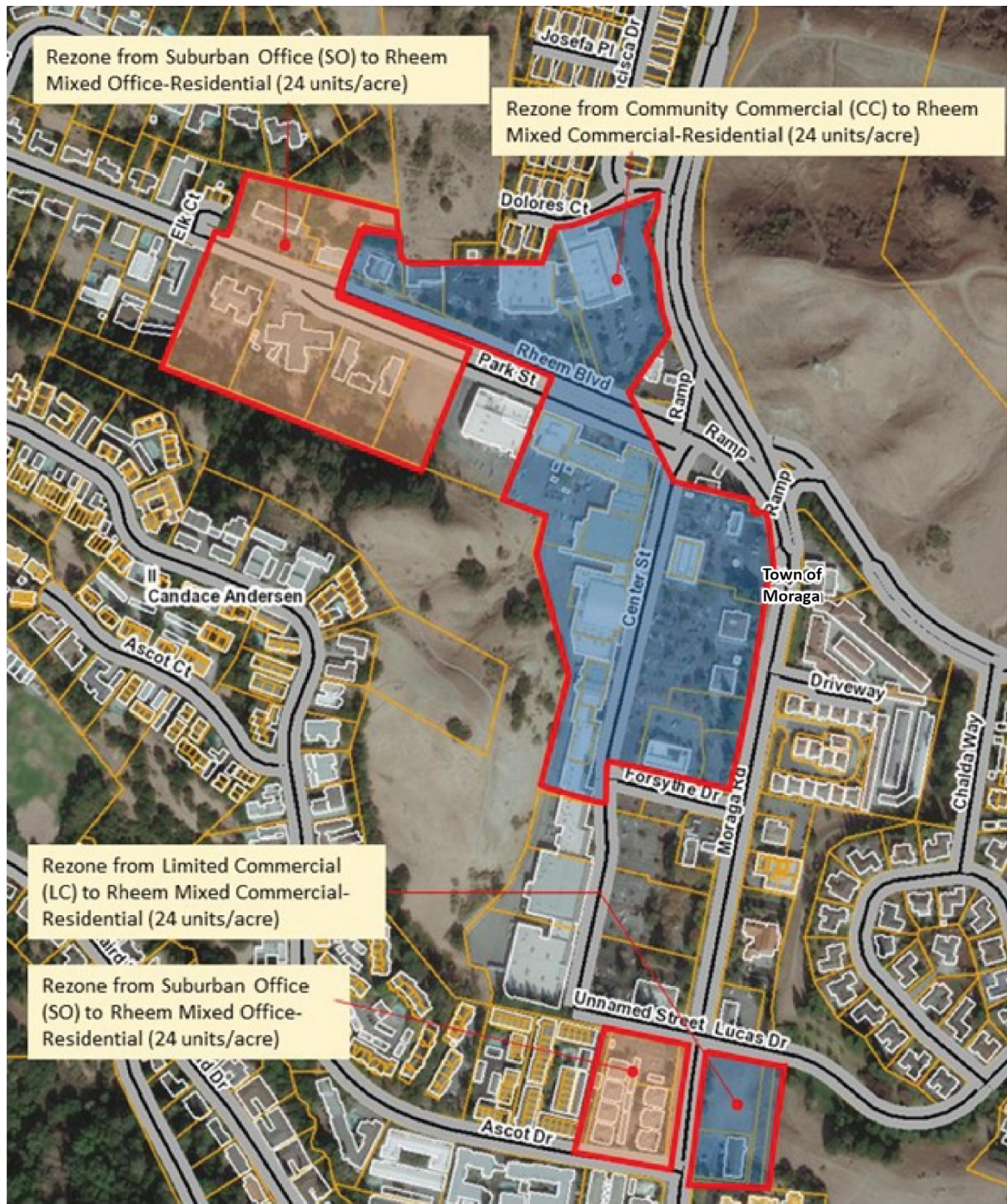
-  R-20A (to be renamed R-24) (increase from 20 to 24 units/acre)
-  MCSP Mixed Office-Residential (increase from 20 to 24 units/acre)
-  MCSP Mixed Retail-Residential (increase from 20 to 24 units/acre)
-  MCSP Mixed Retail-Residential (rezoned from MCSP-Commercial)
-  MCSP Mixed Office-Residential (rezoned from MCSP-Commercial)

Figure 2-8 Rheem Park Area Rezone Sites



Moraga Center

Moraga Center is an approximately 187-acre area generally located around the intersection of Moraga Road and Moraga Way as shown in Figure 2-3. Land use in this area is governed by a Specific Plan adopted in 2010, as well as new zoning regulations adopted in 2020. The Moraga Center Specific Plan used a buildout range of 510-630 units (the higher number includes increased density for senior housing) for CEQA analysis and planning purposes. The previous 2015-2023 Housing Element assumed that the entire 510-630 units would occur on residentially zoned land and did not quantify any housing potential on mixed use properties.

To meet the higher RHNA for the 6th cycle, the Housing Element Update would consider several of the Moraga Center Specific Plan mixed use sites as Housing Opportunity Sites. Proposed zoning changes in this area are shown in Figure 2-7 as summarized below:

1. The R-20A zoning district would be relabeled “R-24,” with allowable densities increased from 20 to 24 units per acre. Only one parcel currently has R-20A zoning. However, the property referred to as “Area 14” (currently R-20B) would also be rezoned to the new R-24 designation.
2. The allowable density in the MCSP-Retail/Residential district would be increased from 20 to 24 units per acre.
3. The allowable density in the MCSP-Office/Residential district would be increased from 20 to 24 units per acre.
4. The northern portion of the Moraga Shopping Center (including a gas station and the vacant former Moraga Garden Center) would be rezoned from MCSP-Commercial to MCSP-Retail/Residential. This would facilitate housing on the former garden center site.
5. The portion of the block bounded by School Street, Viader Drive, Country Club Drive, and Moraga Way that is now zoned “MCSP-Commercial” and would be rezoned to MCSP-Office/Residential. This would facilitate housing on the vacant property at the northeast corner of this block. The other uses on this block would remain conforming uses under their new zoning designation.

Rheem Park Area

The Rheem Park area is an approximately 60-acre area located at the intersection of Rheem Boulevard and Moraga Road in north-central Moraga as shown in Figure 2-3. The Rheem Park area includes the Rheem Shopping Center, the Rheem Theater, Town of Moraga Offices, a Saint Mary’s College administration facility, private office buildings, a convalescent facility, miscellaneous commercial uses, and vacant land. Current zoning in the area includes Suburban Office, Limited Commercial, and Community Commercial. Multi-family residential uses are not listed as a permitted use in these zoning districts. Proposed zoning changes in this area would rezone some of the commercial parcels to mixed use to permit residential development. Rezoning of this area is required not only to meet the RHNA, but also to meet new state requirements for Affirmatively Furthering Fair Housing (AFFH). Input from property owners supports the Town’s efforts to rezone the sites. The Town is strongly encouraged to distribute lower-income housing opportunities in multiple geographic areas rather than concentrating them in a single location (Moraga Center). Rheem Park is the only other viable location in the Town for higher densities, given natural hazards, infrastructure, and environmental considerations.

General Plan and Zoning changes in the Rheem Park area are as follows:

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1. The Suburban Office district would be renamed “Rheem Mixed Office-Residential.” The regulations for this district would be amended to list multi-family and mixed use housing as permitted uses, with densities up to 24 units per acre (excluding State density bonuses). Three of the six sites in the Suburban Office district have been identified as Housing Opportunity Sites, meaning they meet metrics that indicate they are suitable for multi-family development at densities exceeding 20 units per acre.
2. The Community Commercial district would be divided into two districts. One district, generally corresponding to the Rheem Theater, the automotive uses at the corner of Rheem Boulevard, and Moraga Road, and the southern part of the Rheem Shopping Center, would retain the existing Community Commercial requirements, including “commercial only” zoning. The other district, generally corresponding to the northern part of the shopping center and the north side of Rheem Boulevard, would be renamed “Rheem Mixed Commercial-Residential.” The regulations for this district will be amended to allow multi-family and mixed use residential uses, with densities up to 24 units per acre (excluding State density bonuses). Several of the sites in the new zoning district have been identified as Housing Opportunity Sites.
3. The properties at the southeast corner of Lucas Drive and Moraga Road will be rezoned from “Limited Commercial” to the new Commercial – Residential Mixed Use district. The vacant site at the southeast corner of the two roadways is a Housing Opportunity Site.

Use regulations and development standards will be developed for the “Rheem Mixed Office-Residential” and “Rheem Mixed Commercial-Residential” zoning districts, as these districts do not currently exist. The project also includes the adoption of objective development and design standards for these two districts. These will establish the Town’s expectations for project design and will facilitate “by right” approval of projects that meet the adopted standards.

2.5.3 General Plan Amendments

The Housing Element Update and resulting rezoning would require amendments to the 2002 Moraga General Plan. The amendments are required to maintain internal consistency, respond to new State laws, and provide a framework for zoning changes. Amendments to the 2002 Moraga General Plan, specifically new and modified goals, policies, and implementation programs, apply to the Planning Initiative in its entirety, including development within the Moraga Center area, Rheem Park area, and Bollinger Canyon Study Area. These changes are summarized below:

1. Internal Consistency. As required by State law, the 2023-2031 Housing Element strives to accommodate a diverse mix of housing types and affirmatively further fair housing. The 2002 General Plan expresses strong preferences for low-density single-family housing. Edits are needed so that the other elements are synchronized with the policy direction in the Housing Element. This requires editing of several policies and implementing actions. Buildout data referenced in the Plan also needs to be updated for consistency with the Housing Element and proposed map changes.
2. General Plan Map and Categories. Changes to the General Plan Map and Land Use categories are needed to reflect new policy guidance for the Bollinger Canyon Study Area and to provide clear direction for the Moraga Center and Rheem Park areas. This includes the development of land use category definitions, which are not included in the 2002 General Plan. Land Use Element amendments are also needed to reflect policy direction for Bollinger Canyon.

3. The Circulation and Growth Management Elements require edits for consistency with SB 743, which disallows the use of Level of Service as a CEQA metric and supports the use of vehicle miles traveled (VMT) for evaluating a project’s transportation impacts.
4. The Safety Element requires updating to respond to SB 747 and SB 99 (see Section 2.4.2, *Moraga 2002 General Plan*, above), and to reflect climate change and resilience issues (SB 379).

The changes described above are intended only to ensure that the General Plan remains legally adequate and internally consistent. They are not intended as a comprehensive update to the entire Plan. Following adoption of the Housing Element and related amendments in 2023, the Town anticipates additional revisions to the Plan to move the time horizon forward and take a fresh look at other long-range planning issues. This second phase of the Plan Update is scheduled for 2023-2024.

2.5.4 Bollinger Canyon Study Area General Plan Amendment and Rezoning

Bollinger Canyon, located in the east central portion of the Town as shown in Figure 2-3, is identified as “Study Area” on Moraga’s General Plan and Zoning maps. The Study Area is approximately 423 acres and includes 20 parcels with 13 different owners. The Study Area designation does not have an associated density range. The Moraga Town Council has expressed the goal of replacing the Study Area designation, which was intended to be temporary, with permanent General Plan, zoning designations and development standards.

The Comprehensive Advanced Planning Initiative would eliminate the Study Area designation from both the General Plan and zoning maps and apply new General Plan and zoning designations for both areas. A community process was implemented in late 2021 and early 2022 to consider new designations. Three “parcel groups” were identified based on shared characteristics, and different zoning strategies were adopted for each group. The recommended changes are shown in Figure 2-9 and are described below.

Open Space (General Plan)/Non-MOSO Open Space (Zoning)

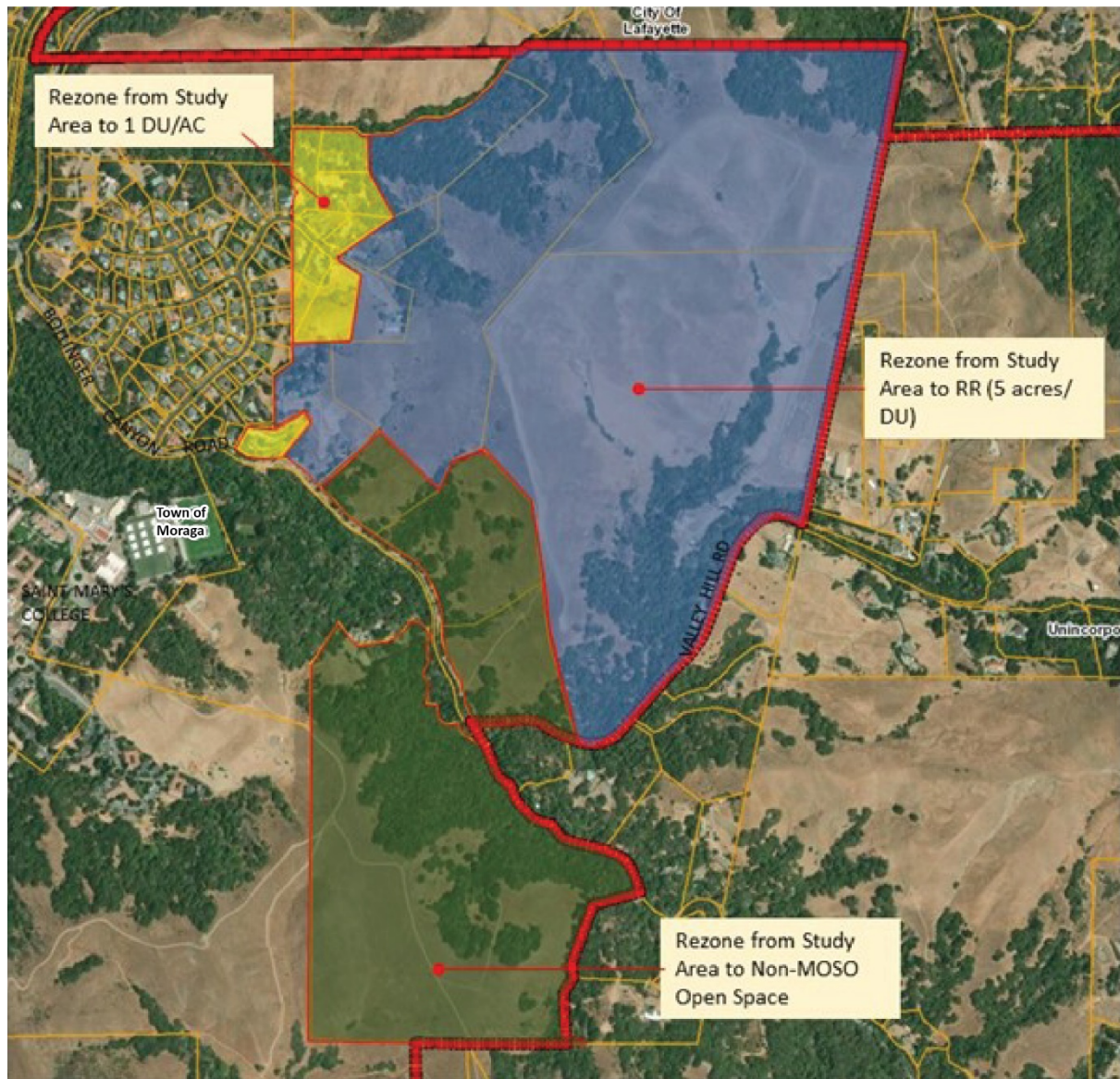
A total of 136 acres, comprised of four parcels and commonly referred to as Harvey Ranch, would receive an “Open Space” General Plan designation and be rezoned to “Non-MOSO Open Space”² as shown in Figure 2-9. The Non-MOSO zoning designation allows for residential uses with a conditional use permit (at densities of one unit per 5, 10, or 20 acres per unit, depending on conditions). However, no future development potential is presumed on these parcels since they are being acquired by the John Muir Land Trust for conservation purposes.

Residential – 1 Dwelling Unit per Acre (General Plan/Zoning)

A total of 17 acres, including nine parcels, would receive a General Plan and zoning designation of one dwelling unit per acre as shown in Figure 2-9. This area is already developed with existing residences, generally ranging from just under one acre to about 3.5 acres. There is one vacant lot, presumed to have the potential for two residential units under the proposed zoning.

² MOSO is the Moraga Open Space Ordinance. Open Space in the Town includes “MOSO” Open Space, which was covered by the Ordinance, and non-MOSO Open Space, which includes parcels not expressly covered by the Ordinance.

Figure 2-9 Bollinger Canyon Study Area Rezoning



Rural Residential – 1 Dwelling Unit per 5 Acres (General Plan/Zoning)

The remaining 270 acres would receive a General Plan and zoning designation of “Rural Residential” (see Figure 2-8) consistent with properties to the northeast and north in adjacent jurisdictions. This designation does not currently exist but would be created as part of the project. Residential and agricultural uses would be permitted by right; a number of additional uses would be conditionally permitted.

Given existing land uses (including several existing residential units) and parcelization patterns, the theoretical number of parcels that could be created through future subdivision is approximately 51. The analysis in this EIR assumes 49 new residential units on the entire 270 acres. The Rural Residential zoning district would allow for density to be clustered, achieving a higher density in a defined area but with the same total number of units, while allowing for open space. A minimum lot size of 40,000 square feet would apply in such instances. As in other low-density residential zoning districts, the Rural Residential zoning would also allow for density to be transferred to another part of Moraga. This would include commercial and mixed use districts. As a result of the rural densities being proposed in Bollinger Canyon and the surplus of existing sites in the Town for above moderate-income housing, the area is not considered a Housing Opportunity Site under the Housing Element Update.

Total new housing potential for the entire 423-acre Bollinger Canyon Study area, including the Non-MOSO Open Space area, the 1 DU/Acre area, and the RR area, is 51 units.³

2.6 Project Objectives

The Comprehensive Advanced Planning Initiative seeks to accomplish the following objectives:

- A State-certified Housing Element for 2023-2031 that responds to local and regional needs.
- An internally-consistent, easy-to-use General Plan that is legally compliant and addresses emerging issues.
- Updated long-range planning policies and programs that respond to recent State legislation related to VMT, climate change and resilience, fire hazards, evacuation, and other pertinent topics.
- General Plan land use and zoning designations for the Bollinger Canyon Study Area.
- Opportunities for meaningful public participation, including the engagement of residents who have not historically participated in planning processes.
- New objective development standards consistent with state law.

2.7 Required Approvals

With recommendations from the Town's Planning Commission, the Town Council will need to take the following discretionary actions in conjunction with the Planning Initiative:

- Certification of the Final EIR prepared for the Planning Initiative
- Adoption of the 2023-2031 Housing Element
- Adoption of amendments to other elements of the Moraga General Plan, including:
 - General Plan Land Use Map amendments that provide the framework for zoning changes
 - Land Use Element amendments related to the Bollinger Canyon Study Area
 - Safety and Circulation Element amendments, to meet new State requirements
 - Other amendments as needed for internal consistency
- Adoption of amendments to the zoning regulations, including the zoning map

³ 2 units in 1 DUA and 49 units in RR.

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Once Town Council adopts the 2023-2031 Housing Element, it will be submitted to HCD for final certification.

In addition, the Board of Forestry and Fire Protection (Board), which is a government-appointed body within the California Department of Forestry and Fire Protection (CalFire), is responsible for reviewing the Safety Element under Government Code Section 65302.5. The Board would review the Safety Element and respond to the Town with its findings regarding the uses of land and policies in State Responsibility Areas (SRAs) or Very High Fire Hazard Severity Zones (VHFHSZs) that would protect life, property, and natural resources from unreasonable risks associated with wildfires, and the methods and strategies for wildfire risk reduction and prevention within SRAs or VHFHSZs (Government Code Section 65302.5(b)(3); California Board of Forestry and Fire Protection 2022).

3 Environmental Setting

This section provides a general overview of the environmental setting for the Planning Initiative. More detailed descriptions of the environmental setting for each environmental issue area can be found in Section 4.0, *Environmental Impact Analysis*.

3.1 Regional Setting

As shown in Figure 2-2 in Section 2, *Project Description*, Moraga is located in the greater East Bay region of the San Francisco Bay Area and is in the south-central portion of Contra Costa County. The Town is located approximately 15 miles east of San Francisco, 7 miles east of Oakland, and 9 miles east of the San Francisco Bay. The Town is bordered by unincorporated areas of Contra Costa County to the east and west and by East Bay Municipal Utility District watershed lands to the south. The closest cities are the City of Orinda to the northwest and City of Lafayette to the north and northeast. The Town is bordered by residential developments and open space.

The most prevalent mode of travel in the region and town is driving. Major north-south arterial roadways in the town include Moraga Road/Canyon Road and Camino Pablo. Major east-west arterial roadways include Moraga Way, Saint Mary's Road, Rheem Boulevard, and County Club Drive. Moraga Way extends into State Route 24 to provide regional roadway access and to the Orinda BART station for transit access to the central Bay Area, San Francisco and other destinations around the region.

The region and Moraga experience a typical California Mediterranean climate, with warm to hot, dry summers and mild to cool, wet winters. The warmest month is September with temperatures ranging from 53 to 80 degrees Fahrenheit. The coldest month is January with temperatures ranging from 36 to 53 degrees Fahrenheit (Town of Moraga 2022). The average amount of yearly rain is approximately 28.0 inches, with the wettest month being January (Contra Costa County Flood Control and Water Conservation District 2022).

3.2 Planning Initiative Area Setting

The Planning Initiative area encompasses the entire Town of Moraga in south-central Contra Costa County. The total town area is approximately 9.54 square miles. It is adjacent to the cities of Lafayette and Orinda and approximately 7 miles northeast of Oakland. The town is characterized primarily by low-density single-family residential neighborhoods and open space areas. Commercial development is concentrated in the Moraga Center and Rheem Park areas, with some multi-family residential areas south of this commercial district. The Town's total area is 6,109 acres with approximately 3,768 acres developed (62 percent) and 2,341 acres undeveloped (38 percent) (Town of Moraga 2022). The estimated 2020 population of the town was 18,048 persons and the average household size is 2.66 persons per household (California Department of Finance 2021; Contra Costa Countywide Travel Demand Model 2022).

The landscape of Moraga is comprised of a system of ridgelines, hillsides, valleys, canyons, streams, and floodplains. The town's diverse topography, which ranges in elevation from 500 to 1,200 feet above mean sea level, allows for a variety of plant communities and wildlife habitats. Much of the

Town's built environment at the street level is dominated by wide streets, auto-oriented signage, and landscape screening between streets and buildings.

Potential future development under the Planning Initiative would occur throughout Moraga but would be primarily in the Rheem Park and Moraga Center areas of the town. The initiative also includes zoning of the Bollinger Canyon Study Area.

The Moraga Center area contains a mix of former agricultural areas and undeveloped properties interspersed with existing residential and commercial uses in the center of Moraga. The area is bound to the north by residential development and to the east by the Moraga Commons Park, as well as additional residential development. Residential development also abuts the southern and western boundaries of the Moraga Center area. The existing Moraga Center commercial complex includes retail and service facilities such as offices, financial institutions, and auto service stations. There is also a cluster of senior housing (assisted living) in the Moraga Center area.

The Rheem Park area contains commercial uses along Moraga Road and Rheem Boulevard, a clustered group of single-family residential uses in the eastern portion along Kendall Circle, and some vacant land. The area is broadly bounded by residential development and open space.

The Bollinger Canyon Study Area is mostly undeveloped land used primarily for seasonal livestock grazing that is surrounded by hills, including Las Trampas Peak and Las Trampas Ridge to the east. The Bluffs neighborhood within the Town is directly adjacent to the west, and the Burton Valley area in the City of Lafayette is less than 0.25 mile to the north. The St. Mary's College campus within the Town is directly adjacent to the southwest. Areas to the east are located within unincorporated Contra Costa County and are mostly open space or rural residential use. Open spaces to the east and south in Bollinger Canyon and Las Trampas Ridge are permanently protected as open space and owned and managed by East Bay Regional Parks District. Many of the parcels adjacent to the Bollinger Canyon Study Area are large and undeveloped. There are a few multi-acre lots with existing single-family residences and/or small agricultural buildings located immediately to the east, along Valley Hill Drive in unincorporated Contra Costa County. The Bollinger Canyon Study Area consists of gentle to steeply sloping terrain, with areas in the western, southern, and far northeastern corner having grades more than 20 percent. The western and northern boundaries of the Bollinger Canyon Study Area include undulating hills that reach maximum elevations from 900 to 1,000 feet. The interior of the Bollinger Canyon Study Area ranges in elevation from 775 feet near the oak woodland to 900 feet toward the north. The northwestern portion of the Bollinger Canyon Study Area includes single family residences at the end of Joseph Drive. Undeveloped portions of the area feature Coast Live Oak woodland, Central Coast riparian scrub, wetlands, coyote brush and sage scrub, and mostly non-native annual grasslands. Portions of the area have been historically used for cattle grazing.

3.3 Cumulative Development

Because the project is a general plan update, cumulative impacts are treated somewhat differently than would be the case for a project-specific development. *CEQA Guidelines* Section 15130 provides the following direction relative to cumulative impact analysis and states that the following elements are necessary for an adequate discussion of environmental impacts:

A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the

reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within the town limits. For example, the transportation analysis considers the overall change in vehicle miles travelled (VMT) due to implementing several development projects under the Planning Initiative that would add to the Town buildout. As such, the analysis in this EIR considers the cumulative impacts in the Town from implementation of the Planning Initiative. These cumulative VMT calculations are accounted for in the air quality, energy, greenhouse gas emissions, and noise analyses; therefore, these analyses would also be considered cumulative. Other impacts, such as geology and soils and cultural resources, are site specific and would not result in an overall cumulative impact from growth outside of the Town. Therefore, the analysis of project impacts in this EIR also constitutes the cumulative analysis.

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4 Environmental Impact Analysis

This section discusses the possible environmental effects of the Planning Initiative for the specific issue areas that were identified through the scoping process as having the potential to experience significant effects. A “significant effect” as defined by the *CEQA Guidelines* Section 15382:

means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

The assessment of each issue area begins with a discussion of the environmental setting related to the issue, which is followed by the impact analysis. In the impact analysis, the first subsection identifies the methodologies used and the “significance thresholds,” which are those criteria adopted by the Town and other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the Planning Initiative, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text with the discussion of the effect and its significance. Each bolded impact statement also contains a statement of the significance determination for the environmental impact as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved pursuant to *CEQA Guidelines* Section 15093.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under *CEQA Guidelines* Section 15091.
- **Less than Significant.** An impact that may be adverse but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact.** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Following each environmental impact discussion is a list of mitigation measures (if required) and the residual effects or level of significance remaining after implementation of the measure(s). In cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed and evaluated as a secondary impact. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the Planning Initiative in conjunction with other planned and pending developments in the area listed in Section 3.0, *Environmental Setting*. The Executive Summary of this EIR summarizes impacts identified in this EIR and mitigation measures that apply to the Planning Initiative.

This EIR includes policies from the 2002 General Plan in the Local Regulations sections for each environmental resource topic. These referenced policies are being revised as part of the Planning

Initiative for internal consistency. The language of the policies provided in this EIR may not exactly match the updated policies. For example, in some cases, the policy numbering may be different. Nonetheless, the overall intent of these policies is not changing. Therefore, references made to policies in this EIR would accurately describe the requirements in the General Plan.

Pursuant to CEQA Statute Section 21060.5, the environment is defined as “the physical conditions that exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, or objects of historic or aesthetic significance.” Pursuant to this statute, the environmental impact analysis in this EIR is focused on the actions associated with the Planning Initiative that would result in a physical impact on the environment.

As described in Chapter 2, *Project Description*, the Planning Initiative includes multiple components, some of which would not result in physical impacts on the environment. For example, there would be no physical impacts on the environment from adoption of Housing Element policies related to fair housing, code enforcement, condominium conversions, or meeting the special housing needs of seniors and persons with disabilities. Likewise, there would be no physical impacts from adopting changes to certain policies in the 2002 General Plan to maintain consistency with the Housing Element. There would also be no physical impacts from the project on sites where housing is already permitted under the existing General Plan, except where those sites have specifically been identified for increased density by the Planning Initiative. In the Bollinger Canyon Study Area, there is a 136 acres area referred to as Harvey Ranch that would receive an “Open Space” General Plan designation and would be rezoned to “Non-MOSO Open Space.” The area is being acquired by the John Muir Land Trust for conservation purposes and no future development potential is presumed in this area; therefore, no physical impact on the environment would occur in this area. Further, any development would require a conditional use permit and subsequent environmental review.

Therefore, this EIR focuses on the following actions that are expected to result in a physical impact on the environment:

- First, this EIR analyzes the potential impacts associated with the rezoning of key infill sites, as well as increases to allowable densities within the Moraga Center area and Rheem Park area. This rezoning and increase in allowable density is required so that the Town can meet State-mandated targets for providing its fair share of the region’s housing needs. The policies and programs directing this rezoning and increase in allowable density are included in the Draft 2023-2031 Housing Element. Each of the environmental resources topics includes a heading titled “Housing Element” in the Impact Analysis Section, where the potential impacts associated with rezoning the Moraga Center area and Rheem Park area are discussed.
- Second, this EIR analyzes the impacts associated with rezoning the Bollinger Canyon Study Area. Each of the environmental resources topics includes a heading titled “Bollinger Canyon Rezoning” in the Impact Analysis Section, where the potential impacts associated with the rezoning of the Bollinger Canyon Study Area are discussed.

In addition, the Housing Element includes Housing Opportunity Sites outside of the Moraga Center area and Rheem Park area, where development could occur (see Figure 2-4). The Town is not proposing changes to the zoning of these sites as part of the project. Because there would be no change to the zoning or allowed use or scale of development in these locations, the Planning Initiative would not result in additional development beyond what is allowed in the 2002 General Plan on these sites.

Accordingly, except for wildfire impacts and additional impacts that are cumulative in nature, impacts to these Housing Opportunity Sites are not analyzed in detail in this EIR. Wildfire impacts are analyzed for all Housing Opportunity Sites because at least one site (already shown for residential use in the 2002 General Plan) is located within a very high fire hazard severity zone, and because the wildfire risks associated with cumulative development in Moraga are of substantial concern to the community. Although the Planning Initiative would not change the zoning of any site in a Very High Fire Hazard Severity Zone, the Town finds value in disclosing to the public potential wildfire impacts that could occur if future development occurred on all opportunity sites identified by the project. The analysis of cumulative operational impacts on air quality, greenhouse gas emissions, noise, and transportation in this EIR consider potential cumulative development, including the development that could occur with the Housing Opportunity Sites outside of the Moraga Center area and Rheem Park area. As such, the operational impacts on air quality, greenhouse gas emissions, noise, and transportation in this EIR would include the potential impacts associated with the Housing Opportunity Sites outside of the Moraga Center area and Rheem Park area. The Town may use this EIR for tiering and streamlining purposes for future projects on the Housing Opportunity Sites if those projects are consistent with the assumptions analyzed herein.

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4.1 Aesthetics

This section analyzes the potential impacts to aesthetics, including scenic resources, visual character and quality, and light and glare, that could arise from implementation of the Planning Initiative.

4.1.1 Setting

a. Definitions

A scenic vista is a view from a public place (roadway, designated scenic viewing spot, etc.) that is expansive and identified by the lead agency as having scenic value. It can be obtained from an elevated position (such as from a public trail on the top of a hillside) or it can be seen from a roadway with a longer-range view of the landscape.

Light refers to light emissions (brightness) generated by a source of light. Stationary sources of light include exterior parking lot and building security lighting. Moving sources of light include the headlights of vehicles driving on roadways. Streetlights and other security lighting also serve as sources of light in the evening hours.

Glare is defined as focused, intense light emanated directly from a source or indirectly when light reflects from a surface. Daytime glare is caused in large part by sunlight shining on highly reflective surfaces at or above eye level. Reflective surfaces area associated with buildings that have expanses of polished or glass surfaces, light-colored pavement, and the windshields of parked cars.

b. Existing Visual Conditions

The overall visual character of the Town of Moraga is of a low-density valley and hillside community with strong landscape character and substantial tree canopy. This evokes a small town feeling of spaciousness along its major thoroughfares and in many of the lower density residential neighborhoods.

Concentrations of people and activities are focused near major intersections and at St. Mary's College, with commercial developments clustering at the corners of Moraga Way/Moraga Road and at Moraga Road/Rheem Boulevard, within the Moraga Center area and Rheem Park area, respectively. Much of the Town's visual character at the street level is dominated by wide streets, auto-oriented signage, and landscape buffers between streets and buildings.

The landscape of Moraga is comprised of a system of ridgelines, hillsides, valleys, canyons, streams, and floodplains that lie in between and run parallel to the Berkeley Hills (Gudde Ridge) to the west and Las Trampas Ridge to the east. The streams, water courses and pools that run through the hills usually lie at the bottom of valleys, canyons and drainage ravines and carry intermittent runoff to the East Bay Municipal Water District watershed, to the Upper San Leandro Reservoir, to Lake Chabot and down into the San Francisco Bay.

The branching networks of valleys, canyons and drainage areas known as the Rancho Laguna de los Palos Colorados include the Moraga Valley, Rheem Valley, and Bollinger Canyon. Major topographic ridges and associated scenic vistas include the Indian, Sanders, Mulholland and Campolindo ridgelines. The ridge and hillside landscape is mostly dry and the riparian areas are concentrated in the canyons and lower elevations where, except for agricultural land, the most water dependent vegetation is found. Most of the hillsides, knolls, slopes and ridges are covered with grasses or oak chaparral. There are some older agricultural orchards remaining from the Town's agricultural past.

The most prominent knolls and ridges reach elevations of 800 feet above sea level and higher. The ridges above the St. Mary's College Campus in the Bollinger Canyon Study Area reach elevations of 1,200 feet above sea level. The highland areas of the Town create natural balconies with long distance views over the Moraga and Rheem Valleys. The open space network of the valleys, canyons, ridges and streambeds are a naturally connected system of open spaces that are visible from almost every part of the Town, especially along its scenic corridors, which are discussed under Section 4.1.2, *Regulatory Setting* and shown in Figure 4.1-4.

Moraga Center Area

The Moraga Center area contains a mix of former agricultural areas and undeveloped properties interspersed with existing residential and commercial uses in the center of Moraga. The area is bound to the north by residential development and to the east by the Moraga Commons Park, as well as additional residential development. Residential development also abuts the southern and western boundaries of the Moraga Center area. The existing Moraga Center commercial complex includes retail and service facilities such as offices, financial institutions, and auto service stations. There is also a cluster of senior housing in the Moraga Center area. Moraga Ranch is in the central portion of the Moraga Center area adjacent to Laguna Creek and contains offices and other retail/commercial uses along with barns and other ranch style structures that reflect the original use of the Moraga Center area.

The Moraga Center area consists of two distinct landscape types:

- A rural landscape with remnants of the original agricultural activities that took place on the Moraga Ranch, and open land in the foothills west and east of the Town Center that has not been developed
- An urban landscape of retail and commercial uses, primary circulation routes, and clustered housing

The rural landscape of the former orchards, Laguna Creek riparian corridor, and disturbed grassland hillsides provide an aesthetic contrast to the urban pockets of the Town and add to the natural character within scenic corridors. The western and northern portion of the Moraga Center area is characterized by a former orchard area associated with the Moraga Ranch. This area is bound by single-family residences along Camino Ricardo, reflecting the ranch and Spanish-style architecture of the Town. There are also some commercial uses in this area, particularly an auto service station. Laguna Creek and its tributaries are in the northern and central portion of the area separating the orchard from the mixed use commercial area of the Ranch. The southern portion of the area is characterized by commercial and office uses, including religious and educational facilities, dental and medical offices, multifamily housing and two senior housing developments. The central and eastern portions of the area contain retail and mixed use commercial areas, interspersed with undeveloped in-fill properties. Architectural styles primarily reflect the Spanish-style influence typical in the town. However, some retail and commercial structures either reflect rural ranch architecture or reflect a commercial utilitarian style. Views from or to Housing Opportunity Sites in the Moraga Center area are shown in Figure 4.1-1.

Figure 4.1-1 Site Photographs 1 through 6



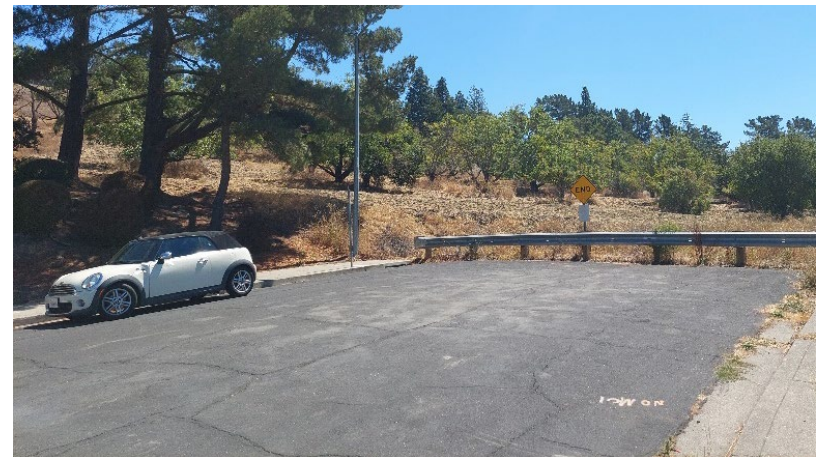
Photograph 1. Example Vista from the Willowbrook Lane looking South



Photograph 2. Example Vista from the Northwest Corner of Moraga Way and Cam Ricardo looking Northeast



Photograph 3. Example Vista from the Southeast Corner of Moraga Way and School Street looking North



Photograph 4. Example Vista from eastern terminus of Moraga Way looking East



Photograph 5. Example Vista from School Street and Country Club Drive looking West



Photograph 6. Example Vista from Cul-De-Sac Behind Willow Spring Church looking South

Rheem Park Area

The Rheem Park area contains existing commercial uses along Moraga Road and Rheem Boulevard, a clustered group of single-family residential uses in the eastern portion along Kendal Circle and some vacant land. The commercial uses are styled with rural ranch architecture in a typical strip mall layout, with parking lot areas larger than the commercial use structures themselves. The residential uses reflect a Spanish-style influence typical throughout the town. The area is broadly bounded by residential development and open space. Like the Moraga Center area, the rural landscape to the northeast frames the aesthetic contrast of the urbanized nature of the Rheem Park area. Views from or to Housing Opportunity Sites in the Rheem Park area are shown in Figure 4.1-2.

Bollinger Canyon Study Area

The Bollinger Canyon Study Area is mostly undeveloped land used primarily for seasonal livestock grazing that is surrounded by hills, including Las Trampas Peak and Las Trampas Ridge to the east. The Bluffs neighborhood within the Town is directly adjacent to the west, and the Burton Valley area in the City of Lafayette is less than 0.25 mile to the north. The St. Mary's College campus within the Town is directly adjacent to the southwest. Areas to the east are located within unincorporated Contra Costa County and are mostly open space or rural residential use. Open space to the east and south in Bollinger Canyon and Las Trampas Ridge is permanently protected as open space and owned and managed by East Bay Regional Parks District. Many of the parcels adjacent to the Bollinger Canyon Study Area are large and undeveloped. There are a few multi-acre lots with single-family residences and/or small agricultural buildings located immediately to the east, along Valley Hill Drive in unincorporated Contra Costa County.

The Bollinger Canyon Study Area consists of gentle to steeply sloping terrain, with areas in the western, southern, and far northeastern corner having grades more than 20 percent. The western and northern boundaries of the Bollinger Canyon Study Area include undulating hills that reach maximum elevations from 900 to 1,000 feet. The interior of the Bollinger Canyon Study Area ranges in elevation from 775 feet near the oak woodland to 900 feet toward the north. The northwestern portion of the Bollinger Canyon Study Area includes single family residences. Undeveloped portions of the area feature Coast Live Oak woodland, Central Coast riparian scrub, wetlands, coyote brush and sage scrub, and mostly non-native annual grasslands. Portions of the area have been historically used for cattle grazing. Views from or to areas in the Bollinger Canyon Study Area proposed for low density residential development are shown in Figure 4.1-3.

Figure 4.1-2 Site Photographs 7 through 9



Photograph 7. Example Vista from Center Street, South of Rheem Boulevard, looking Southwest



Photograph 8. Example Vista from Rheem Boulevard and Moraga Road looking South



Photograph 9. Example Vista from Dolores Court and Moraga Road looking North

Figure 4.1-3 Site Photographs 10 through 12



Photograph 10. Example Vista from Bollinger Canyon Road and Joseph Drive looking South



Photograph 11. Example Vista from Joseph Drive looking Southwest



Photograph 12. Example Vista from Joseph Drive looking North

c. Scenic Corridors

Scenic corridors provide an opportunity for the public to take advantage of the natural environment's aesthetic value. Scenic corridors typically pertain to roadways and visible lands outside of the roadway right-of-way. California's Scenic Highway Program designates scenic highways with the intention of protecting their corridors from change that would diminish the aesthetic value of adjacent lands. There are no State-designated scenic highways in the Plan Area; State Route (SR) 24 in Contra Costa County is eligible to be designated as a scenic highway from Caldecott Tunnel to Interstate 680 (California Department of Transportation [Caltrans] 2018), but the Plan Area is not clearly visible from SR 24. This extent is approximately 1.5 miles north of Moraga. Locally, Moraga has designated Bollinger Canyon Road, Camino Pablo, Canyon Road, Donald Drive (along the ridgeline of Mulholland Hill), Moraga Road, Moraga Way, Rheem Boulevard, and St. Mary's Road as major scenic corridors, as discussed under Section 4.1.2, *Regulatory Setting*.

d. Light and Glare

Existing development and motor vehicles in Moraga produce light and glare. Primary sources of light are streetlights, parking lot lighting, and automotive headlights. Glare refers to the discomfort or impairment of vision experienced when a person is exposed to a direct or reflected view of a light source, causing objectionable brightness that is greater than that to which the eyes are adapted. General sources of glare include reflected sunlight from the windows of buildings, from automobiles, and from glass building facades.

4.1.2 Regulatory Setting

a. Federal Regulations

There are no federal regulations related to aesthetics that apply to the Planning Initiative.

b. State Regulations

There are no State regulations related to aesthetics that apply to the Planning Initiative. There are no state-designated scenic highways in the town and the town is generally not visible from SR 24 since it is over 1.4 miles away beyond hills and ridgelines.

c. Local Regulations

Town of Moraga General Plan¹

The Town of Moraga 2002 General Plan includes goals and policies related to land use choices that define the Town's aesthetic quality and visual resources. Those include:

Goal LU1: A high quality residential environment consisting primarily of detached single-family homes.

Policy LU1.14: Residual Parcels as Open Space. Except in MOSO Open Space, residual parcels characterized by constraints such as geologic hazards, restricted access, an established riparian habitat, an historically significant feature or visibility from a scenic corridor shall be designated

¹ Some of the goals and policies cited here are being modified as part of the project. However, they are not substantively changing.

Non-MOSO Open Space. Residual parcels within designated MOSO Open Space shall remain designated MOSO Open Space as required by the Moraga Open Space Ordinance.

Policy LU1.15: Development on Residual Parcels. Permit the development of residual parcels only when it is found that such development will: 1) not have an adverse visual impact and is compatible with existing development; 2) provide properly sited open space; 3) generally provide for lots that are larger than the average lot size of adjacent subdivisions with setbacks from property lines greater than those in adjacent subdivisions; and 4) respect the natural features and development patterns of surrounding areas.

Goal CD1: Protection and preservation of the natural scenic qualities that make Moraga unique.

Policy CD1.1: Location of New Development. To the extent possible, concentrate new development in areas that are least sensitive in terms of environmental and visual resources, including: a) Areas of flat or gently sloping topography outside of flood plain or natural drainage areas. b) The Moraga Center area and Rheem Park area. c) Infill parcels in areas of existing development.

Policy CD1.2: Site Planning, Building Design and Landscaping. Retain natural topographic features and scenic qualities through sensitive site planning, architectural design and landscaping. Design buildings and other improvements to retain a low visual profile and provide dense landscaping to blend structures with the natural setting.

Policy CD1.3: View Protection. Protect important elements of the natural setting to maintain the Town's semi-rural character. Give particular attention to viewsheds along the Town's scenic corridors, protecting ridgelines, hillside areas, mature native tree groupings, and other significant natural features. Consideration should be given to views both from within the Town and from adjacent jurisdictions. Likewise, the Town should work with adjacent jurisdictions to protect views from Moraga to adjacent areas.

Policy CD1.4: Canyon and Valley Areas. Protect the scenic and environmental qualities of canyon and valley areas to retain the Town's semi-rural character. Preserve both close-up and distant views of the natural hillside landscape from valley areas and preserve significant linear open spaces in major canyons and grassland valleys with floodplain zones as the visual focus.

Policy CD1.5: Ridgelines and Hillside Areas. Protect ridgelines from development. In hillside areas, require new developments to conform to the site's natural setting, retaining the character of existing landforms preserving significant native vegetation and with respect to ridgelines, encourage location of building sites so that visual impacts are minimized. When grading land with an average slope of 20% or more, require 'natural contour' grading to minimize soil displacement and use of retainer walls. Design buildings and other improvements in accordance with the natural setting, maintaining a low profile and providing dense native landscaping to blend hillside structures with the natural setting.

Goal CD3: Scenic roadways leading into and through the Town that strengthen community identity and reflect Moraga's semi-rural character.

Policy CD3.1: Designation of Scenic Corridors. Designate the following routes as the Town's 'Scenic Corridors': a) St. Mary's Road b) Canyon Road c) Moraga Way d) Moraga Road e) Rheem Boulevard f) Camino Pablo g) Bollinger Canyon Road

Policy CD3.2: Visual Character. Improve the visual character along Scenic Corridors with lighting, landscaping and signage.

Policy CD3.5: Landscaping and Amenities. Use additional street tree planting, berms, fencing and ornamental landscaping to enhance the visual continuity along the Town's Scenic Corridors. Require appropriate landscaping for both public and private developments located on designated Scenic Corridors, including pedestrian lighting and street trees within existing commercial areas. Encourage use of native and drought-tolerant species and, where applicable, preservation of orchard trees.

Goal CD4: High quality residential neighborhoods that preserve their existing scale, character and quality and provide an inviting pedestrian environment to promote walking and biking between neighborhoods.

Policy CD4.1: Property Development Standards. Maintain and enforce existing property development standards for the Town's single-family residential neighborhoods.

Policy CD4.2: Neighborhood Character and Improvements. Work with individual neighborhoods to define their architectural and landscape character and identify improvements to strengthen and enhance that character. Examples of potential improvements include tree planting, sidewalks, bike paths and landscaping.

Policy CD4.3: Infill Development. Ensure that new residential development in existing neighborhoods reflects the size, scale, height, setbacks, and character of existing development. While new homes, home additions, and remodels should be allowed, they should not create adverse impacts on adjacent properties or detract from overall neighborhood character. All projects should be subject to discretionary review by staff.

Policy CD4.4: New Residential Developments. Design new single family developments to create high quality pedestrian environments with pathways to adjacent neighborhoods and, where feasible, commercial areas. Ensure that the layout of new residential lots respect the site topography and natural features. Where feasible, avoid standard repetitive lot sizes and shapes in hillside areas.

Goal CD5: Multi-family developments that are centrally located, well designed, and appropriate to Moraga's context and character.

Policy CD5.2: Design. Ensure that new multi-family developments are planned, designed and constructed to enhance the local area, reflecting the scale and quality of their surroundings. Encourage designs that help to break up large building masses, for example by breaking one large building into several smaller buildings; providing variations in rooflines; creating a three-dimensional façade rather than a massive, flat façade; and using landscaping to soften building edges. Architectural styles and materials should reflect the character of existing residential neighborhoods, with landscaping to enhance the natural setting.

Goal CD7: Preservation of historically significant buildings and sites as a valued part of the community's character and a link to its past.

Policy CD7.3: Adjacent Sites. Ensure that adjacent infill development is complementary to designated historic buildings and sites.

Goal CD8: Currently undeveloped Hillside Areas and Ridgelines shall maintain their scenic natural setting and environmental resources shall be protected.

Policy CD8.1: Community Character. Ensure that new development and conservation in Hillside Areas and on and near Ridgelines maintains Moraga’s unique semi-rural feel and scenic natural setting.

Policy CD8.4: Scenic Vistas. Ensure that new development in Hillside Areas, on and near Ridgelines, and within the Town’s scenic corridors does not diminish the visual quality of Moraga’s scenic vistas and the public’s enjoyment of these vistas. Development that complies with all applicable guidelines and all other requirements for hillside and scenic corridor development shall be considered to comply with this policy

Policy CD8.5: Hillside Development. To the maximum extent possible, require that development of new homes and non-residential uses in Hillside Areas retains the natural character of the existing landscape uninterrupted by visible manmade features. For example, development shall seek to conform to and blend with the site’s natural setting, retain and respect the character of existing landforms, preserve natural vegetation, utilize contour grading to minimize soil displacement and use of retaining walls, maintain a low visual profile, and incorporate appropriate screening using native vegetation. Development that complies with all applicable guidelines and all other requirements for hillside development shall be considered to comply with this policy.

Policy CD8.8: Hillside and Ridgeline Protection. Require development to be located and designed so that Major MOSO Ridgelines, Minor MOSO Ridgelines, Significant Non-MOSO Ridgelines, and the Hillside Areas below them remain the dominant visual features when viewed from the Town’s scenic corridors.

Goal OS1: Preservation of as much open space land as possible, including protection of all major and minor ridgelines and lands that help meet residents’ recreational needs.

Policy OS1.7: Visual Separation - Designated Ridgelines. For designated Ridgelines, locate new hillside development such that a minimum of 35 percent of the vertical distance from the crest of the Ridgeline to the toe of the slope below remains visible as undeveloped open space when viewed from the view corridors described in Moraga Municipal Code Chapter 8.128. This policy is intended to maintain the Ridgeline and the undeveloped Hillside Area below as the dominant visual features when viewed from the Town’s scenic corridors. The Town Council may grant exceptions to this visual separation requirement in unique circumstances in accordance with criteria in Moraga Municipal Code Chapter 8.128.

Town of Moraga Municipal Code

Moraga Municipal Code Title 8 includes the provisions of the planning and zoning ordinance that govern lighting and glare for all development within the Town. Chapter 8.132 (Scenic Corridors) provides guidelines and procedures for approval of development and land improvements located within 500 feet of major scenic corridors, which include St. Mary’s Road, Canyon Road, Moraga Way, Moraga Road, Rheem Boulevard, Camino Pablo, Bollinger Canyon Road, and Donald Drive (along the ridgeline of Mulholland Hill). Scenic corridors are shown in Figure 4.1-4. Section 8.132.050 establishes development guidelines for major scenic corridors related to building positioning, maintenance of existing views, allowance for natural growth, and minimization of lighting/glare. Those guidelines include:

Comprehensive Advanced Planning Initiative

- The design and location of each building and landscaping shall create a compatible visual relationship with surrounding development and with the natural terrain and vegetation. Road widths and road configurations should be considered as part of the design element.
- Buildings and landscaping shall be so located that each does not create a walled effect along the scenic corridor. Setbacks and building heights may be made more restrictive than otherwise permitted by the applicable zoning regulations. In general, the greater the mass or bulk, the greater the setback should be. The positioning of buildings shall be varied in order to create a complementary relationship between mass and void.
- Buildings shall be located and designed to maintain views of distant hillsides and ridgelines while allowing for an appropriate intensity of development consistent with the intent of the applicable zoning district and general plan designation.
- To the extent appropriate and feasible, development shall comply with guidelines in Section SC2: Scenic Vistas in the town design guidelines and standards.
- Each structure or feature reviewable under this chapter shall be limited in scale and siting to reduce visual dominance or obstruction of existing landforms (particularly hillside areas and ridgelines), vegetation, water bodies and adjoining structures.
- Existing topography, vegetation and scenic features of the site shall be retained and incorporated into the proposed development wherever possible. Manmade structures, as a visual element in the scenic corridor, should be secondary in importance to natural growth.
- Each structure or feature reviewable under this chapter shall be limited to scale and siting to reduce visual dominance or obstruction of existing landforms, vegetation, water bodies and adjoining structures.
- Each structure shall be constructed, painted and maintained and all planted material shall be planted and maintained to complement and enhance scenic views and the natural landscape.
- Unnatural and conflicting aesthetic elements shall be eliminated to the extent feasible consistent with safety requirements (for example, retain street lighting, but place wiring underground). Where it is not possible to locate such a feature out of view, it must be located in an area so as to minimize visibility from a scenic corridor or screened from view by planting, fence wall or berm. Where the screen consists of a fence, wall or berm, it may not be higher than six feet. Screening shall consist of primarily natural materials rather than solid fencing. Preference shall be given vegetation in conjunction with a low earth berm.
- Lighting shall be compatible in type, style and intensity to the surrounding elements and not cause undue or aggravating disruption, glare and brightness.
- Grading or earth-moving shall be planned and executed in such a manner that final contours appear consistent with a natural appearing terrain. Finished contours shall be planted with plant materials native to the area so that minimum care is required and that the material is visually compatible with the existing ground cover.
- The number of access points to and from the scenic corridor shall be minimized consistent with safety and circulation needs.
- Parking on the scenic corridor roadways should be minimized.
- Each specimen tree and each grove of trees may be approved for removal only if the tree or grove of trees is unsafe or diseased or to provide the smallest cleared area necessary to locate an approved road or structure on the site under guidelines of the tree preservation ordinance. Selective clearing of vegetation may be permitted upon review and approval by the design review board.

Moraga Municipal Code Chapter 8.128 (Ridgeline Protection) governs ridgeline protection and establishes regulations for development on hillsides and near designated ridgelines, as shown in Figure 4.1-5. Designated ridgelines are subject to horizontal buffer standards listed in Section 8.128.040. Section 8.128.050 applies to development in hillside areas when development is visible from an affected view corridor (shown in Figure 8.128-1 in the Moraga Municipal Code) and may impact the views of affected ridgeline and the hillsides below. Such development would be required to adhere to the following guidelines:

- Structures in hillside areas shall be located and designed so that a minimum of 35 percent of the vertical distance from the crest of the affected ridgeline to the "toe of slope elevation" (i.e., contour line elevation, extending along the full length of the affected ridgeline) for that affected ridgeline remains visible as undeveloped open space when viewed from the full length of the affected view corridor
- If the Town determines that compliance with the standard when viewed from the full length of the affected view corridor renders any reasonable development project infeasible, the town may alternatively require the project to comply with the 35 percent visual separation standard as viewed from one or more individual vantage points along the affected view corridor. In such a case, the Town shall select vantage points from which the project would be most visible and/or result in the greatest potential visual impact to the hillside and ridgeline as viewed from the scenic corridor.
- For proposed structures that would be visible on a hillside below an affected ridgeline as viewed from an affected view corridor, the applicant shall prepare a visual simulation demonstrating compliance with this standard. Visual simulations shall utilize the road centerline as the location from which the simulation at any designated vantage point is developed and shall be prepared in a manner consistent with the town's guidelines for visual representation of proposed development projects.
- Prior to Town action on the proposed project, the applicant shall install story poles as required by the planning director demonstrating project compliance with this standard and in accordance with the town's guidelines for visual representation of proposed development projects. The story poles shall be installed to reflect the various height points of the project as it will be built, including any increase in elevation that will be attributable to pad elevation. Story poles shall be photographed by the Town from specified, reproducible locations. During and after project construction, the Town shall take comparable photographs from the same locations to confirm that visual impacts of completed structures are reasonably consistent with those indicated by the story poles. In cases when site topography or other physical constraints prevent the installation of story poles, the planning commission may allow an alternative method to demonstrate compliance, including additional visual simulations, three-dimensional models, and other graphic modeling techniques.

Additionally, Section 8.136.050 requires that any proposed development on a hillside area or hillside land must obtain a hillside development permit or include certain findings for approval. The findings for approval include that the project would be designed to minimize visual impacts, protect scenic resources, and maintain Moraga's semi-rural feel, to the greatest extent possible.

Town of Moraga Design Guidelines

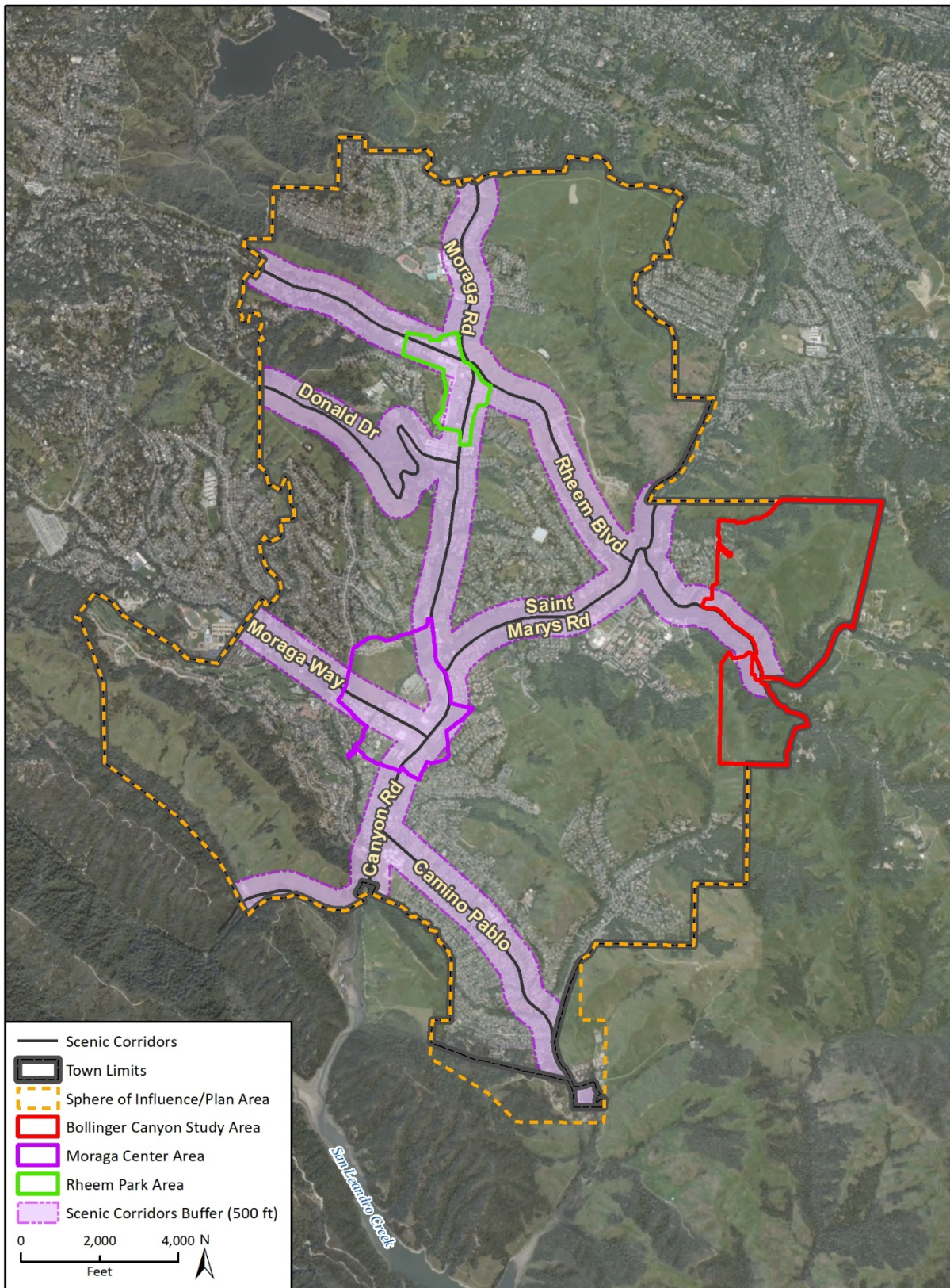
The Town of Moraga Design Guidelines, adopted June 2007 and revised November 2020, are drawn from the Town of Moraga 2002 General Plan Community Design Element. The intent of the

guidelines is to provide flexibility and further clarity to the architecture that aligns with the Town's vision. The guidelines are meant to serve as a consideration for design of development projects before they are reviewed by the Town. The guidelines are meant to maintain the Town's semi-rural character; protect ridgelines and hillside areas; complement existing landscaping; enhance the Town's scenic corridors; minimize the impacts of development; thoughtfully design single-family residential neighborhoods; thoughtfully design new multifamily residential developments; and promote commercial centers as community places.

Design guidelines related to enhancing the Town's scenic corridors apply to development within 500 feet of a major scenic corridor, as measured from the edge of the public right-of-way. Scenic corridors are listed above under Section 4.1.1, *Setting*. Guidelines related to the Town's scenic vistas apply to development within the 500-foot buffer of a scenic corridor, with the potential to obstruct public views of Moraga's scenic vistas. Scenic corridors and scenic vistas are shown in Figure 4.1-4 and Figure 4.1-5.

Design Guidelines Section ID1-7, which is applicable to all development within the Town includes Guideline ID3, which indicates that glare reduction should be provided. Section ID1-7 also includes Guideline ID6, which dictates that the level of lighting should not exceed security needs or detract from aesthetics of development, including having minimal impacts off-site. Some guidelines are specific to the Moraga Center area, including Guideline 11.1.4.4 that states that light sources should be shielded and directed away from interior living spaces of all residential areas and be dark sky compliant. Also specific to the Moraga Center area, Guideline 11.6.1 dictates that lighting should be "warm" (3,000 kelvin or lower) and be shielded to avoid excessive or unnecessary glare and minimal impact off site. Guideline RH8.9 identifies that outdoor lighting on private property visible from public

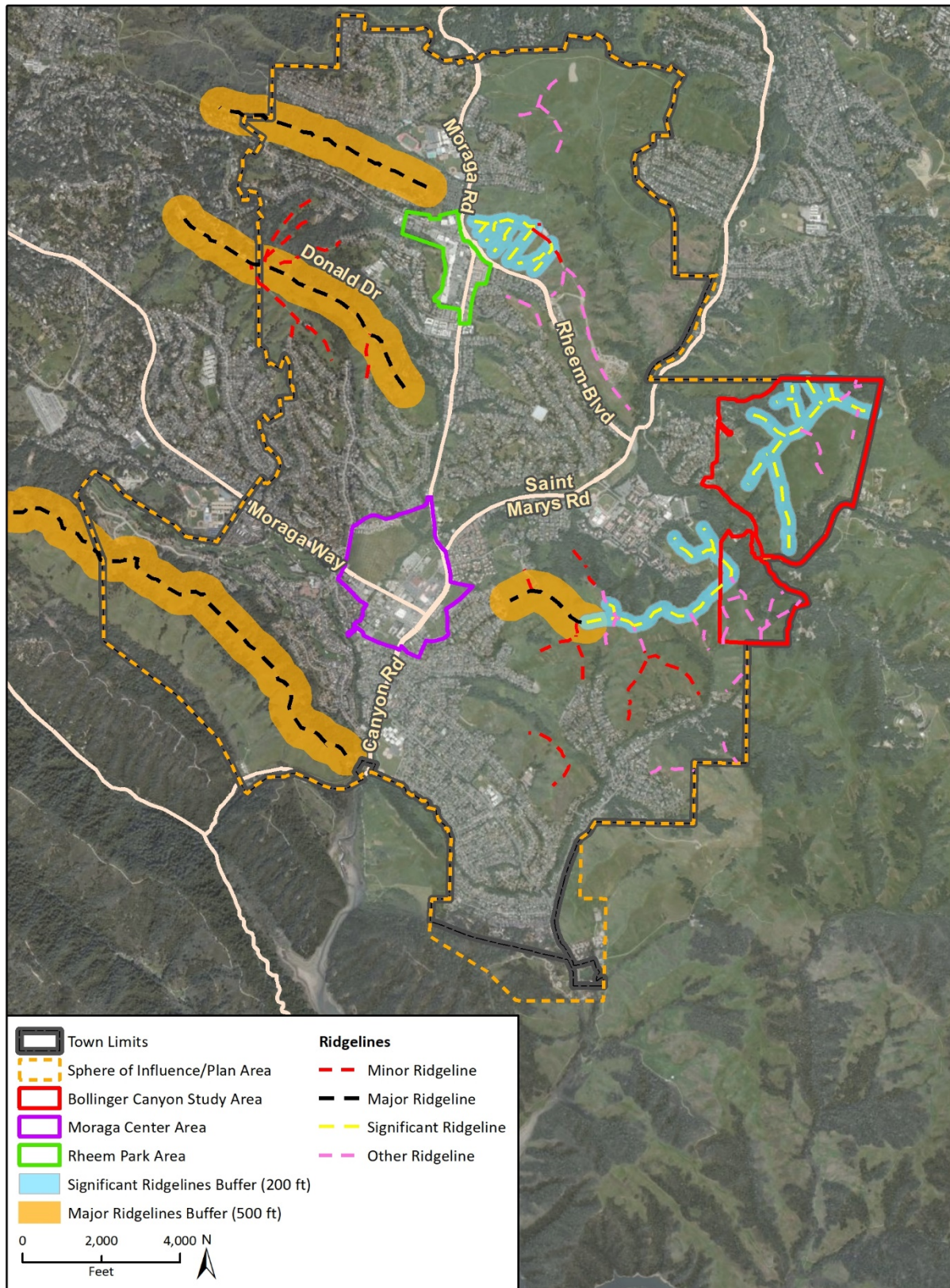
Figure 4.1-4 Scenic Corridors



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Additional data provided by City of Moraga, 2022.

Fig 4.1-1 Scenic Corridors

Figure 4.1-5 Major Ridgelines/Scenic Vistas



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 Additional data provided by City of Moraga, 2022.

Fig 4.1-1 Scenic Corridors and Scenic Vistas

streets, should be indirect or incorporate full shield cut-offs, and light sources should not be seen from adjacent properties or public rights-of-way.

4.1.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

The following thresholds of significance are based on *CEQA Guidelines* Appendix G. For purposes of this EIR, impacts on aesthetics from the Planning Initiative would be significant if implementation of the Planning Initiative would:

1. Have a substantial adverse effect on a scenic vista;
2. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
3. In non-urbanized areas, substantially degrade existing visual character or quality of public views of the site and its surroundings. If the project is in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Methodology

Aesthetics impact assessments involve qualitative analysis that is subjective but informed by the basic guidelines provided above. Reactions to the same aesthetic conditions vary according to viewer taste and interests. The Planning Initiative is a programmatic and not a specific development proposal. This analysis focuses, therefore, on a general discussion of the aesthetic impacts in Moraga, in terms of the arrangement of built space to open space, the density and intensity of development, and how new development visually fits with the existing landscape characteristic of the area.

The impacts on visual character or quality attributable to development facilitated by the Planning Initiative were evaluated relative to visual conditions under full buildout. A visual survey of the town, focusing on Housing Opportunity Sites within the Moraga Center area, Rheem Park area, and Bollinger Canyon Study Area was conducted in August 2022 and Google Earth imagery and other online visual sources were reviewed in preparation of this analysis.

b. Impact Analysis

Threshold 1: Would the project have a substantial adverse effect on a scenic vista?
Threshold 2: Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Housing Element

Impact AES-1 IMPLEMENTATION OF THE HOUSING ELEMENT WOULD RESULT IN NEW DEVELOPMENT THAT COULD AFFECT SCENIC VISTAS. HOWEVER, STRATEGIC SITING OF HOUSING OPPORTUNITY SITES WITHIN URBANIZED AREAS OF THE TOWN, ALONG WITH COMPLIANCE WITH APPLICABLE DESIGN GUIDELINES, MUNICIPAL CODE, AND 2002 GENERAL PLAN POLICIES WOULD ENSURE THAT DEVELOPMENT WOULD NOT HAVE A SUBSTANTIAL ADVERSE EFFECT ON SCENIC VISTAS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

An adverse effect would occur if development facilitated by Housing Element blocked or otherwise adversely affected a scenic vista (as defined in Section 4.1.1, *Setting*), such as Moraga’s designated scenic corridors and ridgelines (see Section 4.1.2, *Regulatory Setting*, Figure 4.1-4, and Figure 4.1-5). Future development could occur within the 500-foot scenic corridor buffer, including Moraga Road, Rheem Boulevard, St. Mary’s Road, and Canyon Road. While development would not occur within the 200-foot ridgeline buffer because no new or increased development sites are identified within that buffer, ridgelines northeast of the Rheem Park area or west of the Moraga Center area are visible from areas around the proposed rezoning sites within the Rheem Park area.

Proposed rezones under the Housing Element that would increase densities from 20 dwelling units per acre to 24 dwelling units per acre would not require an increase of maximum allowable heights. Building massing may increase to accommodate the increased density and development may occur on vacant or underutilized sites, which could affect scenic views toward scenic corridors and of ridgelines. However, the Moraga Center area and Rheem Park area are already developed, and development would occur on underutilized or vacant sites. Further, development within the urbanized areas of the town, such as the Moraga Center area and Rheem Park area, has already been planned to reinforce the existing development pattern and conserve the more rural areas of the town that have more access to scenic vistas.

Further protecting scenic vistas, Moraga Municipal Code Chapter 8.132 would govern the design of development facilitated by the Housing Element within the 500-foot scenic corridor buffer. Future development within the scenic corridor buffer would be required to adhere to the guidelines in Section 8.132.050 listed in Section 4.1.2, *Regulatory Setting*. Program 32, Scenic Corridor Regulations, in the proposed 6th cycle Housing Element would require a review of Chapter 8.132 to consider modified setbacks and possible waivers of upper story setback requirements on designated sites, which would include objective standards. The Housing Element does not propose specific changes to the scenic corridor setback standards at this time. Pursuant to Moraga Municipal Code Section 8.132.070, future development would still be subject to review and approval by the Design Review Board. Similarly, Moraga Municipal Code Chapter 8.128 governs development on hillsides or near designated ridgelines (see Figure 4.1-5). Development that may be visible from an affected view corridor and may impact the views of affected ridgeline and hillsides below would be required to adhere to the guidelines in Section 8.128.050, as included in Section 4.1.2, *Regulatory Setting*.

In addition to Moraga Municipal Code requirements, the Town's Design Guidelines protect ridgelines and hillside areas, enhance the Town's scenic corridors, minimize impacts of development to the extent feasible, thoughtfully design developments, and guidelines unique to the Moraga Center area. Development would be subject to review for consistency with the applicable Design Guidelines. In addition, the Planning Initiative includes Objective Design Standards for the Rheem Park area. These standards are intended to ensure that new projects protect scenic vistas and are visually compatible with existing development.

Finally, 2002 General Plan goals and policies would reduce impacts of the Housing Element on scenic vistas and corridors. Policy LU1.3 would protect views by limiting residential building heights. Goal CD1 and Policies CD1.1 through CD1.5 encourages development to protect and preserve natural scenic qualities in Moraga through concentration of new development in areas least sensitive to visual resources, retention of scenic qualities through planning, design, and landscaping, and protecting viewsheds. The Housing Element would accomplish this by locating new development in developed areas, such as the Moraga Center area and Rheem Park area. Policy CD3.2 calls for improvement of visual character along scenic corridors. Policy CD8.4 ensures that new development in hillside and ridgeline areas do not diminish the visual quality of scenic vistas.

There are no state-designated scenic highways in the town and the town is generally not visible from SR 24 since it is over 1.4 miles away beyond hills and ridgelines; therefore, the Housing Element would not facilitate development that would substantially damage scenic resources within a state scenic highway.

Overall, the Initiative's focus on development within developed commercial areas; required compliance with the Town's Design Guidelines and Municipal Code; and conformance with 2002 General Plan goals and polices would ensure that development facilitated by the Housing Element would not substantially adversely affect scenic vistas, such as those from scenic corridors or of ridgelines. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact AES-2 IMPLEMENTATION OF THE BOLLINGER CANYON REZONING WOULD RESULT IN NEW DEVELOPMENT THAT COULD HAVE ADVERSE EFFECTS ON SCENIC VISTAS. HOWEVER, COMPLIANCE WITH THE TOWN'S DESIGN GUIDELINES, MUNICIPAL CODE, AND 2002 GENERAL PLAN POLICIES WOULD ENSURE THAT NEW DEVELOPMENT DOES NOT HAVE A SUBSTANTIAL ADVERSE EFFECT ON SCENIC VISTAS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Impact AES-1, there are no state-designated scenic highways in the Town, but there are locally-designated scenic vistas, such as scenic corridors and ridgelines, as shown on Figure 4.1-4 and Figure 4.1-5. Development from the Bollinger Canyon Rezoning could occur within the 500-foot scenic corridor buffer, such as Bollinger Canyon Road. Development would not occur within the 200-foot ridgeline buffer and views of ridgelines within the Bollinger Canyon Study Area would remain visible after development of new low-density single-family residences pursuant to Moraga

Municipal Code governing height and placement of residences near hillsides, as discussed above under Impact AES-1. Development facilitated by the Bollinger Canyon Rezoning would allow development of single-family residences at a density of one unit per acre or one unit per 5 acres on 270 acres. Introduction of new residential development would not result in a significant impact to scenic vistas or resources.

Moraga Municipal Code Chapters 8.132 and 8.128, applicable Design Guidelines, and 2002 General Plan goals and policies, as discussed above in Impact AES-1, would reduce impacts to scenic vistas within the Bollinger Canyon Study Area. Overall, compliance with the applicable Design Guidelines and Municipal Code, as well as conformance with 2002 General Plan goals and policies would ensure that development facilitated by the Bollinger Canyon Rezoning would not substantially adversely affect scenic vistas, such as those from scenic corridors or of ridgelines. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3: Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Housing Element

Impact AES-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT SUBSTANTIALLY DEGRADE EXISTING VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS THROUGH STRATEGIC SITING WITHIN DEVELOPED AREAS OF THE TOWN AND COMPLIANCE WITH MORAGA MUNICIPAL CODE, APPLICABLE DESIGN GUIDELINES, AND 2002 GENERAL PLAN GOALS AND POLICIES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Housing Element would facilitate changes in development parameters that would incrementally change the scenic quality of the Town, which is non-urbanized pursuant to CEQA², especially in the Moraga Center area and Rheem Park area. Development would include infill development and development of previously undeveloped or underutilized sites or portions of sites. Development of the Housing Opportunity Sites within the Moraga Center area and Rheem Park area would result in higher-intensity residential or mixed use developments in already developed areas. Development in the Moraga Center area and Rheem Park area would help maintain the rest of the Town's rural development pattern and aesthetic and thus maintain visual character.

As analyzed under Impact AES-1, the Moraga Municipal Code and the Town's Planning Commission project review for consistency with applicable Design Guidelines would ensure maintenance of existing visual character and quality of public views. Furthermore, adherence to 2002 General Plan goals and policies would encourage maintenance of existing visual character and quality of public views. Goal LU1 and associated policies such as Policies LU1.1, LU1.3, LU1.14, and LU1.15 would

² The Town is non-urbanized pursuant to CEQA Statute Section 21071 because its population is under 100,000 residents.

preserve neighborhood visual character and public views through adherence to planned zoning and development restrictions that account for scenic quality. Policy CD3.6 encourages commercial development, such as those in mixed use development that may occur from implementation of the Housing Element, to adhere to applicable design guidelines related to visual character and public views. Policy CD4.1 calls for enforcement of development standards in the Town's single-family residential neighborhoods, such as those that would be developed under the Housing Element Goal CD5 and Policy CD5.2 would ensure that multi-family developments, such as those that may occur in the Moraga Center area or Rheem Park area, are designed to reflect the quality of local surroundings. Policy CD6.1 encourages the improvement of design quality in the Town's commercial centers, such as the Moraga Center area and Rheem Park area. Policy CD8.1 aims to ensure the maintenance of community character as semi-rural and scenic natural setting, which would reduce impacts of new development. Lastly, Policy OS2.8 calls for tree preservation and protection to contribute to the environmental quality of the town. With compliance pursuant to the Town's Municipal Code and applicable Design Guidelines, as well as adherence to 2002 General Plan goals and policies, impacts related to the substantial degradation of the existing visual character or quality would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact AES-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT SUBSTANTIALLY DEGRADE EXISTING VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS OF DEVELOPMENT SITES DUE TO THE CLUSTERING OF SITES ADJACENT TO EXISTING RESIDENTIAL DEVELOPMENT IN THE NORTHWESTERN PORTION OF THE STUDY AREA; THE LARGE MINIMUM LOT SIZES IN THE CENTRAL AND NORTHEASTERN PORTIONS OF THE STUDY AREA; AND THE MAINTENANCE OF OPEN SPACE IN OTHER PORTIONS OF THE STUDY AREA, AS WELL AS THROUGH COMPLIANCE WITH MORAGA MUNICIPAL CODE, APPLICABLE DESIGN GUIDELINES, AND 2002 GENERAL PLAN GOALS AND POLICIES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The development facilitated by the Bollinger Canyon Rezoning would facilitate changes in parameters that could incrementally change the visual character and quality of Bollinger Canyon Rezoning Study Area. Development could include single-family residences on previously undeveloped open space. Development facilitated by the Bollinger Canyon Rezoning zoned for Rural Residential would result in very low-density residential development.

Development that would occur at a density of one unit per one acre would occur adjacent to existing single-family residences, extending but maintaining the existing land use pattern and visual character. In areas where development is proposed at a very low density of one unit per five acres on undeveloped land, residences would not be likely be visible from public roads, nor would they occur at an intensity great enough to significantly degrade visual character of the rural landscape. Although development in the Bollinger Canyon Rezoning area would change the visual character in some portions from undeveloped to very low density residential, development would be guided by applicable Design Guidelines to help generally maintain the character of the surrounding hillsides. As analyzed under Impact AES-1, Moraga Municipal Code and the Town's Planning Commission

review of projects for consistency with applicable Design Guidelines would help ensure visual character or quality would not be substantially degraded. Furthermore, adherence to 2002 General Plan goals and policies discussed under AES-3 would encourage preservation of existing visual character and quality. For the same reasons identified in Impact AES-3, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4: Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Housing Element

Impact AES-5 DEVELOPMENT FACILITATED BY HOUSING ELEMENT WOULD INTRODUCE NEW SOURCES OF LIGHT AND GLARE. WITH ADHERENCE TO EXISTING ORDINANCES THAT REGULATE LIGHT AND GLARE FOR NEW DEVELOPMENT, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.1.1, *Setting*, the Plan Area is a low-density valley and hillside community with very strong landscape character. Light levels in Moraga are moderately high in developed areas, such as the Moraga Center area and Rheem Park area due to streetlights, exterior building lighting, and lighted signs. New development would contribute to the existing setting. Glare would be higher where surface parking lots without shade trees allow the sun to reflect on car windshields parked in the lot. The highest levels of glare would occur in the Moraga Center or Rheem Park Housing Opportunity Sites where existing development includes large, surface parking with few or no trees to shade the cars.

Development facilitated by the Housing Element would be subject to the Town's Municipal Code and Design Guidelines, which governs govern lighting. These include Moraga Municipal Code Chapter 8.132 and 8.128 that govern light and glare in scenic corridors and designated ridgelines. Namely, Chapter 8.132 dictates lighting in scenic corridors shall not cause undue or aggravating disruption, glare and brightness. As discussed in Section 4.1.2, *Regulatory Setting*, Design Guidelines Section ID1-7, Guideline ID3 indicates that glare reduction should be provided for all development within the Town. Furthermore, development would abide by lighting guidelines, as included in Guideline ID6. Development within the Moraga Center area is governed by additional lighting guidelines in Guideline 11.1.4.4 related to light source shielding and Guideline 11.6.1 related to low impact lighting. Development in ridgeline and hillside areas would comply with additional lighting guidelines, such as Guideline RH8.9 related to light source visibility.

New exterior lighting associated with future projects would be regulated by the Town's Municipal Code and Design Guidelines, and light and glare impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact AES-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INTRODUCE NEW SOURCES OF LIGHT AND GLARE. GIVEN THE LOW-INTENSITY OF DEVELOPMENT AND WITH ADHERENCE TO EXISTING ORDINANCES THAT REGULATE LIGHT AND GLARE FOR NEW DEVELOPMENT, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.1.1, *Setting*, the Bollinger Canyon Rezoning Study Area is largely undeveloped, except for single family residences in the northwestern portion of the Bollinger Canyon Rezoning Study Area. Light levels in the Bollinger Canyon Rezoning Study Area are moderately low due to light from single family residences in the developed northwestern portion of the Bollinger Canyon Rezoning Study Area. Light levels throughout the remainder of the Bollinger Canyon Rezoning Study Area are low given the lack of development. Similarly, glare is minimal throughout the Bollinger Canyon Rezoning Study Area given the lack of development.

Limited low density residential development (51 total units within 287 acres) would introduce minimal new sources of light and glare. Some development could occur within scenic corridors and near designated ridgelines. Development facilitated by the Bollinger Canyon Rezoning would be subject to detailed Town regulations that govern lighting found in the Town's Municipal Code and Design Guidelines. These include Moraga Municipal Code Chapter 8.132 and 8.128 that govern light and glare in scenic corridors and designated ridgelines, as discussed in Section 4.1.2, *Regulatory Setting*. Namely, lighting in scenic corridors shall not cause undue or aggravating disruption, glare and brightness. Additional lighting guidelines, as discussed under Impact AES-5, include Guidelines ID3 related to glare reduction on site and Guideline ID6 related to the level of lighting. Furthermore, development in ridgeline and hillside areas, such as the Bollinger Canyon Rezoning Study Area would comply with Guideline RH8.9 related outdoor lighting visibility.

New exterior lighting associated with future projects would be regulated by the Town's Municipal Code and Design Guidelines, and light and glare impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.2 Air Quality

This section analyzes air quality-related impacts associated with development facilitated by the Planning Initiative, including temporary air quality impacts relating to construction activity and long-term air quality impacts from operation.

4.2.1 Setting

a. Regional Climate and Meteorology

The Town of Moraga is located in Contra Costa County, a subregion of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County. Contra Costa County is east of San Pablo Bay and San Francisco Bay, north of Alameda County, and south of Solano County.

Due to the proximity of San Francisco Bay and the Pacific Ocean, the climate in the SFBAAB is characterized by warm dry summers and cool moist winters. Weather station data, approximately six miles from the Town of Moraga in Walnut Creek, measured a range of summer temperature averages from 50s to mid-80s degrees Fahrenheit (United States Climate Data 2022). During winter, temperatures range between the 40s- and 60s-degree Fahrenheit.

The major large-scale weather feature controlling climate in Moraga is a large high-pressure system located in the eastern Pacific Ocean, known as the Pacific High. During winter months, marine air trapped in the lower atmosphere is often condensed into fog by the cool Pacific Ocean. Stratus-type clouds usually form offshore and move into the area during the evening hours. During winter months, the Pacific High becomes weaker and shifts south, allowing weather systems associated with the polar jet stream to affect the region. Low pressure systems produce periods of cloudiness, strong shifting winds, and precipitation. The town receives approximately 25 inches of precipitation per year (United States Climate Data 2022). High-pressure systems are also common in winter, with low-level inversions that produce cool stagnant conditions.

b. Air Pollutants of Primary Concern

Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack, etc.). The federal and State Clean Air Acts (CAA) mandate the control and reduction of certain air pollutants. Under these laws, the United State Environmental Protection Agency (USEPA), and the California Air Resources Board (CARB) have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for “criteria pollutants” and other pollutants. Some pollutants are emitted directly from a source into the atmosphere, including carbon monoxide (CO), volatile organic compounds/reactive organic gases (ROG),¹ nitrogen oxides (NO_x), particulate matter with diameters of up to ten microns (PM₁₀) and up to 2.5 microns (PM_{2.5}), sulfur dioxide, and lead. Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone (O₃), which is created by atmospheric chemical and photochemical reactions primarily between ROG and NO_x. Secondary pollutants include oxidants, O₃, and sulfate

¹ CARB defines volatile organic compounds and ROG similarly as, “any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate,” with the exception that volatile organic compounds are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and volatile organic compounds are considered comparable in terms of mass emissions, and the term ROG is used in this analysis.

and nitrate particulates (smog). The following subsections describe the characteristics, sources, and health and atmospheric effects of air pollutants of primary concern.

Ozone

Ozone (O₃) is a highly oxidative unstable gas, produced by a photochemical reaction (triggered by sunlight) between NO_x and ROG. ROG are composed of non-methane hydrocarbons (with some specific exclusions), and NO_x is composed of different chemical combinations of nitrogen and oxygen, mainly nitric oxide and nitrogen dioxide (NO₂). NO_x is formed during the combustion of fuels, while ROG are formed during combustion and evaporation of organic solvents. As a highly reactive molecule, O₃ readily combines with many different components of the atmosphere. Consequently, high levels of O₃ tend to exist only while high ROG and NO_x levels are present to sustain the O₃ formation process. Once the precursors have been depleted, O₃ levels rapidly decline. Because these reactions occur on a regional rather than local scale, O₃ is considered a regional pollutant. Groups most sensitive to O₃ include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors (USEPA 2022a). Depending on the level of exposure, O₃ can result in the following:

- Cause coughing and sore or scratchy throat;
- Make it more difficult to breathe deeply and vigorously and cause pain when taking a deep breath;
- Inflammation and damage the airways;
- Make the lungs more susceptible to infection;
- Aggravate lung diseases such as asthma, emphysema, and chronic bronchitis; and/or
- Increase the frequency of asthma attacks.

Carbon Monoxide

Carbon Monoxide (CO) is a localized pollutant that is found in high concentrations only near its source. The major source of CO, a colorless, odorless, poisonous gas, is the incomplete combustion of petroleum fuels by automobile traffic. Therefore, elevated concentrations are usually found only near areas of high traffic volumes. Other sources of CO include the incomplete combustion of petroleum fuels at power plants and fuel combustion from wood stoves and fireplaces during the winter. When CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. People with heart disease have restricted blood flow, which results in a lack of oxygen to the heart muscle. These people are especially vulnerable to the effects of CO when exercising or under increased stress when the heart needs more oxygen than usual. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain, also known as angina (USEPA 2022b).

Nitrogen Dioxide

Nitrogen Dioxide (NO₂) is a by-product of fuel combustion; the primary sources are motor vehicles and industrial boilers and furnaces. The principal form of NO_x produced by combustion is nitric oxide, but nitric oxide reacts rapidly to form NO₂, creating the mixture of nitric oxide and NO₂, commonly called NO_x. NO₂ is a reactive, oxidizing gas and an acute irritant capable of damaging cell linings in the respiratory tract. Such exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), and increase hospital admissions and visits to emergency rooms. Longer

exposures to elevated concentrations of NO₂ may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO₂ (USEPA 2022c). NO₂ absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of O₃/smog and acid rain.

Sulfur Dioxide

Sulfur Dioxide (SO₂) is included in a group of highly reactive gases known as “oxides of sulfur.” The largest sources of SO₂ emissions are from fossil fuel combustion at power plants (73 percent) and other industrial facilities (20 percent). Smaller sources of SO₂ emissions include industrial processes such as extracting metal from ore and burning fuels with a high sulfur content by locomotives, large ships, and off-road equipment. Short-term exposures to SO₂ can harm the human respiratory system and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO₂ (USEPA 2022d).

Particulate Matter

Suspended atmospheric PM₁₀ and PM_{2.5} is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. Both PM₁₀ and PM_{2.5} are directly emitted into the atmosphere as by-products of fuel combustion and wind erosion of soil and unpaved roads. Particulate matter is also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with PM₁₀ and PM_{2.5} can be very different. PM₁₀ is generally associated with dust mobilized by wind and vehicles while PM_{2.5} is generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. PM₁₀ can cause increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling. For PM_{2.5}, short-term exposures (up to 24-hours duration) have been associated with respiratory issues such as acute bronchitis and asthma attacks. In addition, PM_{2.5} can cause premature mortality, increased hospital admissions for heart or lung issues, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases (CARB 2022a).

Lead

Lead (Pb) is a metal found naturally in the environment, as well as in manufacturing products. The major sources of lead emissions historically have been mobile and industrial sources. However, as a result of the USEPA’s regulatory efforts to remove lead from gasoline, atmospheric lead concentrations have declined substantially over the past several decades. The most dramatic reductions in lead emissions occurred prior to 1990 due to the removal of lead from gasoline sold for most highway vehicles. Lead emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries at least in part because of national emissions standards for hazardous air pollutants (USEPA 2014). At the national level, major sources of lead in the air are ore and metals processing and piston-engine aircraft operating on leaded aviation fuel. Other sources are waste incinerators, utilities, and lead-acid battery manufacturers. The highest air concentrations of lead are usually found near lead smelters. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system. Lead exposure also affects the oxygen carrying capacity of the blood. The lead effects most likely to be encountered in current populations are neurological effects in children. Infants and young children are especially sensitive

to lead exposures, which may contribute to behavioral problems, learning deficits and lowered IQ (USEPA 2022e).

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel particulate matter (DPM). More than 90 percent of DPM is less than one micron in diameter (about 1/70th the diameter of a human hair) and thus is a subset of PM_{2.5}. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs (CARB 2022b).

TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

TACs include both organic and inorganic chemical substances. While DPM is a main source, TACs may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. People exposed to toxic air pollutants at sufficient concentrations and durations may have an increased chance of developing cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2020).

c. Current Air Quality

The Town of Moraga is located in Contra Costa County, which is under the jurisdiction of Bay Area Air Quality Management District (BAAQMD). BAAQMD is responsible for achieving and maintaining the State and Federal ambient air quality standards (AAQS) within its jurisdiction. BAAQMD operates a network of air quality monitoring stations throughout the SFBAAB. The monitoring stations aim to measure ambient concentrations of pollutants and determine whether ambient air quality meets the state and federal standards. The monitoring station closest to the Town is the Concord-2975 Treat Boulevard (located at 2956-A Treat Boulevard in Concord), approximately 6.2 miles northeast of the Town. This station measures 8-hour O₃, hourly O₃, NO₂, CO, PM_{2.5}, and PM₁₀. Table 4.2-1 indicates the number of days federal and state standard were exceeded at the Concord-2975 Treat Boulevard air monitoring station. As shown in Table 4.2-1, in 2019, 2020, and 2021, O₃ measurements exceeded the federal and state 8-hour O₃ and state hourly O₃ standards. In addition, PM₁₀ measurements exceeded the federal PM₁₀ standard in 2020. PM_{2.5} measurements exceeded federal PM_{2.5} standards in 2020 and 2021. No other state or federal standards were exceeded at this air monitoring station. SO₂ is not monitored within the SFBAAB; therefore, it is not reported in the analysis.

Table 4.2-1 Ambient Air Quality Data

Pollutant	2019	2020	2021
8 Hour Ozone (ppm), 8-Hour Average	0.074	0.083	0.077
Number of Days of state exceedances (>0.070 ppm)	2	3	1
Number of days of federal exceedances (>0.070 ppm)	2	3	1
Ozone (ppm), Worst Hour	0.092	0.108	0.096
Number of days of state exceedances (>0.09 ppm)	0	2	1
Carbon Monoxide (ppm), Worst-Hour	3.3	3.0	0.9
Number of days of state exceedances (>20.0 ppm)	0	0	0
Nitrogen Dioxide (ppm) - Worst Hour	0.041	0.034	0.029
Number of days of state exceedances (>0.18 ppm)	0	0	0
Number of days of federal exceedances (>0.10 ppm)	0	0	0
Particulate Matter 10 microns, $\mu\text{g}/\text{m}^3$, Worst 24 Hours	34.8	165.4	25.0
Number of days of state exceedances (>50 $\mu\text{g}/\text{m}^3$)	0	1	0
Number of days above federal standard (>150 $\mu\text{g}/\text{m}^3$)	0	1	0
Particulate Matter <2.5 microns, $\mu\text{g}/\text{m}^3$, Worst 24 Hours ¹	28.2	119.8	43.7
Number of days above federal standard (>35 $\mu\text{g}/\text{m}^3$)	0	16	2

Source: CARB 2022c

d. Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect the segment of the public most susceptible to respiratory distress, such as children under 14, the elderly over 65, persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases. Most sensitive receptor locations are therefore residences, schools, and hospitals, which are located throughout the Town of Moraga. BAAQMD recommends that plans include buffer zones to separate sensitive receptors from sources of air toxic contaminants and odors (BAAQMD 2017).

4.2.2 Regulatory Setting

The Federal CAA governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California CAA. At the federal level, the USEPA administers the CAA. The CAA is administered by the CARB at the state level and by the AQMDs at the regional and local levels. BAAQMD regulates air quality at the regional level, which includes the nine-county Bay Area.

a. Federal and State Ambient Air Quality Standards

The federal and state governments have authority under the federal and state CAA to regulate emissions of airborne pollutants and have established AAQS for the protection of public health. An air quality standard is defined as “the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harming public health” (CARB 2022d). The

USEPA is the federal agency designated to administer air quality regulation, while CARB is the state equivalent in California. Federal and state AAQS have been established for six criteria pollutants: O₃, CO, NO₂, sulfur dioxide, PM₁₀, PM_{2.5}, and lead. AAQS are designed to protect those segments of the public most susceptible to respiratory distress, such as children under the age of 14, the elderly (over the age of 65), persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases (USEPA 2022f). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (CARB 2022e). Table 4.2-2 lists the current NAAQS as well as the CAAQS for regulated pollutants.

Table 4.2-2 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	–	–
	24-Hour	–	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM ₁₀	Annual	–	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM ₂₅	Annual	12 µg/m ³	12 µg/m ³
	24-Hour	35 µg/m ³	–
Lead	30-Day Average	–	1.5 µg/m ³
	3-Month Average	0.15 µg/m ³	–

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m³ = micrograms per cubic meter

Source: USEPA 2022f

USEPA and CARB designate air basins or portions of air basins and counties as being in “attainment” or “nonattainment” for each of the criteria pollutants. Areas that do not meet the AAQS standards are classified as nonattainment areas. The NAAQS (other than O₃, PM₁₀, PM_{2.5}, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O₃, PM₁₀, and PM_{2.5} are based on statistical calculations over one- to three-year periods, depending on the pollutant. The CAAQS are not to be exceeded during a three-year period. The attainment status for Contra Costa County is included in Table 4.2-3.

Pursuant to the CAA, USEPA designates areas as attainment, nonattainment, or maintenance for each criteria pollutant based on whether the NAAQS have been achieved. Whether an area meets the state and federal standards is based on air quality monitoring data. Areas that are unclassified have insufficient monitoring data for a specific pollutant to determine attainment or nonattainment status, although unclassified areas are typically treated as attainment for a specific pollutant. Since attainment and nonattainment designation is pollutant-specific, an area may be classified as

nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the state standards PM₁₀ and unclassified for the federal standards PM₁₀ (CARB 2020).

Table 4.2-3 Attainment Status of Criteria Pollutants in Contra Costa County

Pollutant	State Designation	Federal Designation
O ₃	Nonattainment	Nonattainment
PM ₁₀	Nonattainment	Unclassified
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO ₂	Attainment	Unclassified/Attainment
SO ₂	Attainment	Unclassified/Attainment

O₃ = Ozone; NO₂ = nitrogen dioxide; CO = carbon monoxide; SO₂ = sulfur dioxide; PM₁₀ = particulate matter 10 microns in diameter or less; PM_{2.5} = particulate matter 2.5 microns or less in diameter.

Sources: CARB 2020, USEPA 2022g

b. Federal Regulations

The USEPA is responsible for enforcing the federal CAA. The USEPA is also responsible for establishing the NAAQS. The NAAQS are required under the 1977 CAA and subsequent amendments. The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB.

c. State Regulations

In California, CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the federal CAA, administering the California CAA, and establishing the CAAQS. The California CAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. CARB oversees the functions of the local air pollution control district, which in turn administer air quality activities at the regional and county level.

d. Local Regulations

Bay Area Air Quality Management District

BAAQMD is responsible for assuring that the federal and state ambient air quality standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

BAAQMD adopted the *2017 Clean Air Plan* on April 19, 2017, as an update to the 2010 Clean Air Plan. The 2017 Clean Air Plan, which focuses on protecting public health and climate, defines an integrated, multi-pollutant control strategy that includes all feasible measures to reduce emissions of ozone precursors (including transport of ozone and its precursors to neighboring air basins), PM, and TAC. To protect public health, the control strategy will decrease population exposure to PM and TACs in communities that are most impacted by air pollution with the goal of eliminating disparities in exposure to air pollution between communities (BAAQMD 2017b).

Town of Moraga 2002 General Plan

The Town's 2002 General Plan Open Space and Conservation Element (Moraga 2002) includes the following goals and policies pertaining to air quality:

Goal OS4: Air Quality. Preservation and maintenance of air quality.

Policy OS4.1: Development Design: Conserve air quality and minimize direct and indirect emissions of air contaminants through the design and construction of new development. For example, direct emissions may be reduced through energy conserving construction that minimizes space heating, while indirect emissions may be reduced through uses and development patterns that reduce motor vehicle trips generated by the project.

Policy OS4.2: Development Approval and Mitigation. Prohibit development projects which, separately or cumulatively with other projects, would cause air quality standards to be exceeded or would have significant adverse air quality effects through direct and/or indirect emissions. Such projects may only be approved if, after consulting with the Bay Area Air Quality Management District (BAAQMD), the Town Council explicitly finds that the project incorporates feasible mitigation measures or that there are overriding reasons for approving the project.

Policy OS4.3: Development Setbacks. Provide setbacks along high intensity use roadways to reduce resident exposure to air pollutants.

Policy OS4.4: Landscaping to Reduce Air Quality Impacts. Encourage the use of vegetative buffers along roads to assist in pollutant dispersion.

Policy OS4.5: Alternate Transportation Modes. Encourage transportation modes that minimize motor vehicle use and the resulting contaminant emissions. Alternate modes to be encouraged include public transit, ride-sharing, combined motor vehicle trips to work and the use of bicycles and walking.

4.2.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

This analysis uses the BAAQMD's May 2017 *CEQA Air Quality Guidelines* to evaluate air quality. The plan-level thresholds specified in the May 2017 BAAQMD *CEQA Air Quality Guidelines* were used to determine whether the impacts from the Planning Initiative exceed the thresholds identified in *CEQA Guidelines Appendix G*.

The following thresholds are based on CEQA Guidelines Appendix G. Impacts would be significant if implementation of the Planning Initiative would result in any of the following:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; or
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Construction Emissions Thresholds

BAAQMD's May 2017 *CEQA Air Quality Guidelines* does not contain plan-level significance thresholds for construction air pollutant emissions. However, the guidelines do include individual project-level thresholds for temporary construction-related and long-term operational emissions of air pollutants. These thresholds represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions (BAAQMD 2017a). Construction emissions associated with plan implementation are discussed qualitatively to evaluate potential air quality impacts.

Operational Emissions Thresholds

BAAQMD's 2017 *CEQA Air Quality Guidelines* contain specific operational plan-level significance thresholds for criteria air pollutants. Plans must show the following over the planning period:

- Consistency with current air quality plan control measures
- Vehicle miles traveled (VMT) or vehicle trips increase is less than or equal to the plan's projected population increase

If a plan can demonstrate consistency with both of these criteria, then impacts are considered less than significant.

Methodology

Construction Emissions

Construction-related emissions are temporary but may still cause adverse air quality impacts. Construction of development associated with the Planning Initiative would generate temporary emissions from three primary sources: the operation of construction equipment (e.g., scrapers, loaders, dump trucks, etc.); ground disturbance during site preparation and grading, which creates

fugitive dust; and the application of asphalt, paint, or other oil-based substances. At this time, there is not sufficient detail to allow project-level analysis and thus it would be speculative to analyze project-level impacts. Therefore, construction impacts for the Planning Initiative are discussed qualitatively.

Operation Emissions

Based on plan-level guidance from the BAAQMD 2017 *CEQA Air Quality Guidelines*, long-term operational emissions associated with implementation of the Planning Initiative are discussed qualitatively by comparing the Planning Initiative to the 2017 Clean Air Plan goals, policies, and control measures. In addition, comparing the rate of increase of plan VMT and population is recommended by BAAQMD for determining significance of criteria pollutants. If the Planning Initiative does not meet either criterion, then impacts would be potentially significant.

b. Impact Analysis

Threshold 1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Housing Element

Impact AQ-1 THE HOUSING ELEMENT WOULD BE CONSISTENT WITH BAAQMD'S 2017 CLEAN AIR PLAN AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The most recently adopted air quality plan in the SFBAAB is the 2017 Clean Air Plan. The 2017 Clean Air Plan is a roadmap showing how the San Francisco Bay Area will achieve compliance with the State one-hour O₃ standard as expeditiously as practicable, and how the region will reduce transport of O₃ and O₃ precursors to neighboring air basins. The 2017 Clean Air Plan does not include control measures that apply directly to individual development projects. Instead, the control strategy includes stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission (MTC), local governments, transit agencies, and others. The 2017 Clean Air Plan also represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state one-hour ozone standard. The 2017 Clean Air Plan replaces the 2010 Clean Air Plan. Under BAAQMD's methodology, a determination of consistency with *CEQA Guidelines* thresholds should demonstrate that a project:

- Supports the primary goals of the 2017 Clean Air Plan;
- Includes applicable control measures from the 2017 Clean Air Plan; and
- Does not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

The 2017 Clean Air Plan contains 85 control strategies aimed at reducing air pollution and protecting the climate in the Bay Area. For consistency with climate planning efforts at the State level, the control strategies in the 2017 Clean Air Plan are based on the same economic sector framework used by CARB, which encompass stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-greenhouse gas (GHG) pollutants. Table 4.2-4 identifies applicable control measures and correlates the measures to the Planning Initiative.

Table 4.2-4 Housing Element Consistency with 2017 Clean Air Plan Control Measures

Control Measures	Consistency
Transportation	
<p>TR2: Trip Reduction Programs. Implement the regional Commuter Benefits Program (Rule 14-1) that requires employers with 50 or more Bay Area employees to provide commuter benefits. Encourage trip reduction policies and programs in local plans, e.g., general and specific plans, while providing grants to support trip reduction efforts. Encourage local governments to require mitigation of vehicle travel as part of new development approval, to adopt transit benefits ordinances in order to reduce transit costs to employees, and to develop innovative ways to encourage rideshare, transit, cycling, and walking for work trips. Fund various employer-based trip reduction programs.</p>	<p>Consistent: The Housing Element would not include major employment centers or a trip reduction program, however, the Housing Element would promote compatible land uses, resulting in Town residents living and working in closer proximity to each other and to existing workplaces and services. In addition, some of the focus areas will place residences and mixed-use developments near transit. The Housing Opportunity Sites would be placed near employment opportunities and shopping centers, which encourages walking, cycling, and transit use instead of traveling by vehicle. In addition, Housing Opportunity Sites would be near St. Mary’s College, which could potentially reduce commute distance for students, faculty and staff.</p>
<p>TR9: Bicycle and Pedestrian Access and Facilities. Encourage planning for bicycle and pedestrian facilities in local plans, e.g., general and specific plans, fund bike lanes, routes, paths and bicycle parking facilities.</p>	<p>Consistent: Policies in the Moraga 2002 General Plan support an efficient and safe bicycle and pedestrian system that would improve connectivity and accessibility throughout the Town. The Community Development and Circulation Elements of the Moraga 2002 General Plan aim for more bicycling and walking to encourage the use of active transportation modes and thus avoid vehicle trips and emissions associated with those trips. Policies from the Circulation Element and Community Development listed below would encourage bicycle and pedestrian facilities:</p> <p>Policy CD-2.5: Connections. Designate pedestrian and bicycle routes that connect selected public places with each other and with residential neighborhoods, schools, and commercial centers.</p> <p>Policy CD-4.2: Neighborhood Character and Improvements. Work with individual neighborhoods to define their architectural and landscape character and identify improvements to strengthen and enhance that character. Examples of potential improvements include tree planting, sidewalks, bike paths, and landscaping.</p> <p>Policy CD-5.1: Location. Locate new multi-family developments in close proximity to commercial centers, transit stops, and community facilities such as parks and schools, with site design and landscaping to create buffers between adjacent uses while providing connection to pedestrian and bicycle paths.</p> <p>Policy C-4.1: Pedestrian Circulation. Provide a safe, continuous and connected system of pedestrian pathways through the Town, including sidewalks, paths, trails and appropriate crosswalks along all principal streets, to link residential neighborhoods, commercial areas, community facilities such as schools and parks, and other important destinations. Link this network as appropriate with the regional trails system.</p> <p>Policy C-4.2: Bicycle Circulation. Develop a complete bicycle system with direct, continuous, interconnected pathways between residential and commercial areas, community facilities, commuter corridors and transit hubs.</p>

Control Measures	Consistency
Energy	
<p>TEN2: Decrease Electricity Demand. Work with local governments to adopt additional energy-efficiency policies and programs. Support local government energy efficiency program via best practices, model ordinances, and technical support. Work with partners to develop messaging to decrease electricity demand during peak times.</p>	<p>Consistent: Goals and policies in the Housing Element Update would support the Town’s efforts to conserve energy, such as improving water and power conservation. Overarching sustainability strategies to decrease energy demand include encouraging incorporation of green building features contained in the California Green Building Standards Code (CALGreen), Part 11, Title 24, encouraging energy-efficient infrastructure, and design developments with water efficient landscaping. The following Housing Element Update policies would reduce energy demand in the Town of Moraga:</p> <p>H-7.1: Environmental Sustainability. The Town shall promote cost effective sustainability, energy efficiency, water conservation, and waste reduction in new construction and renovations to existing homes.</p> <p>H-7.3: Energy Efficiency in New Construction. The Town shall require all newly built single family and multi-family dwellings be constructed to achieve Energy Star certification criteria as prescribed by the California Advanced Homes Program and California Multi-family New Homes, respectively.</p>

Table 4.2-4 demonstrates that the Housing Element would not disrupt or hinder implementation of 2017 Clean Air Plan control measures. Buildout of the Housing Element would not preclude planned transit or bike pathways and would not otherwise disrupt regional planning efforts to reduce VMT and meet federal and State air quality standards. The Housing Element would be consistent with applicable 2017 Clean Air Plan control measures because the Housing Element due to more dense development in urban areas and multi-modal transportation would implement similar measures through specific goals and policies that would reduce criteria pollutant emissions. Therefore, the Housing Element would be consistent with the applicable control measures contained in the 2017 Clean Air Plan for the SFBAAB, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact AQ-2 THE BOLLINGER CANYON REZONE WOULD NOT BE CONSISTENT WITH BAAQMD’S 2017 CLEAN AIR PLAN AND IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Development facilitated by the Bollinger Canyon Rezone would be consistent with some of the control measures discussed in Impact AQ-1. However, as mentioned in Section 4.14, *Transportation*, future development in Bollinger Canyon would be in an area with high VMT per capita, which could generate home-based VMT per resident that is greater than 85 percent of the countywide average home-based VMT per resident. . The development in Bollinger Canyon would not be consistent with the transportation measures in the 2017 Clean Air Plan that reduce vehicle miles. Transportation measures to reduce vehicle miles would include TR5: Transit Efficiency and Use and TR9: Bicycle and

Pedestrian Access and Facilities, which encourage improving bike routes and parking and making transit more convenient. Development in the Bollinger Canyon area would, however, be consistent with the 2017 Clean Air Plan's Decrease Electricity Demand controls measures by implementing energy efficient strategies to conserve energy and water during construction and operation of new residential units. New residences in Bollinger Canyon would achieve Energy Star certification. Nonetheless, development in Bollinger Canyon Study Area would not be consistent with the 2017 Clean Air Plan due to locating development in a high VMT area, and impacts would be significant. Mitigation Measure TRA-1 would be applied to future projects in the Bollinger Canyon Study Area and would require a VMT analysis, as well as implementation of measures to reduce VMT. This measure is applicable for air quality impacts because reductions in VMT would result in reductions to air quality emissions.

Mitigation Measures

Mitigation Measure TRA-1 (see Section 4.14, *Transportation*).

Significance After Mitigation

Rezoning to facilitate development in the Bollinger Canyon Study Area would result in increased trips, VMT, and associated emission. The proposed densities and associated increases in air quality emissions due to increased VMT are not consistent with the transportation measures in the 2017 Clean Air Plan, such as the TRA-5: Transit Efficiency and Use and TRA- 9: Bicycle and Pedestrian Access and Facilities, which encourage improving bike routes and parking and making transit more convenient. While Mitigation Measure TRA-1 would be implemented to reduce VMT, future development could still locate residences within inadequate alternative modes of transportation and away from areas with employment and services. Therefore, the impacts would be significant and unavoidable.

<p>Threshold 2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?</p>

Housing Element

Impact AQ-3 CONSTRUCTION OF DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD RESULT IN THE TEMPORARY GENERATION OF AIR POLLUTANTS, WHICH WOULD AFFECT LOCAL AIR QUALITY. POLICIES IN THE MORAGA 2002 GENERAL PLAN INCORPORATE THE BAAQMD BASIC CONSTRUCTION MEASURES, WHICH WOULD REDUCE CONSTRUCTION EMISSIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT. OPERATION OF THE HOUSING ELEMENT WOULD NOT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD BECAUSE THE HOUSING ELEMENT'S VMT PER RESIDENT FOR THE TOWN OF MORAGA WOULD DECREASE FROM THE BASELINE YEAR TO THE BUILDOUT YEAR. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

Construction from the Housing Element may involve activities that result in air pollutant emissions. Construction activities such as demolition, grading, construction worker travel, delivery and hauling of construction supplies and debris, and fuel combustion by on-site construction equipment would generate pollutant emissions. These construction activities would temporarily create emissions of

dust, fumes, equipment exhaust, and other air contaminants, particularly during site preparation and grading. The extent of daily emissions, particularly ROG_s and NO_x emissions, generated by construction equipment, would depend on the quantity of equipment used and the hours of operation for each project. The extent of PM_{2.5} and PM₁₀ emissions would depend upon the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. Dust emissions can lead to both nuisance and health impacts. According to the 2017 BAAQMD *CEQA Air Quality Guidelines*, PM₁₀ is the greatest pollutant of concern during construction (BAAQMD 2017a).

As discussed above, BAAQMD's 2017 *CEQA Air Quality Guidelines* have no plan-level significance thresholds for construction air pollutant emissions that would apply to the Planning Initiative. However, the guidelines include project-level thresholds for construction emissions. If an individual project's construction emissions fall below the project-level thresholds, the project's impacts on regional air quality would be individually and cumulatively less than significant. BAAQMD has also identified feasible fugitive dust control measures for construction activities. These Basic Construction Mitigation measures are recommended for all projects (BAAQMD 2017a). In addition, BAAQMD and CARB have regulations that address the handling of hazardous air pollutants such as lead and asbestos, which could be aerielly disbursed during demolition activities. BAAQMD rules and regulations address both the handling and transport of these contaminants. Construction of development envisioned under the Housing Element would temporarily increase air pollutant emissions, possibly creating localized areas of unhealthy air pollution concentrations or air quality nuisances. To promote clean air quality to protect public health and safety and to minimize adverse air quality impacts, as listed in Subsection 4.2.2, *Regulatory Setting*, the 2002 General Plan includes Policies OS4.1, and OS4.2 which would minimize emissions of air containments associated with buildout of the Planning Initiative.

The air quality policies in the *Open Space and Conservation* Element are consistent with BAAQMD's Bay Area Regional Air Quality Management Plan. Development projects would be required to adhere to BAAQMD Basic Construction Mitigation Measures intended to reduce construction and operational emissions for ROG_s, NO_x, and particulate matter. BAAQMD recommends that projects implement these Basic Construction Mitigation Measures, outlined below:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times a 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 miles per hour.
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 five minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations). 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 manufacture’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper conditions 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 number shall also be visible to ensure compliance with applicable regulations.

Moraga 2002 General Plan Policy OS4.2 encourages cooperation with BAAQMD to meet air quality standards and require incorporation of the above BAAQMD Basic Construction Mitigation Measures for development projects in the Town. With adherence to Moraga 2002 General Plan policies and the measures, impacts from criteria pollutant emissions during construction would be less than significant.

Operations

According to the BAAQMD 2017 *CEQA Air Quality Guidelines*, the threshold for criteria air pollutants and precursors requires an assessment of the rate of increase of plan VMT and population. Table 4.2-5 summarizes the net increase in population versus VMT in the Town. The Housing Element is projected to accommodate a service population increase of 5,067 persons by the year 2031² as discussed in Section 2, *Project Description*. This is a 28 percent increase compared to the existing service population of 18,048 persons. The Housing Element would generate an estimated daily VMT of 312,888 miles in the year 2040 in the Town, which is an increase of 63,022 miles or 25 percent compared to baseline conditions (249,866 miles).³ The anticipated increase in VMT from buildout of the Housing Element and associated pollutant emissions from vehicle use would result from development facilitated by the Housing Element.

Table 4.2-5 Net Increase in Housing Element Population versus VMT

Scenario	Baseline (2020)	Project 2040 Buildout	Net Increase
Population	18,048	23,115	5,067
Percentage change			28%
VMT ¹	249,866 ²	312,888	63,022
Percentage change			25%

¹Daily VMT per Resident

Source: Section 4.14, *Transportation*.

The VMT associated with Housing Element buildout would increase the Town’s VMT by approximately 25 percent and it would not exceed the rate of increase from the forecast service population of approximately 28 percent. VMT would increase at a lower percentage because the Housing Element would change land uses to concentrate growth and residences near jobs and services to reduce singular vehicle trips and encourage alternative models of travel. Therefore,

² The air quality analysis uses a 2031 buildout year to provide a conservative evaluation of mobile emissions in comparison to the year 2040 mobile emission factors.

³ The VMT calculation method for these CEQA transportation VMT metrics is the “Origin-Destination” method, which accounts for all VMT with a trip start or trip end within the Plan Area. The other VMT calculation method is the “Boundary” method, which considers all VMT within a boundary; the Boundary method is used to establish VMT by speed bin inputs for the CEQA Air Quality and Greenhouse Gas sections of this EIR.

impacts concerning criteria pollutants generated from operation of the Housing Element would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact AQ-4 CONSTRUCTION OF DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD RESULT IN THE TEMPORARY GENERATION OF AIR POLLUTANTS, WHICH WOULD AFFECT LOCAL AIR QUALITY. POLICIES IN THE MORAGA 2002 GENERAL PLAN INCORPORATES THE BAAQMD BASIC CONSTRUCTION MEASURES, WHICH WOULD REDUCE CONSTRUCTION EMISSIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT. OPERATION OF THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would be subject to the same requirements discussed in Impact AQ-3, including implementing BAAQMD's Basic Construction Mitigation Measures during construction activity. The analysis that identified a decrease in the Town's VMT per resident (as shown in Table 4.2-5) also included the development that could occur in the Bollinger Canyon Study Area. However, due to the dispersed nature of the proposed development in the Bollinger Canyon Study Area and its distance from jobs and services, development facilitated by the Bollinger Canyon Rezoning would constitute a greater share of overall air quality impacts from VMT per resident. Nonetheless, the analysis under Impact AQ-3 would apply to development within the Bollinger Canyon Study Area because the impacts from criteria pollutants are cumulative in nature, unlike the impacts due to non-compliance with the Clean Air Plan due to increased VMT. In addition, it is reasonable for the Town to consider the total criteria air pollutants from future development associated with the Bollinger Canyon Rezoning. For the same reasons identified in Impact AQ-3 impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3: Would the project expose sensitive receptors to substantial pollutant concentrations?

Housing Element

Impact AQ-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD POTENTIALLY EXPOSE SENSITIVE RECEIVERS TO TOXIC AIR CONTAMINANTS DURING CONSTRUCTION. NEW SENSITIVE RECEIVERS FROM RESULTING FROM THE HOUSING ELEMENT COULD BE EXPOSED TO TOXIC AIR CONTAMINANTS. HOWEVER, THE HOUSING ELEMENT WOULD ADHERE TO POLICIES IN THE MORAGA 2002 GENERAL PLAN THAT WOULD LIMIT INCOMPATIBLE LAND USES IN PROXIMITY TO EACH OTHER AND MINIMIZE HEALTH RISKS FROM SOURCES OF TAC UPON SENSITIVE RECEIVERS. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Construction

DPM is classified as the primary airborne carcinogen in the state. CARB reports that DPM represents approximately 70 percent of the potential cancer risk from vehicle travel on a typical urban freeway. More than 90 percent of DPM is less than 1 micron in size and thus is a subset of PM_{2.5} (CARB 2020b); therefore, diesel PM_{2.5} emission levels can serve as a proxy for DPM emission levels. The BAAQMD Air Quality Guidelines set the significance threshold for long-term public health risk at 10 excess cancer cases in a million for cancer risk. For non-cancer risk, a Hazard Index of more than one (1.0) would cause a significant impact to sensitive receivers. A Hazard Index of more than one means that predicted levels of a toxic pollutant from an activity are greater than the average concentrations of TACs in the air, which is generally considered acceptable. If a formal health risk assessment identifies a significant impact, mitigation measures may be required to reduce the predicted levels of toxic air pollutants from the facility to a level of less than significant.

At this time, projects facilitated by the Housing Element do not have sufficient detail (e.g., construction schedule, amount of soil export, specific buildout parameters) to allow for project-level analysis and thus it would be speculative to analyze project-level impacts. Nonetheless, if construction of future development occurs within 1,000 feet from a sensitive receptor (such as residences, schools, and hospitals), these sensitive receptors could potentially be exposed to significant TAC emissions depending on the size, amount of equipment, duration, and excavation activity. Therefore, impacts from the development of the Housing Element would be potentially significant. If construction-related TAC emissions are determined to exceed BAAQMD health risk thresholds, then implementation of Mitigation Measure AQ-1 would be required to ensure that sensitive receivers would not be exposed to substantial levels of TACs.

Operations

Pursuant to the recent ruling in the *California Building Industry Association CBIA v BAAQMD* (2015), impacts of the environment on the Housing Element is not an impact under CEQA. Nonetheless, BAAQMD's CEQA Guidelines include methodology for jurisdictions wanting to evaluate the potential impacts from placing sensitive receptors proximate to major air pollutant sources. For assessing community risk and hazards for siting a new receptor, sources within a 1,000-foot radius of a project site are typically considered. Sources are defined as freeways, high volume roadways with 10,000 vehicles or more per day and permitted sources (BAAQMD 2017a).

Development under the Housing Element could accommodate an increase of single-family residences and multi-family residential units in the Moraga Center and Rheem Park Areas. The overall net increase in residential land use would not result in additional sources of TACs since

residential land use are not associated as TAC emitters. Therefore, the Housing Element would not increase TACs emissions in proximity to sensitive receptors in Town of Moraga. Additionally, there are a few high-volume roadways and in and around Town of Moraga, including Moraga Road, Moraga Way, Rheem Boulevard, and St. Mary Road. The Housing Element may facilitate locating sensitive receptors in proximity to these high-volume roadways.

To minimize health risks to sensitive receptors near TAC emitting sources, as listed in Subsection 4.2.2, *Regulatory Setting*, the Moraga 2002 General Plan includes Policies OS4.3, and OS4.4 which support implementation of feasible measures to reduce TAC emissions associated with buildout of the Housing Element.

Implementing development setbacks or vegetative buffers policies would increase the dispersion of pollutants and minimize sensitive receptor exposure to TAC emissions from the source. With adherence to these 2002 General Plan policies, operational impacts related to TAC emissions would be less than significant.

Mitigation Measure

AQ-1 Construction Equipment Emission Control Measures

Based on BAAQMD *CEQA Guidelines* (2017), construction-related TAC and PM impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors. Construction activity from the projects developed under the Housing Element or Bollinger Canyon Rezone that are within 1,000 feet of sensitive receptors; utilize more than three pieces of construction equipment simultaneously onsite; have a duration of construction longer than two months; and exclude Tier 4 construction equipment shall be required to prepare an HRA assessment. An HRA shall be conducted prior to the issuance of a permit to construct. The applicant would be required to have it prepared by a third party or if Town staff would be capable. The HRA would be reviewed by the Town in-house, or a contracted consultant. If the findings of the HRA assessment exceed BAAQMD health risk thresholds, then development projects under the Housing Element or Bollinger Canyon Rezone shall incorporate the following construction equipment emission control measures to the maximum extent feasible:

- Implement diesel construction equipment meeting CARB Tier 4 emission standards for off-road heavy-duty diesel engines. If use of Tier 4 equipment is not feasible, diesel construction equipment meeting Tier 3 emission standards shall be used. Tier 3 equipment shall use a Level 3 diesel particulate filter.
- Perform periodic site inspections during construction to verify compliance of Tier 4 or Tier 3 equipment.
- Use alternative fueled or catalyst equipped diesel construction equipment.
- Minimize idling time.
- Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).
- Curtail construction during periods of high-ambient-pollutant concentrations; this may include ceasing of construction activity during the peak-hour vehicular traffic on adjacent roadways.
- Implement activity management (e.g., rescheduling activities to reduce short-term impacts).

Significance After Mitigation

Implementation of Mitigation Measure AQ-1 would reduce impacts related to health risks associated with exposure of sensitive receptors to substantial air pollutant concentrations of DPM and TACs during construction. The Tier 4 standards reduce DPM emissions, depending on the specific horsepower rating of each piece of equipment. Thus, with implementation of Mitigation Measure AQ-1, construction activities would not expose sensitive receptors to substantial TAC concentrations that would potentially exceed BAAQMD's 10 excess cancer cases in a million for cancer risk threshold. Construction-related health impacts would be reduced to a less than significant level with mitigation.

Bollinger Canyon Rezoning

Impact AQ-6 CONSTRUCTION AND OPERATION TAC EMISSION FROM THE DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD BE LESS THAN SIGNIFICANT.

Construction

Development facilitated by the Bollinger Canyon Rezoning would be subject to the same requirements discussed in Impact AQ-1. Some of the development in the Bollinger Canyon Study Area could be near existing residences. As mentioned in Impact AQ-5, construction activity within 1,000 feet of sensitive receptors could potentially expose those receptors to significant TAC emission depending on the size, equipment quantity, duration, and excavation activity. Thus, the impact would be potentially significant and future developments would be required to implement Mitigation Measure AQ-1. For the same reasons identified in Impact AQ-5, impacts from the development within the Bollinger Canyon Study Area would be less than significant after mitigation.

Operation

Operational impacts to existing and new residents would be the same as the impact identified in Impact AQ-5, above. Development facilitated by the Bollinger Canyon Rezoning would not include substantial sources of TAC emissions; therefore, operations would not expose existing residents to an increase of TAC emissions. There are no high intensity use roadways near the Bollinger Canyon Study Area; therefore, future development in the Bollinger Canyon Study Area would not be located near high-volume roadways and future residences would not be exposed to substantial TAC emissions from roadways. Therefore, impacts would be less than significant.

Mitigation Measures

Mitigation Measure AQ-1 (see Impact AQ-5).

Significance After Mitigation

For the same reasons identified in Impact AQ-5, impacts from the development within the Bollinger Canyon Study Area would be less than significant after mitigation.

Threshold 4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Housing Element

Impact AQ-7 CONSTRUCTION AND OPERATION OF THE DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT RESULT IN SUBSTANTIAL OTHER EMISSIONS, SUCH AS ODORS AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Buildout under the Housing Element would generate oil and diesel fuel odors during construction from equipment use as well as odors related to asphalt paving. The odors would be limited to the construction period and would be temporary. Therefore, odors emitted from the construction of individual future projects under the Housing Element would be less than significant.

As stated in the BAAQMD *CEQA Guidelines*, land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food manufacturing plants, chemical plants, composting, refineries, landfills, and confined animal facilities. Projected development would include single-family and multi-family development. These land uses typically do not produce objectionable odors. Other odors from buildout of the Housing Element include odor emissions that would be limited to odors associated with vehicle and engine exhaust and idling; however, odors from vehicles are not stationary and are dispersed throughout the roadway network. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact AQ-8 CONSTRUCTION AND OPERATION OF THE DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN SUBSTANTIAL OTHER EMISSIONS, SUCH AS ODORS AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would emit temporary odors during construction activity using construction equipment and vehicles. Odors would cease upon completion of the proposed development; therefore, construction impacts would be less than significant. As discussed in Impact AQ-7, development near odor producing facilities identified in BAAQMD CEQA Guidelines could potentially be significant impact to sensitive receivers.

Development in Bollinger Canyon Study Area would not be located near typical odor producing facilities stated in BAAQMD CEQA Guidelines. In addition, the residential development envisioned in the Bollinger Canyon Study Area is not considered an odor producing source. For the same reasons identified in Impact AQ-7, odor impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.3 Biological Resources

This section analyzes the potential impacts to biological resources, including direct and indirect impacts to special-status species, sensitive natural communities, regulated waters and wetlands, sensitive habitat, and wildlife movement corridors that could arise from implementation of the Planning Initiative.

4.3.1 Setting

The Town of Moraga is a predominantly residential community located in southwestern Contra Costa County, between two major ridge systems. To the west is the Gudde Ridge and Berkeley/Oakland Hills, and to the east is the Las Trampas Ridge. Due to its diverse topography, which ranges in elevation from 500 to 1,200 feet above mean sea level, the Town includes a variety of plant communities and wildlife habitats.

a. Vegetation Communities and Land Cover Types

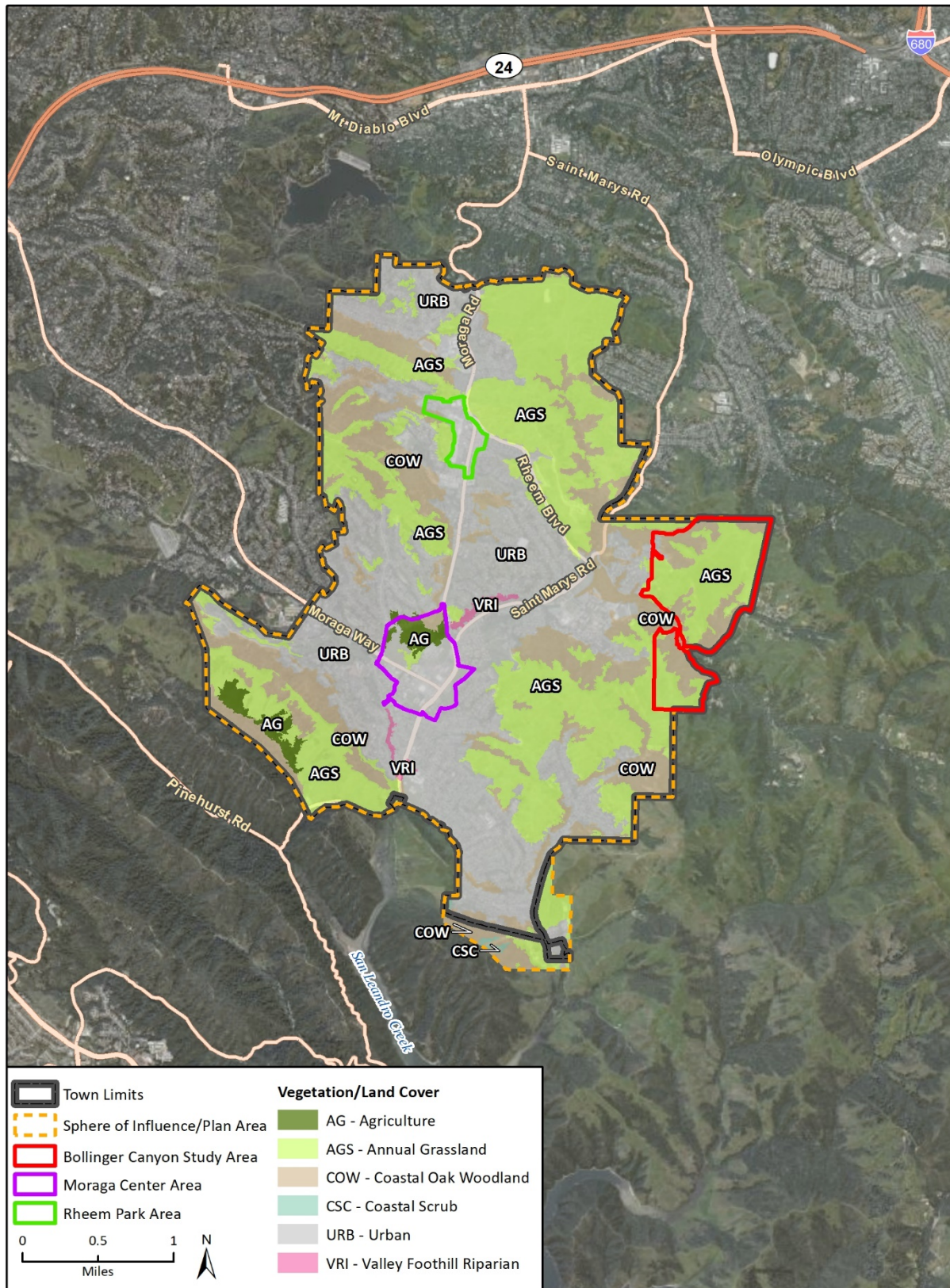
The Town has the following vegetation communities: coastal oak woodland, coastal scrub, valley foothill riparian, and annual grasslands. These communities provide resources for a wide variety of wildlife species. The California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) closely monitor communities classified as sensitive native plant communities or that provide habitat for sensitive wildlife species. In addition, the Town has urban and agriculture land uses, which are not vegetation communities.

Pre-existing information for the Town of Moraga and surrounding vicinity was utilized to create this list of vegetation communities and land cover types. The plant community descriptions and nomenclature used in this analysis are based on Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986). Wildlife species assemblage information was based on existing documentation gathered from the *California Wildlife Habitat Relationships System* (CDFW 2014) and *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Figure 4.3-1 shows the vegetation communities and land covers in the Town of Moraga.

Coastal Oak Woodland

Coastal oak woodlands, which occur scattered throughout the Town of Moraga, are extremely variable. The overstory consists of deciduous and evergreen hardwoods (mostly oaks 15 to 70 feet tall) sometimes mixed with scattered conifers. In mesic sites, the trees are dense and form a closed canopy. In drier sites, the trees are widely spaced, forming an open woodland or savannah. The understory is equally variable. In some instances, it is composed of shrubs from adjacent chaparral or coastal scrub which forms a dense, almost impenetrable understory. More commonly, shrubs are scattered under and between trees. Coastal oak woodlands occupy a variety of Mediterranean type climates that vary from north to south and west to east (the climate becomes hotter and drier toward the south and east). Precipitation occurs in the milder winter months, almost entirely as rainfall, followed by warm to hot, dry summers. Near the coast, the summers are tempered by fogs and cool, humid sea breezes. Mean annual precipitation varies from about 40 inches in the north to about 15 inches in southern and interior regions. Mean minimum winter temperatures are 29 to 44°F, and the mean maximum summer temperatures are 75 to 96°F. The soils and parent material on which coastal oak woodlands occur are extremely variable.

Figure 4.3-1 Vegetation Communities and Land Cover Types in Moraga



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 Vegetation Communities and Land Cover provided by CALFIRE FRAP 2015.

Fig 4.3-1 Vegetation Communities and Land Cover Types_202205

Coastal oak woodlands provide habitat for a variety of wildlife species. Barrett (1980) reports that at least 60 species of mammals may use oaks in some way. Verner (1980) reports 110 species of birds observed during the breeding season in California habitats where oaks form a significant part of the canopy or subcanopy. Quail, turkeys, squirrels, and deer may be so dependent on acorns in fall and early winter that a poor acorn year can result in significant declines in their populations (Shields and Duncan 1966, Griffin 1977, Schitoskey and Woodmansee 1978).

Coastal Scrub

Coastal scrub vegetation communities occur immediately adjacent to the Town and within the Sphere of Influence at the southern extent in the foothills surrounding the Upper San Leandro Reservoir. Structure of the plant associations that comprise coastal scrub is typified by low to moderate-sized shrubs with mesophytic leaves, flexible branches, semi-woody stems growing from a woody base, and a shallow root system (Harrison et al. 1971, Bakker 1972). Northern coastal scrub, from Humboldt County to the San Francisco Bay Area, ranges from a patchy oceanside cover of nearly prostrate subshrubs surrounded by grassland to a dense and continuous cover of two layers: an overstory of shrubs up to seven feet tall and a perennial herb/subshrub understory up to one foot in height.

As with structure, composition changes most markedly with progressively more xeric conditions from north to south along the coast. With the change from mesic to xeric sites, dominance appears to shift from evergreen species in the north to drought-deciduous species in the south. Two types of northern coastal scrub are usually recognized. The first type (limited in range) occurs as low-growing patches of bush lupine (*Lupinus arboreus*) and many-colored lupine (*Lupinus variicolor*) at exposed, oceanside sites. The second and more common type of northern Coastal Scrub usually occurs at less exposed sites. Here coyote brush (*Baccharis pilularis*) dominates the overstory. Other common overstory species are blue blossom ceanothus (*Ceanothus thyrsiflorus*), coffeeberry (*Rhamnus californica*), salal (*Gaulthoria shallon*), bush monkeyflower (*Diplacus aurantiacus*), blackberry (*Rubus* spp.), poison-oak (*Toxicodendron diversilobum*) and woolly sunflower (*Eriophyllum lanatum*). Bracken fern (*Pteridium aquilinum*) and swordfern (*Polystichum munitum*) are dominant in the understory; common cowparsnip (*Heracleum maximum*), yerba buena (*Clinopodium douglasii*) and California oatgrass (*Danthonia californica*) are typically present (Heady et al. 1977).

Coastal scrub occurs discontinuously in a narrow strip throughout the length of California. Coastal scrub usually occurs within about 20 miles of the ocean. Elevation ranges from sea level to about 3,000 feet. Coastal scrub seems to tolerate drier conditions than its associated habitats. It is typical of areas with steep, south-facing slopes; sandy, mudstone or shale soils; and average annual rainfall of less than 12 inches. However, it also regularly occurs on stabilized dunes, flat terraces, and moderate slopes of all aspects where average annual rainfall is up to 24 inches. Coastal scrub provides habitat for wildlife such as bobcat (*Lynx rufus*), spotted towhee (*Pipilo maculatus*), California quail, and the western fence lizard (*Sceloporus occidentalis*).

Valley Foothill Riparian

Located within the Town of Moraga along Moraga Creek/Laguna Creek and throughout Moraga Commons Park, the canopy height of valley foothill riparian habitats is approximately 98 feet in a mature riparian forest, with 20 to 80 percent canopy cover. Most trees are winter deciduous. The dominant species in the canopy layer of valley foothill riparian habitats include cottonwood (*Populus* spp.), and valley oak (*Quercus lobata*). Subcanopy trees are white alder (*Alnus rhombifolia*), box elder (*Acer negundo*) and Oregon ash (*Fraxinus latifolia*). Typical understory shrub layer plants

include California wild rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus cerulea*), poison oak, and willows (*Salix* spp.). The herbaceous layer consists of sedges (*Carex* spp.), rushes (*Juncus* spp.), grasses, miner's lettuce (*Claytonia perfoliata*), California mugwort (*Artemisia douglasiana*), poison-hemlock (*Conium maculatum*), and hoary nettle (*Urtica dioica* ssp. *holosericea*).

Riparian communities are associated with rivers and streams as well as lakes, ponds, seeps, bogs, meadows, and springs. Valley foothill riparian communities occur in the Central Valley and the lower foothills of the Cascade, Sierra Nevada, and Coast ranges. Valley foothill riparian habitats range from sea level to 3,000 feet, reaching an elevation of 5,000 feet on south-facing slopes. Valley-foothill riparian habitats are found in valleys bordered by sloping alluvial fans, slightly dissected terraces, lower foothills, and coastal plains. They are generally associated with low velocity flows, flood plains, and gentle topography. Valleys provide deep alluvial soils and a high-water table. Average precipitation ranges from 6 to 30 inches, with little or no snow. Mean summer maximum temperatures are 75 to 102°F, mean winter minima are 29 to 44 °F (Munz and Keck 1973). VRI habitats are characterized by hot, dry summers, mild and wet winters.

Valley foothill riparian communities provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles occur in lowland riparian systems. Many are permanent residents; others are transient or temporal visitors (Brode and Bury 1984). In one study conducted on the Sacramento River, 147 bird species were recorded as nesters or winter visitors (Laymon 1984). Additionally, 55 species of mammals are known to use California's Central Valley riparian communities (Trapp et al. 1984).

Annual Grassland

Annual grasslands are open grasslands composed primarily of annual herbaceous and forb species. This habitat type exists in high abundance throughout and adjacent to the Town of Moraga, where introduced annual grasses are the dominant plant species. These include wild oats (*Avena fatua*), soft chess brome (*Bromus hordeaceus*), riggut brome (*B. diandrus*), red brome (*B. tectorum*), wild barley (*Hordeum murinum* ssp. *leporinum*), and foxtail fescue (*Festuca myuros*). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*E. cicutarium*), turkey mullein (*Croton setiger*), true clovers (*Trifolium* spp.), bur clover (*Medicago polymorpha*), popcorn flower (*Plagiobothrys* spp.), California poppy (*Eschscholzia californica*), and many others. Perennial grasses, found in moist, lightly grazed, or relic prairie areas, are dominated by California oatgrass, Pacific hairgrass (*Deschampsia cespitosa* ssp. *holciformis*), and sweet vernal grass (*Anthoxanthum odoratum*).

Annual grasslands and relic perennial grasslands within these annual grasses occur in patches of various sizes throughout the state. Annual grassland occurs mostly on flat plains to gently rolling foothills. Climatic conditions are typically Mediterranean, with cool, wet winters and dry, hot summers.

Many wildlife species use annual grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Characteristic reptiles that breed in annual grasslands in the Town include the western fence lizard, common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus oreganus oreganus*) (Basey and Sinclear 1980). Mammals typically found in this habitat include the black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), American badger (*Taxidea taxus*), and coyote (*Canis latrans*) (White et

al.1980). Common birds known to breed in Annual Grasslands include the burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), horned lark (*Eremophila alpestris*), and western meadowlark (*Sturnella neglecta*) (Verner et al. 1980). This community also provides important foraging habitat for the turkey vulture (*Cathartes aura*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), white-shouldered kite (*Elanus leucurus*), and prairie falcon (*Falco mexicanus*).

Agriculture

This land cover is characterized by areas in active agriculture used to grow orchards and grazing cattle. Orchards typically contain rows of a single species of tree, for the production of fruits and nuts. Trees may vary in height, and the understory is typically bare ground or low-growing grasses. Ranch lands in California are typically composed of open grassland, with scattered oaks and man-made stock ponds.

Urban

This land cover is also completely man-made and is comprised of residential, commercial, and industrial developed areas. Plant species within urban areas are typically comprised of ornamental plants and non-native invasive plant species, with large, developed areas lacking vegetation.

Summary of Vegetation Communities and Land Cover Types

As discussed above and shown on Figure 4.3-1, areas that would undergo development under the Planning Initiative include the following vegetation communities and land cover types. The Moraga Center area includes Agriculture, Annual Grassland, Coastal Oak Woodland, and Urban. The Rheem Park area includes Annual Grassland, Coastal Oak Woodland, and Urban. The Bollinger Canyon Study Area includes Annual Grassland and Coastal Oak Woodland.

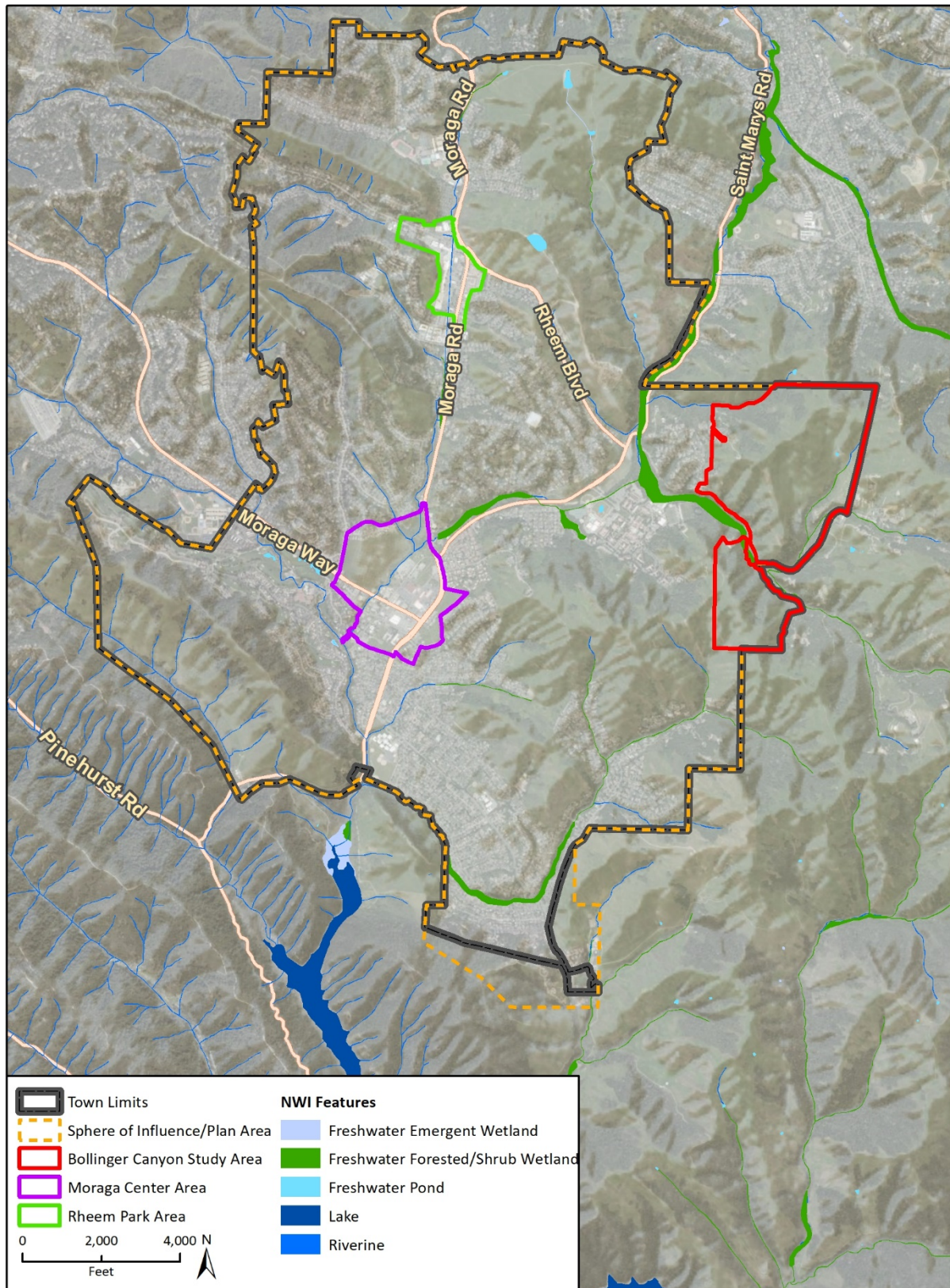
b. Wetlands and Aquatic Resources

The USFWS National Wetlands Inventory (NWI) is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of wetlands. Some wetland and stream features, such as freshwater seeps and springs are generally not identified as part of the NWI because of the general scale of the mapping effort. Major wetlands and waterways in Moraga are shown below in Figure 4.3-2. Freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwater ponds, lakes, and riverine habitats have been mapped in or near Moraga (USFWS 2022a). A description of each of these aquatic features is provided below followed by a summary of the features within the Planning Initiative.

Freshwater Emergent Wetland

Freshwater emergent wetlands include all non-tidal waters dominated by emergent herbaceous plant species, mosses, and/or lichens. Wetlands of this type are also low in salinity. The NWI also includes in this category wetlands that lack vegetation if they are less than 20 acres in size, do not have an active wave-formed or bedrock shoreline feature, have a low water depth less than 6.6 feet. Freshwater emergent wetlands are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots. All emergent wetlands are inundated or saturated frequently enough that the roots of the vegetation prosper in an anaerobic environment. The wetlands may vary in size from small clumps to vast areas covering several kilometers.

Figure 4.3-2 Wetlands and Aquatic Resources in Moraga



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 Additional data provided by USFWS, 2022.

Fig 4.3-2 Wetlands and Aquatic Resources

Freshwater Forested/Shrub Wetland

These wetlands include non-tidal waters that are dominated by trees and shrubs, with emergent herbaceous plants, mosses and/or lichens. The NWI also includes within this category wetlands that lack vegetation if they also exhibit the same criteria as described for freshwater emergent wetlands. Freshwater forested/shrub wetlands are generally dominated by woody vegetation such as shrubs and trees. This wetland category also can include riparian habitats.

Freshwater Pond

Freshwater ponds include non-tidal waters, typically less than 20 acres in size and typically with vegetative cover along its edges such as trees, shrubs, emergent herbaceous plants, mosses, and/or lichens. Freshwater ponds can be man-made or natural and typically consist of an area of standing water with variable amounts of shoreline. These wetlands and deep-water habitats are dominated by plants that grow on or below the surface of the water.

Lake

Lakes are a lacustrine system which includes wetlands and deep-water habitats that are in topographic depressions or dammed river channels. These areas tend to be greater than 20 acres. Vegetation cover within this habitat is generally less than 30 percent and often occurs in the form of emergent or surface vegetation. Substrates are composed of at least 25 percent cover of particles smaller than stones.

Riverine

Riverine habitats are stream systems that include all wetlands and deep-water habitats contained in natural or artificial channels that contain periodically or continuously flowing water. This system may also form a connecting link between two bodies of standing water. Substrates generally consist of rock, cobble, gravel, or sand. Features mapped as riverine wetlands in the NWI include drainages and creeks, such as Moraga Creek and Las Trampas Creek in the Town of Moraga.

Summary of Wetland and Aquatic Resources

As discussed above and shown on Figure 4.3-2, areas that would undergo development under the Planning Initiative include the following wetland and aquatic resources:

- The Moraga Center area and Rheem Park area includes riverine habitats
- The Bollinger Canyon Study Area includes freshwater forested/shrub wetland and riverine habitat

c. Sensitive Natural Communities and Critical Habitats

Definitions

Sensitive natural communities are vegetation types, associations, or sub-associations that support concentrations of special-status plant and/or wildlife species; are of relatively limited distribution; and/or are of particular value to wildlife. Currently, CDFW publishes the California Sensitive Natural Communities List. Natural Communities are evaluated using NatureServe's Heritage Methodology, the same methodology used to assign global and State rarity ranks for plant and animal species in the California Natural Diversity Database (CNDDB). Evaluation is done at both the global (full natural

range within and outside of California) and State (within California) levels resulting in a single G (global) and S (State) rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure). According to the CDFW Vegetation Program, Natural Communities with State ranks of S1-S3 and certain other specified associations are considered imperiled, and thus, potentially of special concern. Natural Communities with these ranks are generally addressed during CEQA environmental review. Riparian areas are also considered sensitive natural communities by CDFW.

Critical habitat is a term used in the federal Endangered Species Act (ESA) and defined as a specific geographic area (or areas) that contain features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. These areas provide notice to the public and land managers of the importance of these areas to the conservation of a listed species. Special protections and/or restrictions are possible in these areas when federal funding, permits, licenses, authorizations, or actions occur or are required.

Sensitive Natural Communities in Moraga

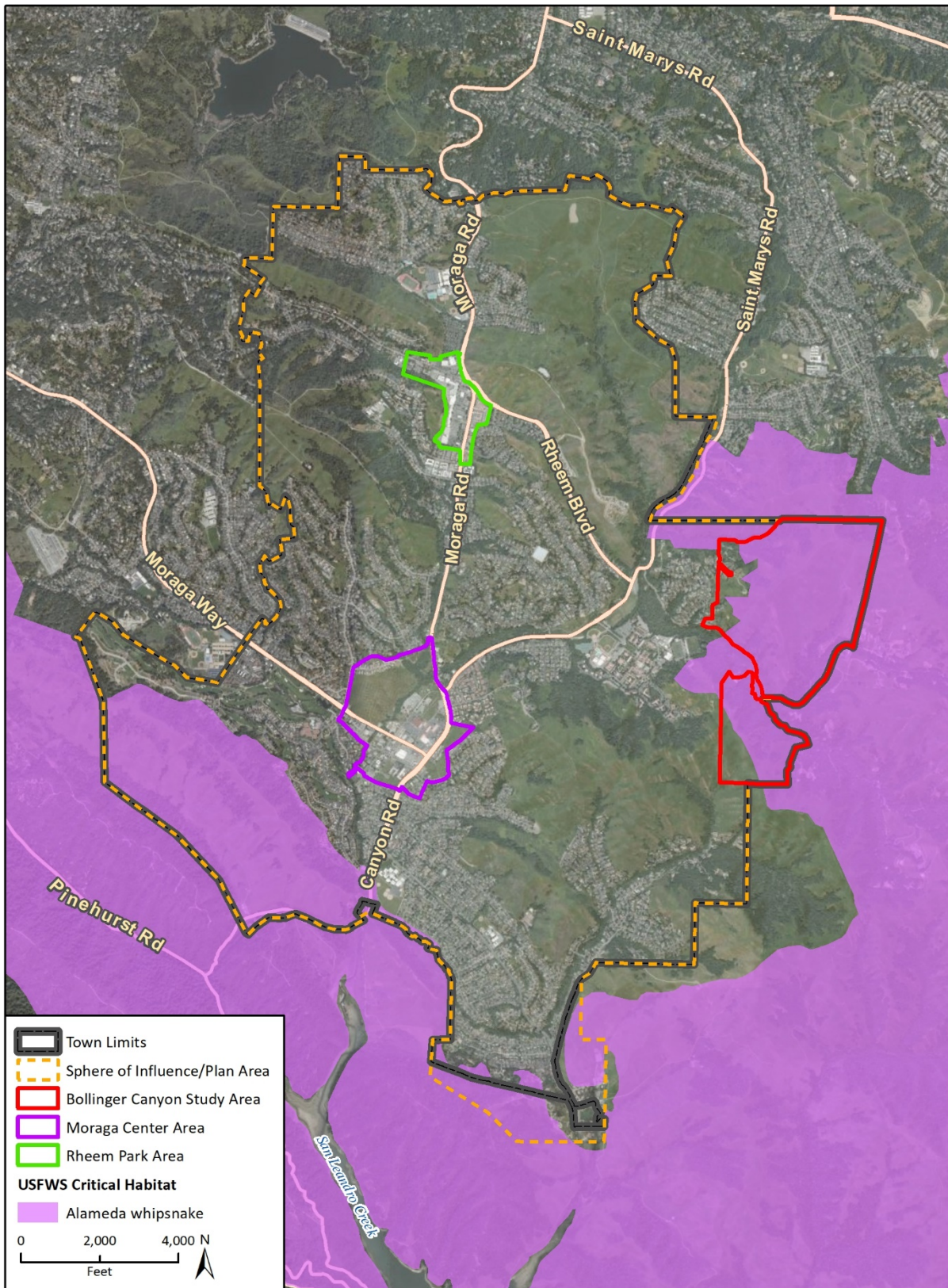
No sensitive natural communities occur within the Town of Moraga as mapped by the CNDDDB, although occurrences of Northern Maritime Chaparral are recorded less than one mile west of the Town along San Leandro Creek (CDFW 2022). Additionally, Northern Coastal Salt Marsh, Serpentine Bunchgrass, and Valley Needlegrass Grassland also occur within the twelve-quadrangle range; however, they are not found within or near the Town.

Critical Habitat in Moraga

The USFWS *Critical Habitat Mapper* (2022b) and the National Marine Fisheries Service (NMFS) West Coast Critical Habitat website (2022) identify designated critical habitats in Moraga and its regional vicinity. As shown in Figure 4.3-3, designated critical habitat for Alameda whipsnake (*Masticophis lateralis euryxanthus*) overlaps with the southwestern and eastern portions of the Town of Moraga. Additionally, critical habitat designated for California red-legged frog (*Rana draytonii*) is located approximately 2.5 miles north of the Town in the Briones Regional Park. No critical habitat is designated within the Moraga Center area or Rheem Park area. The Bollinger Canyon Study Area is designated as critical habitat for Alameda whipsnake.

While the Bollinger Canyon Study Area predominantly supports grassland and oak woodland vegetation communities, some minor amounts of brush scrub vegetation communities are also present. Although the Bollinger Canyon Study Area only supports patches of scrub habitats, Alameda whipsnakes frequently venture into adjacent habitats, including grassland and occasionally oak woodlands (Stebbins 1985). Primary habitats for Alameda whipsnake include, east, southeast, south, and south-facing slopes containing coastal scrub and chaparral, with rock outcrops within approximately 0.5 miles from these slopes (Swaim 1994).

Figure 4.3-3 Critical Habitats in Moraga



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Additional data provided by USFWS, 2022.

Fig 4.3-3 Critical Habitats in the Plan Area

d. Special-Status Species

For the purpose of this analysis, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS and/or NMFS under the ESA; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA); plants listed as rare by the CDFW under the Native Plant Protection Act; and animals designated as “Species of Special Concern,” “Fully Protected,” or “Watch List” by the CDFW. Those plants ranked as California Rare Plant Rank (CRPR) 1 or 2 are typically regarded as rare, threatened, or endangered under CEQA by lead agencies and were considered as such in this EIR. The CRPR utilizes the following code definitions:

- **List 1A** = Plants presumed extinct in California
- **List 1B.1** = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- **List 1B.2** = Rare or endangered in California and elsewhere; fairly endangered in California (20-80 percent occurrences threatened)
- **List 1B.3** = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened, or no current threats known)
- **List 2** = Rare, threatened or endangered in California, but more common elsewhere

CRPR List 3 species are “review list,” and CRPR 4 species are considered “watch list” species. CRPR 3 and 4 species do not typically warrant analysis under CEQA except where they are part of a unique community, from the type locality (i.e., the place in which a specimen is found), or designated as rare or significant by local governments, or where cumulative impacts could result in population-level effects. The CRPR 3 and 4 species reported from the region are not locally designated as rare or significant by the Town of Moraga or County of Contra Costa General Plans and are not part of a unique community. Additionally, the Town of Moraga is not known to be the type locality for any ranked plant species. Therefore, potential impacts to CRPR 3 and CRPR 4 species were not considered in this analysis.

Species of Special Concern is a category used by the CDFW for those species which are considered indicators of regional habitat changes or are potential future protected species. Species of Special Concern do not have any special legal status except that which may be afforded by the Fish and Game Code. The Species of Special Concern category is intended by the CDFW for use as a management tool to include these species into special consideration when decisions are made concerning the development of natural lands, and these species are considered sensitive under CEQA.

Queries of the USFWS Information, Planning and Conservation System (IPaC; 2022c), the CDFW CNDDDB (2022), and California Native Plant Society (CNPS) *Online Inventory of Rare, Threatened and Endangered Plants of California* were conducted (CNPS 2022). These queries were conducted to obtain comprehensive information regarding state and federally listed species considered to have potential to occur within the Town of Moraga.

The Town of Moraga is home to several species protected by federal and state agencies. Important animal species can be found in a variety of habitats in Moraga. The CNDDDB (CDFW 2022), CNPS (2022), and USFWS IPaC (2022c) together list 112 special-status plant and animal species (64 plant species and 48 animal species [inclusive of special animals]) that occur or have potential to occur within the Town of Moraga. The status and habitat requirements of those species are presented in Appendix C.

Special-Status Plants

Based on the database and literature review, 64 special-status plant species are known to occur, or have potential to occur, in the Plan Area or the surrounding area. Several of these species are associated with sensitive natural communities including Northern Maritime Chaparral or riparian zones along creeks and waterways. Appendix C lists these special-status plant species, their listing status, and their CRPR.

Special-status plants that are known or have potential to occur in Moraga and surrounding area can occupy a range of habitat types. Some are associated with chaparral, cismontane woodland, and broadleaved upland forests, such as Diablo helianthella (*Helianthella castanea*), Loma Prieta hoita (*Hoita strobilina*), western leatherwood (*Dirca occidentalis*), pallid manzanita (*Arctostaphylos pallida*) and woodland woollythreads (*Monolopia gracilens*). Others are associated with valley and foothill grasslands, such as bent-flowered fiddleneck (*Amsinckia lunaris*), Jepson's coyote-thistle (*Eryngium jepsonii*) and fragrant fritillary (*Fritillaria liliacea*). Additionally, some special-status plant species, including congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), tolerate developed land cover types and may occur in fallow fields or along roadsides in urban areas. Most of the known special-status plant species occurrences are recorded in areas of open space including Mulholland Ridge Open Space and Lafayette Reservoir Recreation Area. Additionally, some of the species listed are not currently known to be found within the Town of Moraga limits but are regionally occurring species that could occur in the surrounding area.

Special-Status Wildlife

Based on the database and literature review, 48 special-status wildlife species are known or have potential to occur within Moraga or surrounding area. Appendix C lists these special-status wildlife species, their listing status, and other status designations.

Special-status species are most likely to occur in undeveloped areas and open space areas. However, riparian areas that intersect urban development may also provide habitat and movement corridors for special-status species. The Town of Moraga and the surrounding area also provide habitat for avian wildlife, including several listed species and other special-status species. Several occurrences of Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), golden eagle (*Aquila chrysaetos*), American peregrine falcon (*Falco peregrinus anatum*), northern harrier, and burrowing owl have been recorded in and surrounding the Town of Moraga.

Ponds, wetlands, streams, and riparian areas may provide habitat for aquatic and semi-aquatic amphibians and reptiles, including California red-legged frog, foothill yellow-legged frog (*Rana boylei*), and western pond turtle (*Emys marmorata*). Several occurrences of the federally and state threatened Alameda whipsnake are also recorded in and around the Town of Moraga including the Bollinger Canyon Study Area, primarily in open chaparral and scrub habitats.

Occurrences of special-status mammal species including the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) are documented in the Mullholland Open Space Preserve. Special-status bats such as pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and big free-tailed bat (*Nyctinomops macrotis*) also have potential to occur within the Town of Moraga. Although not listed in the CNDDDB, mountain lions (*Puma concolor*) are legally classified as "specially protected species." In July 2019, the Center for Biological Diversity petitioned CDFW to list mountain lions as threatened under the CESA within a proposed evolutionarily significant unit (ESU) located in Southern California and along the central coast of California. In April 2020, the Commission found that listing of this ESU may be warranted and designated mountain lion

within the ESU as a candidate species under CESA. Mountain lions inhabit diverse habitats across most of California and can be found wherever deer are present, which includes the foothills and mountainous areas within the eastern Bay Area where Moraga is located.

e. Wildlife Movement Corridors

Town of Moraga

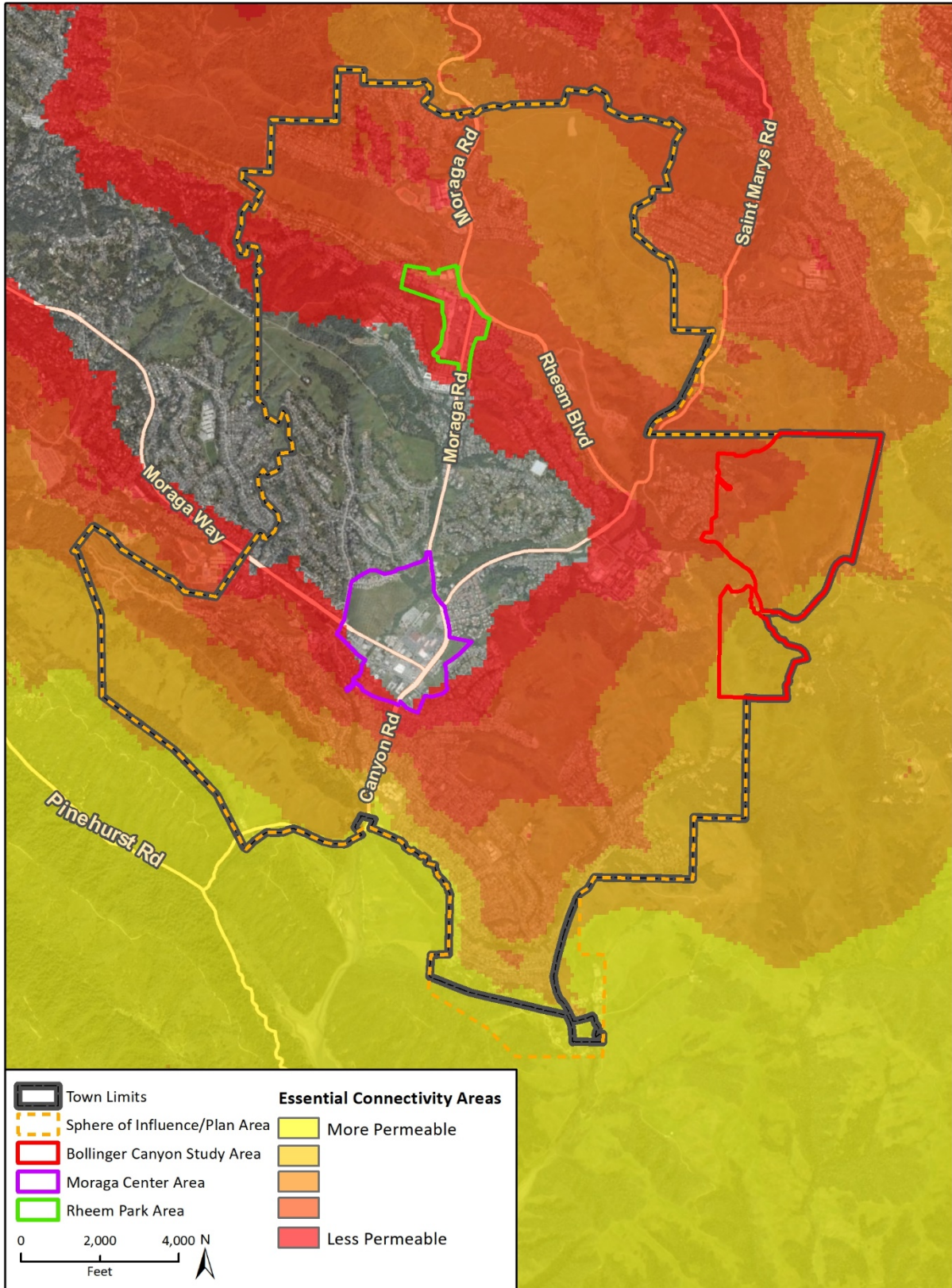
Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The habitats within the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation by ground-dwelling species. Typically, habitat linkages are contiguous strips of natural areas, though dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Depending upon the species using a corridor, specific physical resources (such as rock outcroppings, vernal pools, or oak trees) may need to be located within the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat linkages may be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time.

Wildlife movement corridors can be both large and small scale. Essential Connectivity Areas (ECAs) are mapped in the report, California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California and represent principal connections between Natural Landscape Blocks (i.e., large and relatively natural habitat blocks that support native biodiversity). ECAs are regions in which land conservation and management actions should be prioritized to maintain and enhance connectivity between areas of high ecological importance (Spencer et al. 2010). ECAs are mapped based on coarse ecological condition indicators, rather than the needs of particular species and thus serve most of the species in each region. In addition, areas outside of Natural Landscape Blocks and ECAs support important ecological values.

The Town of Moraga is characterized by medium- and low-density residential neighborhoods and open space areas. Urban development is concentrated in the downtown area, and a large portion of the Town is semi-rural or designated as open space areas. The Town is in the center of an ECA running along the Berkeley and Oakland Hills from the Wildcat Canyon Regional Park to the north and extending south to the Calaveras Reservoir (see Figure 4.3-4). While the entire Town is not encompassed by this ECA, a large majority of the open space and hills areas of the Town function as habitat linkages for the region. This ECA, as a part of the Bay Area hills, may serve as a movement corridor for the state provisionally protected Southern California/Central Coast ESU of mountain lion. Additionally, small scale habitat corridors important to wildlife movement are also present within the Town. Locally, the Mulholland Ridge Open Space and Lafayette Reservoir Recreation Area may serve as smaller scale movement corridors for terrestrial species throughout the Town, as they are mostly continuous vegetated areas connected by recreational trails.

Figure 4.3-4 Essential Connectivity Areas in Moraga



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Fig 4.3-4 Essential Connectivity Areas in the Plan Area

Bollinger Canyon Study Area

Las Trampas Creek and its tributaries in Bollinger Canyon provide wildlife movement corridors for many native terrestrial wildlife species. The existing low density of developed areas, limited barriers to movement, and direct connections to larger habitat patches in nearby preserved open space enhances the quality of these movement corridors. Undeveloped land providing large patches of grassland, woodland, and scrub habitats border Bollinger Canyon to the north, south, and east. Existing residential development is located to the west in the Moraga Bluffs community. Riparian, coast live oak woodland, and non-native annual grassland habitats in Bollinger Canyon are connected to similar habitat types on undeveloped lands in the vicinity. An unnamed tributary to Las Trampas Creek originates in Bollinger Canyon, and coast live oak woodland forms continuous canopy coverage along the drainage to woodland in Bollinger Canyon along Las Trampas Creek. Non-native annual grassland in Bollinger Valley is connected to similar grasslands on open slopes and hillsides in the vicinity.

Coast live oak and riparian woodlands may provide a movement corridor for riparian species such as amphibians and mammals such as striped skunk (*Mephitis mephitis*), common

raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), opossum (*Didelphis virginiana*), and bobcat (*Lynx rufus*). Development in Moraga and Lafayette and SR 24 have limited wildlife movement to the north and west, further restricting regional movement within the Bollinger Canyon corridor. The ephemeral tributaries and the southernmost tributary to Las Trampas Creek may provide movement corridors for aquatic and riparian species.

4.3.2 Regulatory Setting

Federal, State, and local authorities share regulatory authority over biological resources under a variety of statutes and guidelines. The primary authority for biological resources lies within the land use control and planning authority of local jurisdictions, which in this instance includes the Town of Moraga. CDFW is a trustee agency for biological resources throughout the State as defined in CEQA and has direct jurisdiction under the California Fish and Game Code (CFGC). In addition, the local Regional Water Quality Control Board (RWQCB) is a responsible agency for waters of the State and per Section 401 of the federal Clean Water Act.

a. Federal Regulations

Endangered Species Act

Under the ESA, authorization is required to “take” a listed species. Take is defined under Section 3 of the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Under federal regulation (50 Code of Federal Regulations [CFR] Sections 17.3, 222.102); “harm” is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Critical habitat is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. Section 7 of the ESA outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat.

Section 7(a)(2) of the ESA and its implementing regulations require federal agencies to consult with USFWS or NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat. For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an incidental take permit under Section 10(a) of the ESA. Section 10(a) allows USFWS to permit the incidental take of listed species if such take is accompanied by a Habitat Conservation Plan (HCP) that includes components to minimize and mitigate impacts associated with the take.

The USFWS and NMFS share responsibility and regulatory authority for implementing the ESA (7 United States Code [USC] Section 136, 16 USC Section 1531 et seq.).

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act (MBTA) authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it is unlawful, except as permitted by regulations, “to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, [...] any migratory bird, or any part, nest, or egg of any such bird” (16 USC Section 703(a)). The Bald and Golden Eagle Protection Act is the primary law protecting eagles, including individuals and their nests and eggs. The USFWS implements the MBTA (16 USC Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). Under the Bald and Golden Eagle Protection Act’s Eagle Permit Rule (50 CFR 22.26), USFWS may issue permits to authorize limited, non-purposeful take of bald eagles and golden eagles.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) regulates marine fisheries in U.S. federal waters. The Magnuson-Stevens Act was first passed in 1976 and was revised in 1996 and 2007. The purpose of the Magnuson-Stevens Act is to provide long-term biological and economic sustainability of U.S. marine fisheries.

The NMFS has regulatory authority for implementing the Magnuson-Stevens Act. The NMFS requires regional fishery management councils to develop Fisheries Management Plans (FMPs) specific to their regions, fisheries, and fish stocks. For waters off the U.S. West Coast, the Pacific Fishery Management Council has developed four FMPs, which are implemented through fisheries regulations for coastal pelagic species, groundfish species, highly migratory species, and salmon species. These FMPs also identify Essential Fish Habitat, which is broadly defined as those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.

Section 10 of the River and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers (USACE), for the construction of any structure in or over any navigable water of the United States. Regulated activities include dredging or disposal of dredged materials, excavation, filling, rechannelization and construction of any structure or any other modification of a navigable water of the United States.

Clean Water Act

Under Section 404 of the Clean Water Act (CWA), the USACE, with U.S. Environmental Protection Agency (EPA) oversight, has authority to regulate activities that result in discharge of dredged or fill

material into wetlands or other “waters of the United States” (WOTUS) Perennial and intermittent creeks are considered WOTUS if they are hydrologically connected to other jurisdictional waters. In achieving the goals of the CWA, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any discharge of dredged or fill material into jurisdictional wetlands or other jurisdictional WOTUS would require a Section 404 permit from the USACE prior to the start of work. Typically, when a project involves impacts to WOTUS, the goal of no net loss of wetlands is met by compensatory mitigation; in general, the type and location options for compensatory mitigation should comply with the hierarchy established by the USACE/EPA 2008 Mitigation Rule (in descending order): (1) mitigation banks; (2) in-lieu fee programs; and (3) permittee-responsible compensatory mitigation. Also, in accordance with Section 401 of the CWA, applicants for a Section 404 permit must obtain water quality certification from the SWRCB or appropriate RWQCB.

b. State Regulations

California Endangered Species Act

CESA (California Fish and Game Code Section 2050 et seq.) prohibits take of State-listed threatened and endangered species without a CDFW incidental take permit. Take under CESA is restricted to direct harm of a listed species and does not prohibit indirect harm by way of habitat modification.

Protection of fully protected species is described in California Fish and Game Code Sections 3511, 4700, 5050 and 5515. These statutes prohibit take or possession of fully protected species. Incidental take of fully protected species may be authorized under an approved Natural Communities Conservation Plan (NCCP).

California Fish and Game Code Sections 3503, 3503.5 and 3511

California Fish and Game Code Sections 3503, 3503.5 and 3511 describe unlawful take, possession, or destruction of birds, nests, and eggs. Fully protected birds (California Fish and Game Code Section 3511) may not be taken or possessed except under specific permit. Section 3503.5 protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (California Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the NPPA, the owner of land where a rare or endangered native plant is growing is required to notify the CDFW at least 10 days in advance of changing the land use to allow for salvage of the plant(s).

Section 1600 et seq. of the California Fish and Game Code

Section 1600 et seq. of the California Fish and Game Code prohibits, without prior notification to CDFW, the substantial diversion or obstruction of the natural flow of, or substantial change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In order for these activities to occur, the CDFW must receive written notification regarding the activity in the manner prescribed by the CDFW and may require a lake or

streambed alteration agreement. Lakes, ponds, perennial, and intermittent streams and associated riparian vegetation, when present, are subject to this regulation.

Porter-Cologne Water Quality Control Act

Pursuant to Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredge or fill material must also obtain water quality certification under Section 401 from the RWQCB. Additionally, the SWRCB and each of nine local RWQCBs have jurisdiction over “waters of the State” pursuant to the Porter-Cologne Water Quality Control Act, which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The SWRCB has issued general Waste Discharge Requirements regarding discharges to “isolated” waters of the State (Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the USACE to be Outside of Federal Jurisdiction). The local RWQCB implements this general order for isolated waters not subject to federal jurisdiction.

The CWA and associated federal regulations (Title 40 of the CFR 123.25(a)(9), 122.26(a), 122.26(b)(14)(x) and 122.26(b)(15)) require nearly all construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more, including smaller sites in a larger common plan of development or sale, to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) permit for their stormwater discharges, and develop a Storm Water Pollution Prevention Plan (SWPPP). The NPDES Program is a federal program which has been delegated to the State of California for implementation through the SWRCB and RWQCBs.

c. Local Regulations

Town of Moraga 2002 General Plan

The Town of Moraga’s 2002 General Plan includes several goals and policies related to the conservation or preservation of biological resources. Applicable 2002 General Plan goals and policies are listed below.

Goal CD1. Natural Setting. Protection and preservation of the natural scenic qualities that make Moraga unique.

Policy CD1.1: Location of New Development. To the extent possible, concentrate new development in areas that are least sensitive in terms of environmental and visual resources, including:

- a) Areas of flat or gently sloping topography outside of flood plain or natural drainage areas.
- b) The Moraga Center area and Rheem Park area.
- c) Infill parcels in areas of existing development.

Policy CD1.4: Canyon and Valley Areas. Protect the scenic and environmental qualities of canyon and valley areas to retain the Town’s semi-rural character. Preserve both close-up and distant views of the natural hillside landscape from valley areas, and preserve significant linear open spaces in major canyons and grassland valleys with floodplain zones as the visual focus.

Policy CD1.5: Ridgelines and Hillside Areas. Protect ridgelines from development. In hillside areas, require new developments to conform to the site’s natural setting, retaining the character of existing landforms preserving significant native vegetation and with respect to

ridgelines, encourage location of building sites so that visual impacts are minimized. When grading land with an average slope of 20% or more, require 'natural contour' grading to minimize soil displacement and use of retainer walls. Design buildings and other improvements in accordance with the natural setting, maintaining a low profile and providing dense native landscaping to blend hillside structures with the natural setting.

Policy CD1.6: Vegetation. Emphasize and complement existing mature tree groupings by planting additional trees of similar species at Town entries, along major street corridors, in and around commercial centers, in areas of new development, and along drainage-ways. Encourage the use of native, fire-resistive, and drought-tolerant species.

Goal OS1: Open Space Preservation. Preservation of as much open space land as possible, including protection of all major and minor ridgelines and lands that help meet residents' recreational needs.

Policy OS1.12: Open Space Management. Maintain and manage public-use open space areas in keeping with community priorities relevant deed restrictions, budget constraints, hazard and risk considerations, and best management practices. Develop management plans for open space areas as necessary, including the Mulholland Ridge open space area.

Goal OS2: Environmental Quality. Environmental quality in the future that is as good or better than today.

Policy OS2.1: Protection of Wildlife Areas. Prohibit development in locations where it will have a significantly adverse effect on wildlife areas. When development is permitted in the vicinity of wildlife areas, require implementation of appropriate mitigation measures to reduce any adverse impact upon the wildlife.

Policy OS2.2: Preservation of Riparian Environments. Preserve creeks, streams, and other waterways in their natural state whenever possible.

Policy OS2.3: Natural Carrying Capacity. Require that land development be consistent with the natural carrying capacity of creeks, streams, and other waterways to preserve their natural environment.

Policy OS2.4: Areas of Natural Significance. Preserve and protect, insofar as possible, areas that are recognized as having natural significance. These areas include but are not limited to:

- a) The Lake LaSalle area for its scenic value and wildlife habitat.
- b) Flicker Ridge for its significant contribution to the wildlife of the area and because it represents a unique knob-cone pine forest.
- c) Remaining laguna environment of Laguna de los Palos Colorados.

Policy OS2.5: Wildlife Corridors. To the extent possible, connect open space areas so that wildlife can have free movement through the area, bypass urban areas and have proper access to adjacent regional parks and related open space systems.

Policy OS2.7: Reintroduction of Native Plant Species. Consider reintroduction into the natural environment of plant species that are indigenous to the area and encourage programs to manage, reduce or eliminate the use and proliferation of non-native, invasive species. Encourage the use of native plant species in new landscaping plans.

Policy OS2.8: Tree Preservation. Preserve and protect trees wherever they are located in the community as they contribute to the beauty and environmental quality of the Town.

Policy OS2.9: Tree-covered Areas. Preserve or substantially maintain in their present form certain tree-covered areas, especially with respect to their value as wildlife habitats, even if development in those areas is permitted. Give preference to the retention of original growth over replanting. These areas include, but are not limited to:

- a) Mulholland Hill (both northeast and southwest slopes)
- b) Indian Ridge
- c) Bollinger Canyon
- d) Sanders Ranch properties
- e) St. Mary's Road northeast of Bollinger Canyon Road
- f) The "Black Forest" area located northerly of the terminus of Camino Ricardo
- g) Coyote Gulch west of St. Mary's Road, to the north
- h) Wooded area to the east and south of St. Mary's Gardens
- i) Wooded area behind Donald Rheem School
- j) Wooded area on the ridge south of Sanders Drive.

Goal OS3: Water Quality and Conservation. Protection of water resources through protection of underground water aquifers and recharge areas; maintenance of watercourses in their natural condition; and efficient water use.

Policy OS3.5: Watercourse Preservation. Whenever possible, preserve and protect natural watercourse areas that will reflect a replica of flora and fauna of early historical conditions.

Town of Moraga Municipal Code

Town of Moraga Ordinance 182 and Municipal Code Chapter 12 (Section 12.12.030) establishes permit requirements for the removal of native trees, orchard trees, or trees of historic significance. A permit is required to remove native trees, orchard trees, or trees of historic significance having a trunk diameter of 5 inches or more measured 3 feet above the natural grade or trees having multiple trunks with a total perimeter of 40 inches or more. Section 12.12.070 of the Moraga Municipal Code establishes that arborist reports are required when development or construction encroaches within the drip line of any regulated tree. The location of trees is required for grading plans and building permit applications.

4.3.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

The following thresholds are based on CEQA Guidelines Appendix G. Impacts would be significant if implementation of the Planning Initiative would result in any of the following:

1. 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;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
 3. Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
 4. 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;
 5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
 6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Methodology

Environmental impacts to biological resources are assessed using impact significance criteria from federal, State, and local regulations. CEQA, Chapter 1, Section 21001 (c) states that it is the policy of the State of California to “prevent the elimination of fish and wildlife species due to man’s activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities.” Environmental impacts relative to biological resources have been assessed using impact significance criteria encompassing CEQA Guidelines and federal, State, and local plans, regulations, and ordinances.

The following analysis is programmatic and encompasses the entire Town of Moraga. Data used for this analysis include aerial photographs, topographic maps, the CDFW CNDDDB (2022), the CNPS online *Inventory of Rare and Endangered Plants of California* (2022) and accepted scientific texts to identify species. Federal special status species inventories maintained by the USFWS were reviewed in conjunction with the CNDDDB and CNPS online inventory. The USFWS NWI (2022a), USFWS *Critical Habitat Mapper* (2020b), and IPaC (2022c) were also reviewed.

b. Impact Analysis

Threshold 1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Housing Element

Impact BIO-1 IMPLEMENTATION OF THE HOUSING ELEMENT MAY RESULT IN DIRECT OR INDIRECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES OR THEIR ASSOCIATED HABITATS INCLUDING IMPACTS TO MIGRATORY BIRD NEST SITES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Several vegetation communities in or near the Town of Moraga may provide habitat for special-status species. As shown in Appendix C, special-status species with the potential to occur in and

near the Town include California red-legged frog, foothill yellow-legged frog, Alameda whipsnake, western pond turtle, and San Francisco dusky-footed woodrat, among others. Areas that provide habitat for special-status species are generally located in the open space and undeveloped areas of the Town, including Mulholland Ridge Open Space, Lafayette Reservoir Recreation Area, and riparian areas along various drainages and creeks, such as Moraga Creek and Las Trampas Creek. Federally designated critical habitat for Alameda whipsnake overlaps with the southwestern and eastern portions of the Town. Additionally, critical habitat designated for California red-legged frog is located north of the Town in the Briones Regional Park.

Special-status plant species with the potential to occur in the Town of Moraga include Diablo helianthella, Lomo Prieta hoita, western leatherwood, pallid manzanita, woodland woollythreads bent-flowered fiddleneck, Jepson's coyote-thistle, and fragrant fritillary, among others. These species are expected to occur within open space areas of the Mulholland Ridge Open Space and Lafayette Reservoir Recreation Area within vegetative habitat or in natural communities within the Town. Several areas of coast live oak woodlands would likely qualify as sensitive natural communities occurring within the Town of Moraga. Additionally, riparian habitat occurs along Moraga and Las Trampas Creeks and other drainages in the Town (USFWS 2022a).

The Moraga Center area and Rheem Park area, where the Housing Element's rezones are proposed and where new development would be directed under the program, are currently developed and generally do not provide habitat suitable for special-status wildlife or plant species described above. However, some Housing Opportunity Sites are in areas of lower density development or are near areas of open space within Moraga. The General Plan designates portions of the town as Open Space including the riparian areas along Moraga and Las Trampas Creeks, as well as the Mulholland Ridge Open Space and the hills areas at the southern and northern extents of the town. This land use designation would prevent substantial development of the habitat that these open space, wetlands, and riparian areas provide. The Housing Element would not include changes to existing Open Space land use designations, including along creeks and waterways in the town. Therefore, the Housing Element would not facilitate development in riparian vegetation along these creeks and drainages. Because the projects facilitated by the Housing Element would occur as redevelopment and infill in areas already zoned for development, existing roads, water, and sewer are already in place, which would minimize the need for construction of new utilities and infrastructure. The Housing Element, however, increases the allowable density that could be constructed on some infill and redevelopment sites within, which could require upgraded utilities. The construction of these upgraded facilities could require work within riparian vegetation along creeks and drainages in the town, resulting in potential temporary riparian and aquatic habitat impacts.

The development facilitated under the Housing Element would be subject to the provisions of various federal and State natural resources regulations and their respective permitting processes. Additionally, the Housing Element would not change existing goals and policies in the General Plan that call for the preservation and protection of natural resources and the managed production of natural resources. These goals and policies would reduce impacts to special-status species and their habitats. Several policies would prevent loss of special-status wildlife habitat in the open space areas throughout the Town. Policy CD1.1 requires that new development be concentrated in areas that are the least sensitive in terms of biological resources. This policy generally aims to concentrate development in areas outside of floodplains or natural drainage areas, or in existing developed areas such as the Moraga Center area and Rheem Park area. Policy OS2.1 prohibits development in areas where its placement would have a significantly adverse effect on wildlife habitat. Under this policy, when development is permitted in the vicinity of wildlife habitat, mitigation measures would

be required to reduce adverse impacts to wildlife and their habitats. Additionally, Policy OS2.4 aims to preserve and protect areas that are recognized as having natural significance. These areas of natural habitats include, but are not limited to, the Lake LaSalle area, Flicker Ridge, and the remaining laguna environment of Laguna de los Palos Colorados. Preservation and protection of these naturally significant areas may provide additional refugia for various wildlife and plant species.

The General Plan does not include policies that specifically address the protection of special-status species. As such, implementation of the Housing Element would not necessarily avoid the loss of individuals or occupied habitat of special-status species. Direct impacts to special-status species include injury or mortality occurring during development facilitated by the Housing Element. Direct impacts also include habitat modification and loss, which results in mortality or substantially alters foraging and breeding behavior that causes injury. Indirect impacts could occur due to the spread of invasive non-native species that out-compete native species and/or alter habitat to a state that is unsuitable for special-status species. For example, the spread of certain weed species can reduce the biodiversity of native habitats, potentially eliminating special-status plants and reducing the availability of suitable forage and breeding sites for special-status wildlife. Indirect impacts could also occur due to increased access by humans and domestic animals, particularly in areas where trails may be planned. Increased human and domestic animal (especially dogs) presence foster the spread of non-native invasive plant species and disrupt the normal behaviors of animal species. Due to the programmatic nature of the analysis in this EIR, specific impacts due to a specific development cannot be known. Nonetheless, to ensure that any potentially significant adverse impacts on listed or special-status species are addressed, Mitigation Measure BIO-1 would be applied for projects where vegetation removal is planned.

While the policies above would prevent impacts to large tracts of open space that provide habitat for special-status species, landscape features within the urbanized areas of the town (i.e., trees, shrubs, herbaceous plants, and parklands) could serve as temporary habitats for nesting migratory birds. Migratory bird species, which are protected under the California Fish and Game Code and MBTA may use areas within the town for nesting during the breeding season. Construction-related activities such as vegetation removal, building demolition and/or relocation, grading, materials laydown, infrastructure improvements, and building construction, could result in the disturbance of nesting migratory birds. These adverse effects on listed or special-status bird species would represent a potentially significant impact and Mitigation Measure BIO-2 would be required for projects scheduled for construction between early spring to late summer and with mature trees and/or other habitat.

Special-status bats such as pallid bat, Townsend's big-eared bat, and big free-tailed bat are State Species of Special Concern and have potential to occur within the town. Pallid bats are found in grasslands, shrublands, woodlands, and forests, and may roost in trees or buildings. Townsend's big-eared bat and big free-tailed bats are found in a wide variety of habitats and may roost in abandoned buildings or large trees. Bats prefer open areas or open areas under a tree canopy for foraging, and often roost near water. Large trees, abandoned structures, and buildings in the Town may provide suitable roosting habitat for special-status bat species. Disturbance of maternity roosts, resulting in roost destruction or abandonment due to construction would be a potentially significant impact and would be violations of the California Fish and Game Code. Mitigation Measure BIO-3 would be required for projects constructing during seasonal periods of bat activity and with trees, abandoned structures or other habitat for roosting bats.

Mitigation Measures

BIO-1 Biological Resources Screening and Assessment

For development projects facilitated by the Housing Element that would require vegetation trimming or removal, prior to consideration of the application, the project applicant shall hire a qualified biologist to perform a preliminary biological resources screening, for the Town's review and approval, to determine whether the project has any potential to impact special status biological resources, inclusive of special status plants and animals, sensitive vegetation communities, jurisdictional waters (including creeks, drainages, streams, ponds, vernal pools, riparian areas and other wetlands), critical habitat, wildlife movement area, or biological resources protected under local or regional ordinances. If it is determined that the project has no potential to impact biological resources, no further action is required under this mitigation measure.

If the project would have the potential to impact biological resources, a qualified biologist shall conduct a project-specific biological analysis to document the existing biological resources within a project footprint plus a minimum buffer of 50 feet around the project footprint, as is feasible, and to determine the potential impacts to those resources, as approved by the Town. The project-specific biological analysis shall evaluate the potential for impacts to all biological resources including, but not limited to special status species, nesting birds, wildlife movement, sensitive plant communities, critical habitats, and other resources judged to be sensitive by local, State, and/or federal agencies. If the project would have the potential to impact these resources, additional measures may be required and recommendations developed to enhance wildlife movement (e.g., installation of wildlife friendly fencing), as applicable, to reduce impacts to less than significant levels. Pending the results of the project-specific biological analysis, Town review, design alterations, further technical studies (e.g., protocol surveys) and consultations with the USFWS, NMFS, CDFW, and/or other local, State, and federal agencies may be required.

BIO-2 Pre-Construction Bird Surveys, Avoidance, and Notification

For construction activities at development sites under the Housing Element initiated during the bird nesting season (February 1 – September 15) involving removal of vegetation or other nesting bird habitat, including abandoned structures and other man-made features, a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot and shall include a buffer around the construction site at a distance determined by a qualified biologist. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in California Bay Area communities (i.e., qualified biologist). If nests are found, an avoidance buffer shall be determined by a qualified biologist dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site. The buffer shall be demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to demarcate the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within the buffer until the biologist has confirmed that breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist on the basis that the encroachment will not be detrimental to an active nest. A report summarizing the pre-construction survey(s) shall be prepared by a qualified biologist and shall be submitted to the Town prior to the commencement of construction activities.

Future project site plans proposed at development sites shall include a statement acknowledging compliance with the federal MBTA and California Fish and Game Code that includes avoidance of active bird nests and identification of Best Management Practices to avoid impacts to active nests, including checking for nests prior to construction activities during February 1 to September 15 and what to do if an active nest is found so that the nest is not inadvertently impacted during grading or construction activities.

BIO-3 Roosting Bat Surveys and Avoidance Prior to Removal

Prior to tree or vacant structure removal, a qualified biologist shall conduct a focused survey of all trees and structures to be removed or impacted by construction activities to determine whether active roosts of special-status bats are present on site. Tree or structure removal shall be planned for either the spring or the fall and timed to ensure both suitable conditions for the detection of bats and adequate time for tree and/or structure removal to occur during seasonal periods of bat activity exclusive of the breeding season, as described below. Trees and/or structures containing suitable potential bat roost habitat features shall be clearly marked or identified. If no bat roosts are found, the results of the survey will be documented and submitted to the Town within 30 days of the survey, after which no further action will be required.

If day roosts are present, the biologist shall prepare a site-specific roosting bat protection plan to be implemented by the contractor following the Town's approval. The plan shall incorporate the following guidance as applicable:

- When possible, removal of trees/structures identified as suitable roosting habitat shall be conducted during seasonal periods of bat activity (outside the breeding and hibernation periods), including the following:
 - a) Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs.
 - b) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs.
- If a tree/structure must be removed during the breeding season and is identified as potentially containing a colonial maternity roost, then a qualified biologist shall conduct acoustic emergence surveys or implement other appropriate methods to further evaluate if the roost is an active maternity roost. Under the biologist's guidance, the contractor shall implement measures similar to or better than the following:
 - a) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure.
 - b) If it is found that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the breeding season (April 15 to August 31).
- Tree removal procedures shall be implemented using a two-step tree removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on day one. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed to not return to the roost that night. The remainder of the tree is removed on day two.
- Prior to the demolition of vacant structures within the project site, a qualified biologist shall conduct a focused habitat assessment of all structures to be demolished. The habitat assessment shall be conducted enough in advance to ensure the commencement of building

demolition can be scheduled during seasonal periods of bat activity (see above), if required. If no signs of day roosting activity are observed, no further actions will be required. If bats or signs of day roosting by bats are observed, a qualified biologist will prepare specific recommendations such as partial dismantling to cause bats to abandon the roost, or humane eviction, both to be conducted during seasonal periods of bat activity, if required.

- If the qualified biologist determines a roost is used by a large number of bats (large hibernaculum), bat boxes shall be installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultation with CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately.

Significance After Mitigation

Implementation of mitigation measures BIO-1 through BIO-3 would reduce potential impacts to special-status species including nesting birds and roosting bats, habitat for special-status species, and locally important species to less than significant levels by requiring biological resources screening and assessments of sites, pre-construction surveys, and avoidance of nesting birds and roosting bats.

Bollinger Canyon Rezoning

Impact BIO-2 FUTURE DEVELOPMENT FACILITATED BY BOLLINGER CANYON REZONING MAY RESULT IN DIRECT OR INDIRECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES OR THEIR ASSOCIATED HABITATS INCLUDING IMPACTS TO MIGRATORY BIRD NEST SITES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

The Bollinger Canyon Study Area is a predominantly rural area within the town and is characterized by open space, agricultural uses, and low-residential development. Special-status plant species with the potential to occur in the Bollinger Canyon Study Area are like those described above under Impact BIO-1. Habitat for these species would be expected to occur throughout the Bollinger Canyon Study Area within undisturbed vegetative habitat or in natural communities. Federally designated critical habitat for Alameda whipsnake overlaps with the entire Bollinger Canyon Study Area. Several areas of coast live oak woodlands would likely qualify as sensitive natural communities occurring within the Study Area. Additionally, riparian habitat occurs along Las Trampas Creeks and its tributaries in the Study Area (USFWS 2022a).

Development of projects in the Bollinger Canyon Study Area may result in new structures near existing habitats, including riparian areas along creeks or drainages. Additionally, future development would require construction of associated infrastructure such as roads, water, and sewer utilities. This could potentially require work within riparian vegetation along creeks and drainages, resulting in temporary riparian and aquatic habitat impacts. These habitats could support several special-status species, such as California red-legged frog. Additionally, future development in the Bollinger Canyon Study Area could impact trees and pockets of vegetation. These trees and vegetation could provide habitat for special-status species, including migratory nesting birds.

As described above under Section 4.3.1.c, *Sensitive Natural Communities and Critical Habitats*, although the Bollinger Canyon Study Area is predominantly comprised of grasslands and oak woodlands with only minor patches of scrub habitats, these vegetation communities may support Alameda whipsnake as this species will venture into adjacent grasslands during dispersal. Impacts to

Alameda whipsnake are a concern on properties with suitable habitat within its range. A review of the CNDDDB shows that several occurrences of Alameda whipsnake have been documented within the Bollinger Canyon Study Area (CDFW 2022a). Although the Bollinger Canyon Study Area is unlikely to support a breeding population of Alameda whipsnake due to marginal quality habitats, the species may move through the area during dispersal. Future development in the Bollinger Canyon Study Area may result in removal of grassland and scrub habitats during grading that potentially support dispersal or foraging habitats for Alameda whipsnake. Vegetation removal and ground disturbance in the non-native annual grasslands could result in the injury or death of individual Alameda whipsnakes if they are present when these activities occur. For federally listed species (e.g., Alameda whipsnake), the loss of habitat is also considered “harm” under the ESA. Injury, mortality, or harassment of even a single individual would be a violation of the federal ESA. After construction, any increased vehicle traffic due to new development in the Bollinger Canyon Study Area could result in an increase in the potential for Alameda whipsnakes to be killed or injured by vehicle strikes. New residences could also result in an increase in free-roaming cats and dogs, which could harass or kill individuals.

Future development in the Bollinger Canyon Study Area would be subject to the provisions of various federal and State regulations, and their respective permitting processes. Additionally, the future development would be required to comply with existing goals and policies in the General Plan that call for the preservation and protection of natural resources and the managed production of natural resources. These goals and policies, as described in Impact BIO-1, would reduce impacts to special-status species and their habitats.

However, because the General Plan does not include policies that specifically address the protection of special-status species, future development in the Study Area could result in the loss of individuals or habitat of special-status species, including the Alameda whipsnake. As such, impacts to special-status-species or their habitats would be potentially significant and mitigation measures BIO-1 through BIO-3 described above under Impact BIO-1 would be required for future development in the Bollinger Canyon Study Area. Additionally, the USFWS and CDFW regulate the take of listed species and their habitats, therefore impacts to Alameda whipsnake would be potentially significant. As such, mitigation measure BIO-4 would also be required for development in the Bollinger Canyon Study Area.

Mitigation Measures

Mitigation Measures BIO-1 through BIO-3, described under Impact BIO-1, could be required. Additionally, Mitigation Measure BIO-4 for Alameda whipsnake surveys and avoidance would also be required.

BIO-4 Alameda Whipsnake Pre-Construction Surveys and Impact Avoidance

If required pursuant to Mitigation Measure BIO-1, and in areas determined by the Biological Resources Screening and Assessment as likely to contain suitable habitat for Alameda whipsnake near proposed work areas a qualified biologist shall conduct a focused pre-construction survey within 14 days prior to initiation of construction activities within the Bollinger Canyon Study Area. The USFWS and CDFW will be notified should any Alameda whipsnake be observed within any site of future development. Additionally, the following mitigation measures will be implemented to reduce impacts to the Alameda whipsnake:

- Prior to the start of construction, wildlife exclusion fencing (e.g., Animex or Ertec brand fencing) will be installed along the project footprint boundary. The location, extent, and specifications of

the wildlife exclusion fencing will be identified by a qualified biologist and included on the final project plans. The fencing will remain in place throughout the duration of the construction activities and will be regularly inspected and fully maintained. Repairs to the fence will be made within 24 hours of discovery. Upon completion of construction activities, the fence will be completely removed; the area cleaned of debris and trash and returned to natural conditions.

- Construction crew shall be trained during the WEAP training to check beneath the staged equipment each morning prior to commencement of daily construction activities. Should Alameda whipsnake occur within the staging areas, construction activities shall be halted until the Alameda whipsnake vacates the project site on its own and approval to begin again is provided by the USFWS and CDFW.
- A qualified biologist shall be present during grading activities. Should Alameda whipsnake be observed within the project site, the USFWS and CDFW shall be notified, and construction shall be halted until the Alameda whipsnake exits the site and approval to begin again is provided by the USFWS and CDFW.
- To prevent the entrapment of Alameda whipsnake and other wildlife, monofilament plastics shall not be used for erosion control.
- All construction activities shall take place during daylight hours or with suitable light so that whipsnakes can be seen. Vehicle speeds on the construction site shall not exceed five miles per hour.
- Site vegetation management shall take place prior to tree removal, grading, excavation, or other construction activities. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed. Areas shall be re-mowed if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period.

Significance After Mitigation

Implementation of Mitigation Measures BIO-1 through BIO-4 would reduce potential impacts to special-status species including Alameda whipsnake, nesting birds and roosting bats, habitat for special-status species, and locally important species to less than significant levels by requiring biological resources screening and assessments of sites, pre-construction surveys, and avoidance of Alameda whipsnake, nesting birds, and roosting bats.

Threshold 2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Threshold 3: Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Housing Element

Impact BIO-3 IMPLEMENTATION OF THE HOUSING ELEMENT MAY ADVERSELY IMPACT RIPARIAN HABITAT, OTHER SENSITIVE NATURAL COMMUNITIES, OR PROTECTED WETLANDS. IMPLEMENTATION OF FEDERAL, STATE, AND LOCAL REGULATIONS AND POLICIES WOULD REDUCE IMPACTS TO RIPARIAN HABITAT AND WETLANDS. HOWEVER, IMPACTS COULD BE SIGNIFICANT AND MITIGATION MEASURES WOULD BE REQUIRED.

Riparian habitats have been recorded in and around Moraga. According to the NWI database (see Figure 4.3-2), areas of freshwater forested/shrub wetland and freshwater ponds occur in Moraga Commons Park and near the portion of St. Mary's College campus located along Las Trampas Creek. Additionally, several riverine features occur throughout Moraga including Moraga Creek, Las Trampas Creek, and several tributaries to San Leandro Creek south of the town. Laguna Creek, a tributary of Moraga Creek, runs north-south through the Moraga Center area and Rheem Park area.

Many of the Housing Opportunity Sites included in the Housing Element are located on infill sites that are already developed with structures and/or parking and are not proximate to wetlands or waterways. Because these areas are currently developed, they are unlikely to contain jurisdictional wetlands or other surface waters and associated riparian vegetation zones. However, some Housing Opportunity Sites are in areas of lower density development or are near wetlands and streams within Moraga. Additionally, the Housing Element would increase density in some areas, which could require upgraded utilities or stormwater drainage. The construction of these upgraded facilities could require work, including dredge or fill, within jurisdictional wetlands and streams and could require ground disturbance in riparian habitat associated with these wetlands and streams. For development that would occur in these areas, a jurisdictional delineation would be required in accordance with CWA Section 404. Therefore, any proposed development in areas identified as jurisdictional waters and/or wetlands, streambed/banks, or riparian vegetation would be subject to the permit requirements of the USACE, RWQCB, and CDFW, pursuant to Section 404 of CWA and the Porter-Cologne Water Quality Control Act. Actual jurisdictional areas are determined by the State and federal authorities at the time that permits are requested.

Future development within or adjacent to sensitive habitats could result in potential direct impacts through removal of vegetation, filling of wetland habitat, compaction of soils, and/or indirectly through dust and vegetation thinning. The issuance of a grading permit by the Town for ministerial and discretionary projects requires obtaining other permits from State or federal agencies. These include but are not limited to streambed alteration permits from CDFW and permits for grading in the vicinity of wetlands and certain watercourses from the USACE. These permit clearances may also be required as conditions of approval for grading work to commence. Approval of permits requires findings that the proposed grading will not result in erosion, stream sediment, or other adverse off-site effects to riparian habitat.

On project sites one acre or larger, implementation of the required Stormwater Pollution Prevention Plan Best Management Practices, in accordance with the NPDES construction general permit, during construction would reduce the potential for eroded soil and contaminants attached to that soil to contaminate a waterbody following a storm event. Additionally, Moraga Municipal Code Section 14.52.010 provides design standards for stormwater management and BMPs to address erosion and sedimentation during grading and construction. Future developments facilitated by the Housing Element would employ erosion and stormwater control measures as outlined in the Moraga Municipal Code Section 13.04.090. Impacts related to drainage and pollution are further discussed in Section 4.9, *Hydrology and Water Quality*.

Additionally, the General Plan contains goals and policies that would further reduce impacts to riparian and wetland habitats, as well as other sensitive natural communities. Goal CD1 aims to protect and preserve the natural scenic qualities that make Moraga unique by locating new development in areas considered less sensitive (Policy CD1.1), and protecting the canyon, valley, ridgeline, and hillside areas from development where possible (Policies CD1.4 and CD1.5). Policy OS2.2 requires preservation of creeks, streams, and other waterways as feasible to protect these resources and their associated riparian habitats. Policy OS 2.3 requires that development be consistent with the natural carrying capacity of creeks, streams, and other waterways such that their natural features are preserved. Additionally, Policies OS3.5 and OS3.6 would preserve and protect natural watercourse areas and require that future development reduce peak storm runoff to local creeks and streams, respectively.

Implementation of these goals and policies, as well as Policy OS2.1 and OS2.4 described under Impact BIO-1 along with Mitigation Measures BIO-1 through BIO-3, would reduce direct impacts to riparian habitat during construction and operation by reducing direct and indirect modifications to creeks, embankments, and other waterways in the General Plan area. Furthermore, if jurisdictional waters occur on any future development sites associated with the Planning Initiative, a jurisdictional delineation and permits issued by the relevant State and/or federal authorities (CDFW, RWQCB, and USACE) would be required that would address potential impacts to those waters. Adherence to State and federal regulations, the Moraga Municipal Code, and General Plan goals and policies, and implementation of Mitigation Measures BIO-5 and BIO-6, impacts would be required.

Mitigation Measures

BIO-5 Conduct Jurisdictional Delineation

If required pursuant to Mitigation Measure BIO-1, and in areas determined by the Biological Resources Screening and Assessment as likely to impact waters, wetlands, or riparian habitat a jurisdictional delineation shall be required. A qualified biologist shall complete a jurisdictional delineation of all features within the project site. The jurisdictional delineation shall determine the extent of the jurisdictions for CDFW, USACE, and RWQCB, and shall be conducted in accordance with the requirement set forth by each agency. The result shall be a preliminary jurisdictional delineation report that shall be submitted to the implementing agency, USACE, RWQCB, and CDFW, as appropriate, for review and approval. Jurisdictional areas shall be avoided to the maximum extent possible. If jurisdictional areas are expected to be impacted, then the RWQCB would require a WDRs permit and/or WQC (depending upon whether the feature falls under federal jurisdiction). If CDFW asserts its jurisdictional authority, then a LSAA pursuant to Section 1600 et seq. of the CFGC would also be required prior to construction within the areas of CDFW jurisdiction. If the USACE asserts its authority, then a permit pursuant to Section 404 of the CWA would likely be required.

BIO-6 Perform Restoration for Impacts to Waters and Wetlands

If waters and/or wetlands cannot be avoided and will be impacted by construction, a compensatory mitigation program shall be implemented. Impacts to waters and wetlands shall be mitigated through one or more options to meet the required amount of mitigation as required based on direct impacts from project development under the mitigation ratios outlined below. Mitigation for impacts to waters and wetlands can be achieved through the acquisition and in-perpetuity management of similar habitat and/or through the in-lieu funding of such through an existing mitigation bank. Funding and management of internal mitigation areas can be managed internally. Funding and management of off-site mitigation lands shall be provided through purchase of credits from an existing, approved mitigation bank or land purchased by implementing entity and placed into a conservation easement or other covenant restricting development (e.g., deed restriction). Internal mitigation lands and/or in-lieu funding sufficient to acquire lands shall provide habitat at a minimum ratio of 1:1 for impacted lands, comparable to habitat to be impacted by individual project activity. Compensatory mitigation for sensitive vegetation communities can be combined with other compensatory mitigation (e.g., sensitive vegetation communities) as applicable. All temporary impacts to waters and wetlands shall be fully restored to natural condition.

Significance After Mitigation

Implementation of Mitigation Measures BIO-5 and BIO-6 would reduce potential impacts to riparian habitat, wetlands, and waters to less than significant.

Bollinger Canyon Rezoning

Impact BIO-4 FUTURE DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING MAY ADVERSELY IMPACT RIPARIAN HABITAT, OTHER SENSITIVE NATURAL COMMUNITIES, OR PROTECTED WETLANDS. IMPLEMENTATION OF FEDERAL, STATE, AND LOCAL REGULATIONS AND POLICIES WOULD REDUCE IMPACTS TO RIPARIAN HABITAT AND WETLANDS. HOWEVER, IMPACTS COULD BE SIGNIFICANT AND MITIGATION MEASURES WOULD BE REQUIRED.

Riparian habitats have been recorded in and around the Bollinger Canyon Study Area. According to the NWI database (see Figure 4.3-2), habitats such as freshwater forested/shrub wetlands are located within the Bollinger Canyon Study Area. Additionally, several riverine features occur throughout the Bollinger Canyon Study Area, including Las Trampas Creek and its tributaries. Future development near or bisected by waterways throughout the Bollinger Canyon Study Area would be subject to USACE, CDFW, and RWQCB permitting requirements.

Because the Bollinger Canyon Study Area is primarily undeveloped, future development projects may be in areas containing jurisdictional wetlands or other surface waters and associated riparian vegetation. Additionally, future development in the Bollinger Canyon Study Area would require construction of utilities or stormwater drainage. The construction of these facilities could require work, including dredge or fill, within jurisdictional wetlands and streams and could require ground disturbance in riparian habitat. For development that would occur in these areas, a jurisdictional delineation would be required in accordance with CWA Section 404. Therefore, any proposed development in areas identified as jurisdictional waters and/or wetlands, streambed/banks, or riparian vegetation would be subject to the permit requirements of the USACE, RWQCB, and CDFW, pursuant to Section 404 of CWA and the Porter-Cologne Water Quality Control Act. Actual jurisdictional areas are determined by the State and federal authorities at the time that permits are requested.

As discussed under Impact BIO-3, future development within or adjacent to sensitive habitats could result in potential direct impacts through removal of vegetation, filling of wetland habitat, compaction of soils, and/or indirectly through dust and vegetation thinning. Permits from the Town, State, and federal agencies would similarly be required, including municipal grading permits, CDFW permits, and USACE permits. Likewise, compliance with the NPDES construction general permit and Moraga Municipal Code Sections 14.52.010 and 13.04.090 would be required. Additionally, the same 2002 General Plan goals and policies discussed under Impact BIO-3 related to riparian and wetland habitats and sensitive natural communities would be required, including Goal CD1, Policies CD1.1, CD1.4, CD1.5, OS2.2, OS2.3, OS3.5, and OS3.6.

Implementation of these goals and policies, as well as Policy OS2.1 and OS2.4 described under Impact BIO-1, would reduce direct impacts to riparian habitat during construction and operation by reducing direct and indirect modifications to creeks, embankments, and other waterways in the General Plan area. Furthermore, if jurisdictional waters occur in the Bollinger Canyon Study Area, a jurisdictional delineation and permits issued by the relevant State and/or federal authorities (CDFW, RWQCB, and USACE) would be required that would address potential impacts to those waters. Adherence to State and federal regulations, the Moraga Municipal Code, and implementation of General Plan goals and polices would reduce impacts to less than significant.

Mitigation Measures

Mitigation Measures BIO-5 through BIO-6, described under Impact BIO-3, would be required.

Significance After Mitigation

Implementation of Mitigation Measures BIO-5 and BIO-6 would reduce potential impacts to riparian habitat, wetlands, and waters to less than significant.

Threshold 4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Housing Element

Impact BIO-5 IMPLEMENTATION OF THE HOUSING ELEMENT WOULD AVOID IMPACTS TO WILDLIFE MOVEMENT CORRIDORS BY CONSERVING OPEN SPACE IN THE TOWN AS DIRECTED BY POLICIES IN THE GENERAL PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed above in Section 4.3.1, *Environmental Setting*, Moraga is in the center of an ECA running along the Berkeley and Oakland Hills, from the Wildcat Canyon Regional Park to the north and extending south to the Calaveras Reservoir (see Figure 4.3-4). Additionally, several small scale and important local movement corridors are located along the creeks, drainages, and ridgelines throughout the Town. Many of these smaller scale wildlife movement corridors are bisected by roadways and developed areas throughout the Town. The sites planned for rezoning and density increases are concentrated in the Moraga Center area and Rheem Park area, which are already primarily developed and do not act as wildlife movement corridors.

Wildlife movement corridors in the town are generally associated with areas of open space and riparian areas along waterways. These natural areas include Moraga Creek, Las Trampas Creek, the Mulholland Ridge Open Space, and the hills at the southern and northern extents of the Town.

These areas are considered wildlife nursery sites and are designated by the General Plan as Open Space. The Housing Element does not include changes to existing Open Space land use designations, including along creeks and waterways in Moraga. Therefore, the Housing Element would not facilitate permanent development within these wildlife movement corridors. Wildlife movement within areas of open space would not be affected by the Planning Initiative because the Housing Element would concentrate density increases in the urbanized areas of the Town (e.g., Moraga Center area and Rheem Park area). Development would not be facilitated in riparian areas along creeks or in ridgeline and hills open spaces throughout the town.

Additionally, several General Plan policies would reduce habitat fragmentation and associated impacts to wildlife movement in the Town. General Plan Goal OS1 to preserve as much open space land as possible is supported by Policy OS1.12 requiring that open space areas be maintained and managed in keeping with community priorities, such as deed restrictions and budget constraints. Policy OS2.5 promotes the connection of open space areas where possible so that wildlife can move freely through the area and bypass urban areas. This policy is implemented through the General Plan Open Space Preservation Program. Additionally, as described above in Impact BIO-3, Policy OS2.2 requires that the Town preserve creeks, streams, and other waterways, as feasible. This policy would reduce impacts to riparian habitats that often serve as dispersal and/or migration corridors for wildlife species. These policies would help to preserve important local wildlife corridors as new development is permitted throughout Moraga.

The Housing Element would not facilitate development or rezone areas of open space for development, including stream corridors. Additionally, the Housing Element would be required to be consistent with 2002 General Plan policies to reduce impacts to stream corridors and protect wildlife movement corridors and open space. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact BIO-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING MAY RESULT IN SUBSTANTIAL IMPACTS TO WILDLIFE MOVEMENT THROUGH HABITAT MODIFICATION DURING CONSTRUCTION OR DUE TO DENSITY INCREASES THE AREA. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

As discussed above under Impact BIO-5, the Bollinger Canyon Study Area overlaps with areas mapped as an ECA or other locally important wildlife movement corridors including rivers and watercourses.

Most of the Bollinger Canyon Study Area is undeveloped and provides vegetative cover suitable for the movement of many terrestrial wildlife species, including medium to large-sized, mobile mammals with relatively large home ranges (coyote, deer, bobcat, grey fox, and mountain lion) and provide foraging and breeding habitat for many species. Wildlife species can move through these vegetated areas routinely and some species also use concrete-lined or earthen stormwater channels in the area for movement.

Future development in the Bollinger Canyon Study Area could occur within or adjacent to sensitive habitats (e.g., riparian areas, undeveloped natural areas). Direct and indirect disturbances to these areas could potentially interfere with the movement of native resident or migratory fish or wildlife species. In addition, future development could affect established native resident or migratory wildlife corridors within the town. Fragmentation of habitat by development and associated infrastructure throughout the town and surrounding Bay Area is already existing.

Las Trampas Creek and its tributaries in Bollinger Canyon provide wildlife movement corridors for many native terrestrial wildlife species. Coast live oak and riparian woodlands may provide an important regional movement corridor for riparian species such as amphibians and mammals such as striped skunk, raccoon, red fox, coyote, mule deer, opossum, and bobcat. These areas have the potential to support nesting birds and other breeding wildlife. Development projects would be required to comply with California Fish and Game Code (e.g., Sections 3503, 3503.5, 3513, and 4150); thus, it is unlikely that development in the Bollinger Canyon would result in the disturbance or destruction of active nest sites or the unauthorized take of birds or nongame mammals. Nevertheless, if development activities directly (e.g., cutting of trees or other vegetation, or removal of man-made structures containing an active bird nest or denning wildlife) or indirectly (e.g., if activities sufficiently harassed birds to cause nest abandonment) affect nesting birds and nongame mammals, a violation of the Fish and Game Code would occur.

Direct impacts to wildlife include increased noise and human presence during construction, as well as increased trash, which may attract predators to Bollinger Canyon and discourage wildlife use of surrounding natural habitat. Indirect impacts include invasion of natural habitats by non-native species and increased presence of humans and domestic animals over the long-term. These edge effects of development in and adjacent to open space have the potential to adversely affect wide ranging predators, such as mountain lions. In addition, new development projects within the Bollinger Canyon Study Area could include new segments of fencing or walls that that could hinder wildlife movement.

As discussed in Impact BIO-5, several General Plan policies would reduce habitat fragmentation and associated impacts to wildlife movement in the Bollinger Canyon Study Area, including Goal OS1 and Policies OS1.12, OS2.5, and OS2.2. While these policies would help to reduce some impacts to wildlife movement, they do not specifically address the disruption or blocking of pre-existing corridors. The disruption or blockage of these corridors would be a potentially significant impact. As such, Mitigation Measures BIO-7 through BIO-9 would be required for development in the Bollinger Canyon Study Area.

Mitigation Measures

BIO-7 Project Design for Wildlife Connectivity

If required pursuant to Mitigation Measure BIO-1, and in areas determined by the Biological Resources Screening and Assessment in Bollinger Canyon that provide wildlife movement corridors, projects shall be designed to minimize impacts to wildlife as set forth below and determined by the Town. Fencing or other project components shall not block wildlife movement through riparian or other natural habitat. Where fencing or other project components that may disrupt wildlife movement is required for public safety concerns, they shall be designed to permit wildlife movement by incorporating design features that include one or more of the following, as required based on site-specific conditions:

Comprehensive Advanced Planning Initiative

- A minimum 16 inches between the ground and the bottom of the fence to provide clearance for small animals.
- A minimum 12 inches between the top two wires, or top the fence with a wooden rail, mesh, or chain link instead of wire to prevent animals from becoming entangled.
- If privacy fencing is required near open space areas, openings at the bottom of the fence measure at least 16 inches in diameter shall be installed at reasonable intervals to allow wildlife movement, or the fence may be installed with the bottom at least 16 inches above the ground level.
- If fencing or other project components must be designed in such a manner that wildlife passage would not be permitted, wildlife crossing structures shall be incorporated into the project design as appropriate.
- Lighting installed as part of any project shall be designed to be minimally disruptive to wildlife.

BIO-8 Maintain Connectivity in Drainages

No permanent structures that would impede wildlife movement shall be placed within any drainage or riverine feature in the Bollinger Canyon Study Area (i.e., no hardened caps or other structures in the stream channel perpendicular to stream flow that would be exposed or at moderate to high risk of exposure because of natural bed scour during high flow events, and thereby potentially create impediments to passage). In addition, upon completion of construction within any drainage or riverine feature, areas of stream channel and banks that are temporarily impacted shall be returned to pre-construction contours and in a condition that allows for unimpeded passage through the area. If water is to be diverted around work sites, a diversion plan shall be submitted to the Town for review and approval prior to issuance of project construction permits/approvals. The diversion shall be designed in such a way as to not impede movement while the diversion is in place.

BIO-9 Construction Best Management Practices to Minimize Disruption to Wildlife

The following construction BMPs shall be incorporated into all grading and construction plans in the Bollinger Canyon Study Area to minimize temporary disruption of wildlife:

- A 20 mile per hour speed limit shall be designated in all construction areas.
- Daily construction work schedules shall be limited to daylight hours only.
- Mufflers shall be used on all construction equipment and vehicles shall be in good operating condition.
- All trash shall be placed in sealed containers and shall be removed from the project site a minimum of once per week.
- No pets shall be permitted on project site during construction.

Significance After Mitigation

Compliance with the Mitigation Measures BIO-7 through BIO-9 would reduce impacts to wildlife movement by requiring development to be designed in a way that maintains connectivity. However, it cannot be guaranteed that movement of terrestrial species will not be impeded at the regional scale due to future development in the Bollinger Canyon Study Area. No additional feasible mitigation measures are available to reduce impacts on wildlife movement. Thus, this impact would remain significant and unavoidable.

Threshold 5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Housing Element

Impact BIO-7 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD BE REQUIRED TO CONFORM WITH APPLICABLE LOCAL POLICIES PROTECTING BIOLOGICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Housing Element could occur in areas that have mature trees along the boundaries of and within future development sites. Removal or alteration of these trees would be subject to Moraga Municipal Code Section 12.12.030 requiring tree permits prior to the removal of regulated trees, including native, orchard and historic trees. Additionally, Moraga Municipal Code Section 12.12.070 requires the preparation of arborist reports for development or construction that would encroach into the drip line of any regulated tree. Additionally, future development due to the Housing Element would be required to adhere to 2002 General Plan Policy OS2.8 to preserve and protect trees in the Town and Policy OS2.9 to preserve certain tree covered areas that provide value as wildlife habitats, even where development in those areas is permitted. These preferential areas of preservation include Mulholland Hill, Indian Ridge, and Bollinger Canyon, in addition to several other wooded areas that are considered significant in the town, none of which occur within the Moraga Center area or Rheem Park area. Implementation of these General Plan policies would require protection of individual regulated trees as well as larger swaths of tree covered areas. Because development facilitated by the Housing Element would be required to comply with the Moraga Municipal Code requirement and General Plan policies, the Housing Element would be consistent with local policies and ordinances, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact BIO-8 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD BE REQUIRED TO CONFORM WITH APPLICABLE LOCAL POLICIES PROTECTING BIOLOGICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development planned by the Bollinger Canyon Rezoning would occur within an area specifically designated by General Plan Policy OS-2.9 as a priority for tree preservation. Removal or alteration of trees in this area would be subject to the same regulations and policies identified in Impact BIO-7 related to tree preservation and protection of other biological resources in the town (Moraga Municipal Code Sections 12.12.030 and 12.12.070, and 2002 General Plan policies). Future development within the Bollinger Canyon Study Area would be required to comply with the Moraga Municipal Code and General Plan policies. Therefore, future development in the Bollinger Canyon Study Area would be consistent with local policies and ordinances, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Housing Element

Impact BIO-9 IMPLEMENTATION OF THE HOUSING ELEMENT WOULD NOT CONFLICT WITH AN ADOPTED HCP, NCCP, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN. NO IMPACT WOULD OCCUR.

There are no adopted HCPs or NCCPs within the Plan Area. Therefore, development facilitated by the Housing Element would have no impacts related to conflicts with an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Study Area

Impact BIO-10 FUTURE DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT CONFLICT WITH AN ADOPTED HCP, NCCP, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN. NO IMPACT WOULD OCCUR.

There are no adopted HCPs or NCCPs within the Bollinger Canyon Study Area. Therefore, future development in this area would have no impacts related to conflicts with an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.4 Cultural Resources

This section analyzes the proposed project's potential impacts related to cultural resources, including historical and archeological resources as well as human remains. Potential impacts related to tribal cultural resources are discussed in Section 4.15, *Tribal Cultural Resources*.

4.4.1 Environmental Setting

The cultural resources setting for the Plan Area is presented broadly in two overviews: Prehistoric History and Post-Contact History. The overviews describe human occupation before and after European contact.

a. Prehistoric History

The Plan Area lies in the San Francisco Bay Area archaeological region (Milliken et al. 2007, Moratto 1984). Following Milliken et al. (2007), the prehistoric cultural chronology for the Bay Area can be generally divided into five periods: The Early Holocene (8,000-3,500 BC), Early (3,500-500 BC), Lower Middle (500 BC to AD 430), the Upper Middle (AD 430-1050), and the Late Period (AD 1050-contact).

It is presumed that early Paleoindian groups lived in the area prior to 8,000 BC; however, no evidence for that period has been discovered in the Bay Area to date (Milliken et al. 2007). For this reason, the terminal Pleistocene Period (ca. 11,700-8,000 BC) is not discussed here.

The earliest intensive study of the archaeology of the San Francisco Bay Area began with N. C. Nelson of the University of California, Berkeley, between 1906 and 1908. He documented over 400 shell mounds throughout the area. Nelson was the first to identify the Bay Area as a discrete archaeological region (Moratto 1984).

Early Holocene (8,000-3,500 BC)

Archaeological evidence from the early Holocene is limited as many sites dating to this period are likely buried under Holocene alluvial deposits (Moratto 1984; Ragir 1972). The available data suggest that the Early Holocene in the San Francisco Bay Area is characterized by a mobile forager pattern and the presence of milling slabs, handstones, and a variety of leaf-shaped projectile points. Two archaeological sites (CA-CCO-696 and CA-CCO-637) that date to this period have been identified in Contra Costa County. The earliest date for the Early Holocene comes from the CA-CCO-696 at Los Vaqueros Reservoir (Milliken et al. 2007).

Early Period (3,500-600 BC)

The Early Period saw increased sedentism with the introduction of new ground stone technologies (i.e., mortar and pestle), an increase in regional trade, and the first cut shell beads. The earliest evidence for the use of the mortar and pestle dates to 3,800 BC and comes from CA-CCO-637 in the Los Vaqueros Reservoir area. By 1,500 BC, mortars and pestles had almost completely replaced milling slabs and handstones. The advent of the mortar and pestle indicates a greater reliance on processing nuts such as acorns. Faunal evidence from various sites indicates a diverse faunal exploitation pattern based on mussel and other shellfish, marine mammals, terrestrial mammals, and birds (D'Oro 2009).

The earliest cut bead horizon is also associated with this period. Rectangular *Haliotis* (abalone) and *Olivella* (snail) beads have been identified at several Early Period sites, including CA-CCO-637, CA-SCL-832 in Sunnyvale, and CA-ALA-307 in Berkeley (Milliken et al. 2007). These early examples of cut beads were recovered from mortuary contexts.

Lower Middle Period (500 BC-AD 430)

The Lower Middle Period saw numerous changes from the previous period. Rectangular shell beads, common during the Early Period, disappear completely and are replaced by split-beveled and saucer *Olivella* beads. In addition to the changes in beads, *Haliotis* ornaments, bone tools and ornaments, and basketry awls indicating the development of coiled basketry technology. Mortars and pestles continued to be the dominant grinding tool (Milliken et al. 2007).

Evidence for the Lower Middle Period in the Bay Area comes from sites such as the Emeryville shell mound (CA-ALA-309) and Ellis Landing (CA-CCO-295). CA-ALA-309 is one of the largest shell mounds in the Bay Area and contains multiple cultural sequences. The lower levels of the site, which date to the Middle Period, contain flexed burials with bone implements, chert bifaces, charmstones, and oyster shells (Moratto 1984).

Upper Middle Period (AD 430-1050)

Around AD 430, *Olivella* saucer bead trade networks that had been established during earlier periods collapsed and over half of known sites occupied during the Lower Middle Period were abandoned. *Olivella* saucer beads were replaced with *Olivella* saddle beads. New types of material culture appear at sites, including elaborate, decorative blades, fishtail charmstones, new *Haliotis* ornament forms, and mica ornaments. Sea otter bones became more abundant, suggesting changes in faunal exploitation patterns from earlier periods (Milliken et al. 2007). Excavations at CA-ALA-309 indicate that a shift from oysters to clams may have occurred. Subsistence analyses at various sites dating to this period indicate a diverse diet that included numerous species of fish, mammal species, bird species, shellfish, and plant resources that varied by location in the Bay Area (Hylkema 2002).

Late Period (AD 1050-contact)

The Late Period saw an increase in social complexity, indicated by differences in burials, and an increased level of sedentism relative to preceding periods. Small, finely worked projectile points associated with bow and arrow technology appear around AD 1250. *Olivella* shell beads disappeared and were replaced with clamshell disk beads. The toggle harpoon, hopper mortar, and magnesite tube beads also appeared during this period (Milliken et al. 2007). This period saw an increase in the intensity of resource exploitation that correlates with an increase in population (Moratto 1984). Many of the well-known sites of earlier periods, such as the Emeryville shell mound (CA-ALA-309) and the West Berkeley site (CA-ALA-307), were abandoned, as indicated by the lack of Late Period elements. Researchers have suggested that the abandonment of these sites may result from fluctuating climates and drought that occurred throughout the Late Period (Lightfoot and Luby 2002).

b. Post-Contact History

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and

the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769 – 1822)

Spanish explorers made sailing expeditions along the coast of California between the mid-1500s and mid-1700s. Juan Rodriguez Cabrillo in 1542 led the first European expedition to observe what was known by the Spanish as Alta (upper) California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). The Spanish crown laid claim to Alta California based on the surveys conducted by Cabrillo and Vizcaíno.

By the 18th century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769. Franciscan Father Junípero Serra also founded Mission San Diego de Alcalá that same year, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823.

The mission and presidio relied on Chumash labor; eventually, the majority of the native population lived at the mission complex. Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

Mexican Period (1822 – 1848)

Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. Commonly, former soldiers and well-connected Mexican families were the recipients of these land grants, which now included the title to the land.

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California

export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848 – Present)

The United States went to war with Mexico in 1846. During the first year of the war, John C. Fremont traveled from Monterey to Los Angeles with reinforcements for Commodore Stockton and evaded Californian soldiers in Santa Barbara’s Gaviota Pass by taking the route over the San Marcos grade instead (Kyle 2002). The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850. Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The discovery of gold in the northern part of the state led to the Gold Rush beginning in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region’s burgeoning mining and commercial boom.

A severe drought in the 1860s decimated cattle herds and drastically affected rancheros’ source of income. In addition, property boundaries that were loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944).

Local History

Locally, the Town of Moraga was named for Joaquin Moraga who was a descended from an early Spanish explorer that was associated with Juan de Anza’s expedition of 1776. Joaquin Moraga built an adobe on a hill overlooking the Moraga Valley in 1841. The Moraga rancho was a cattle ranch. Hides and tallow were sold to San Francisco shipping lines or exchanged for merchandise. Life at the adobe was successful and comfortable for the Moraga Family, until the Rancho was split up and sold in the 1850s. Between 1850 and 1886, the Moraga family lost their claim to the land that is now the Town of Moraga. By 1912, the bulk of the rancho was purchased by James Irvine. When James Irvine died in 1947, residents of Moraga banded together to keep developers from overbuilding and changing the rural peaceful community. This formed a pattern for resident participation in local affairs. This led to incorporation as the Town of Moraga in November 1974 (History of Moraga 2022).

4.4.2 Regulatory Setting

This section includes a discussion of the applicable state and local laws, ordinances, regulations, and standards governing cultural resources, which must be adhered to during implementation of the proposed project.

a. State Regulations

California Environmental Quality Act

California Public Resources Code (PRC) Section 21804.1 requires lead agencies determine if a project could have a significant impact on historical or unique archaeological resources. As defined in PRC Section 21084.1, a historical resource is a resource listed in, or determined eligible for listing in, the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources or identified in a historical resources survey pursuant to PRC Section 5024.1(g), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. PRC Section 21084.1 also states resources meeting the above criteria are presumed to be historically or cultural significant unless the preponderance of evidence demonstrates otherwise. Resources listed in the National Register of Historic Places (NRHP) are automatically listed in the CRHR and are, therefore, historical resources under CEQA. Historical resources may include eligible built environment resources and archaeological resources of the precontact or historic periods.

CEQA Guidelines Section 15064.5(c) provides further guidance on the consideration of archaeological resources. If an archaeological resource does not qualify as a historical resource, it may meet the definition of a “unique archaeological resource” as identified in PRC Section 21083.2. PRC Section 21083.2(g) defines a unique archaeological resource as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: 1) it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information, 2) has a special and particular quality such as being the oldest of its type or the best available example of its type, or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological resource does not qualify as a historical or unique archaeological resource, the impacts of a project on those resources will be less than significant and need not be considered further (*CEQA Guidelines* Section 15064.5[c][4]). *CEQA Guidelines* Section 15064.5 also provides guidance for addressing the potential presence of human remains, including those discovered during the implementation of a project.

According to CEQA, an impact that results in a substantial adverse change in the significance of a historical resource is considered a significant impact on the environment. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (*CEQA Guidelines* Section 15064.5 [b][1]). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (*CEQA Guidelines* Section 15064.5[b][2][A]).

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a][b]).

CEQA Guidelines Section 15126.4 stipulates an EIR shall describe feasible measures to minimize significant adverse impacts. In addition to being fully enforceable, mitigation measures must be completed within a defined time period and be roughly proportional to the impacts of the project.

Generally, a project which is found to comply with the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (the Standards) is considered to be mitigated below a level of significance (*CEQA Guidelines* Section 15126.4 [b][1]). For historical resources of an archaeological nature, lead agencies should also seek to avoid damaging effects where feasible. Preservation in place is the preferred manner to mitigate impacts to archaeological sites; however, data recovery through excavation may be the only option in certain instances (*CEQA Guidelines* Section 15126.4[b][3]).

National Register of Historic Places

Although the project does not have a federal nexus, properties which are listed in or have been formally determined eligible for listing in the NRHP are automatically listed in the CRHR. The following is therefore presented to provide applicable regulatory context. The NRHP was authorized by Section 101 of the National Historic Preservation Act and is the nation’s official list of cultural resources worthy of preservation. The NRHP recognizes the quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects. Pursuant to 36 CFR Part 60.4, a property is eligible for listing in the NRHP if it meets one or more of the following criteria:

- Criterion A:** Is associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B:** Is associated with the lives of persons significant in our past
- Criterion C:** Embodies the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- Criterion D:** Has yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting at least one of the above designation criteria, resources must also retain integrity. The National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined as follows:

- Location:** The place where the historic property was constructed or the place where the historic event occurred
- Design:** The combination of elements that create the form, plan, space, structure, and style of a property
- Setting:** The physical environment of a historic property
- Materials:** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property
- Workmanship:** The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory
- Feeling:** A property’s expression of the aesthetic or historic sense of a particular period of time
- Association:** The direct link between an important historic event or person and a historic property

Certain properties are generally considered ineligible for listing in the NRHP, including cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions, relocated structures, or commemorative properties. Additionally, a property must be at least 50 years of age to be eligible for listing in the NRHP. The National Park Service states that 50 years is the general estimate of the time needed to develop the necessary historical perspective to evaluate significance (National Park Service 1997:41). Properties which are less than 50 years must be determined to have “exceptional importance” to be considered eligible for NRHP listing.

California Register of Historical Resources

The CRHR was established in 1992 and codified by PRC Sections 5024.1 and 4852. The CRHR is an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Unlike the NRHP however, the CRHR does not have a defined age threshold for eligibility; rather, a resource may be eligible for the CRHR if it can be demonstrated sufficient time has passed to understand its historical or architectural significance (California Office of Historic Preservation 2011). Furthermore, resources may still be eligible for listing in the CRHR even if they do not retain sufficient integrity for NRHP eligibility (California Office of Historic Preservation 2011). Generally, the California Office of Historic Preservation recommends resources over 45 years of age be recorded and evaluated for historical resources eligibility (California Office of Historic Preservation 1995:2).

A property is eligible for listing in the CRHR if it meets one of more of the following criteria:

- Criterion 1:** Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage
- Criterion 2:** Is associated with the lives of persons important to our past
- Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history

California Health and Safety Code

California Health and Safety Code Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined if the remains are subject to the Coroner’s authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification.

California Public Resources Code

California Public Resources Code Section 5097.98 states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5,

shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

b. Local Regulations

Town of Moraga Municipal Code

Moraga Municipal Code Chapter 8.176, *Historic Preservation*, provides a mechanism for designating historic landmarks, incentivizes landowner preservation, establishes regulations and permitting for changes to landmarks, preserves Town heritage, and protects the Town's attractiveness and visual character. Section 8.176.030 sets forth the process for designating historic landmarks, such as criteria, nominations, hearing, and decisions.

Town of Moraga General Plan

The Town's 2002 General Plan Community Design Element (Moraga 2002) includes the following goals and policies pertaining to historic resources:

Goal CD7: Historic Resources. Preservation of historically significant buildings and sites as a valued part of the community's character and a link to its past.

Policy CD7.1: Designation of Historic Resources. Identify and protect buildings, sites and other resources in the community that give residents a tie with the past, which may include:

- a) Hacienda de las Flores
- b) Older buildings at Saint Mary's College
- c) Trees with historical significance
- d) Moraga Ranch
- e) Moraga Barn

Policy CD7.2: Historic Preservation. Promote the preservation and conservation of historic buildings and sites, providing incentives as appropriate for their retention and rehabilitation.

Policy CD7.3: Adjacent Sites. Ensure that adjacent infill development is complementary to designated historic buildings and sites.

Policy CD7.4: 'Spanish Heritage' Districts. Designate areas with significant 'Spanish Heritage' architecture as 'Spanish Heritage Districts,' including Saint Mary's College and the Hacienda de las Flores. In these areas, encourage the use of basic elements of 'Spanish Heritage' architecture, with flexibility for invention, variety, and incorporation of contemporary design elements. Examples of architectural elements that may be encouraged in 'Spanish Heritage' Districts include:

- a) simple white stucco walls
- b) red clay tile roofs
- c) porches across the building front or side, with or without arches

- d) arches as an architectural feature over driveways and entrances
- e) buildings adapted to topography, for example through use of terraced gardens and porches
- f) bay windows
- g) garden walls
- h) lattices over carports and porches
- i) distinctive rooflines with low pitches
- j) balconies and verandas
- k) covered walkways and passages (arcades, colonnades)

Policy CD7.5: Landscaping in Historic Areas. Use landscaping to enhance the historic character of designated buildings, sites and districts, emphasizing the use of native and drought tolerant species.

Policy CD7.6: Public Information on Historic Resources and Preservation. Promote and support educational and informational programs regarding Moraga's history to help residents better understand and appreciate the Town's past and the historic resources that remain in the Town.

4.4.3 Impact Analysis

a. Significance Thresholds

If a project may cause a substantial adverse change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the CRHR or a local register, either through demolition, destruction, relocation, alteration, or other means, then the project would have a significant effect on the environment (*CEQA Guidelines* Section 15064.5[b]). Impacts would be significant if the project would:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5;
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; or
3. Disturb any human remains, including those interred outside of formal cemeteries.

b. Methodology

Threshold 1 broadly refers to historical resources. To more clearly differentiate between archaeological and built environment resources, analysis under Threshold 1 has been limited to built environment resources. Archaeological resources, including those that may be considered historical resources pursuant to *CEQA Guidelines* Section 15064.5 and those that may be considered unique archaeological resources pursuant to *CEQA Guidelines* Section 21083.2, are considered under Threshold 2.

Direct impacts can be assessed by identifying the types and locations of proposed development, determining the exact locations of cultural resources within the project area, assessing the significance of the resources that may be affected, and determining the appropriate mitigation. Removal, demolition, or alteration of historical resources can permanently impact the historic fabric of an archaeological site, structure, or historic district.

The State Legislature, in enacting the CRHR, amended CEQA to clarify which properties are significant, as well as which project impacts are considered to be significantly adverse. A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have significant effect on the environment (*CEQA Guidelines* Section 150645[b]). A substantial adverse change in the significance of a historical resource means demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (*CEQA Guidelines* Section 150645[b][1]).

The CEQA Guidelines further state that “[t]he significance of an historical resource is materially impaired when a project... [d]emolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in the California Register ... local register of historic resources... or its identification in an historic resources survey.” As such, the test for determining whether the project will have a significant impact on identified historical resources is whether it will materially impair physical integrity of the historic resource such that it could no longer be listed in the CRHR or a local landmark program.

Threshold 1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Housing Element

Impact CUL-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT MAY RESULT IN THE ALTERATION OR DEMOLITION OF HISTORICAL RESOURCES IN THE PLAN AREA. PROPOSED IMPLEMENTATION PROGRAMS IN THE HOUSING ELEMENT WOULD REDUCE IMPACTS TO HISTORICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Housing Element does not propose any specific development. However, it envisions development on parcels containing buildings that could meet the age threshold for potential historical resources and could be determined to qualify as historical resources pursuant to CEQA, such as buildings around “Moraga Ranch” along School Street in the Moraga Center area, however the Moraga Municipal Code indicates that the purpose of the Moraga Center overlay district is to encourage the preservation of the traditional rural character of the existing Moraga Ranch site and buildings, while also allowing for reuse, restoration, renovation, improvement, and new development such as additional retail space, a bed and breakfast or a boutique hotel to add additional activity within this portion of the Moraga Center Commercial District. Additional structures in the vicinity of the Moraga Center area and Rheem Park area may become eligible or designated as historic over time. It is possible that development facilitated by the Housing Element could demolish or alter the character-defining features of a historical resource, such as through the demolition or other alteration of landscaping features or changes to a historical resource’s setting. As such, development facilitated by the Planning Initiative could result in the material impairment of historical resources, which *CEQA Guidelines Section* 15064.5[b][2][A] defines as the demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register. In the event that a historical resource is proposed for demolition or alteration under a future development project, the project would be subject to additional CEQA review.

The Town currently has provisions within its 2002 General Plan that address historic resources (see Goal CD7 and Policies CD7.1 through CD7.6 in Section 4.4.2, *Regulatory Setting*). The following proposed Implementation Programs pertaining to cultural resources, are intended to supplement the 2002 General Plan's existing policies and would be included as part of the General Plan Update:

Implementation Program CR-A: Historical and Archaeological Resources Survey. Retain a qualified cultural resource specialist to conduct a historical and archaeological resource survey prior to issuance of a grading permit in a previously undisturbed area. Mitigation may include but is not limited to avoidance of discovered cultural resources; relocation, rehabilitation, or alteration consistent with the Secretary of the Interior's Standards for the Treatments of Historic Properties; and/or data recovery mitigation or documentation that offsets the loss of the resource.

Implementation Program CR-B: Protect Potential Historic and Archaeological Resources. Retain a qualified cultural resource specialist to conduct site-specific analysis and implement feasible mitigation or avoidance for development that may impact a listed, eligible, or potentially eligible historic structure (older than 45 years) or resource or archaeological resource.

Implementation Program CR-C: Construction Monitoring. Retain a qualified cultural resource specialist to monitor construction activities that involve ground-disturbing activities greater than 12 inches in depth and occur within 60 feet of a potentially significant cultural resource.

Implementation Program CR-D: Unanticipated Discovery of Cultural Resources. Suspend all earth-disturbing work within 60 feet of identified cultural resources. Retain a qualified cultural resources specialist to design and implement feasible mitigation. Mitigation may include but is not limited to avoidance of discovered cultural resources, archaeological testing to determine California Register of Historical Resources eligibility, consultation with descendant communities, and/or implementation of a treatment plan to offset the loss of the resource.

Proposed Implementation Program CR-A would require historical and archaeological resources surveys, and proposed Implementation Program CR-B would require mitigation to reduce impacts to historical resources to a less than significant level. Proposed Implementation Program CR-C would require construction monitoring, and proposed Implementation Program CR-D would suspend earth-disturbing work if cultural resources are identified. Implementation of these Implementation Programs would reduce impacts to less than significant levels.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant.

Bollinger Canyon Rezoning

Impact CUL-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING MAY RESULT IN THE ALTERATION OR DEMOLITION OF HISTORICAL RESOURCES IN THE PLAN AREA. PROPOSED IMPLEMENTATION PROGRAMS WOULD REDUCE IMPACTS TO HISTORICAL RESOURCES. IMPACTS TO HISTORICAL RESOURCES WOULD BE LESS THAN SIGNIFICANT.

Analysis discussed in Impact CUL-1 applies to the Bollinger Canyon Study Area. Development facilitated by the Bollinger Canyon Rezoning does not propose any specific development within the Bollinger Canyon Study Area. Future development facilitated by Bollinger Canyon Rezoning is not expected to result in demolition of existing buildings due to the largely undeveloped nature of the area. Further, proposed Implementation Program CR-A would require historical and archaeological resources surveys, and proposed Implementation Program CR-B would require mitigation to reduce impacts to historical resources to less than significant levels. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant.

Threshold 2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Housing Element

Impact CUL-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD HAVE THE POTENTIAL TO IMPACT ARCHAEOLOGICAL RESOURCES IN THE PLAN AREA. WITH IMPLEMENTATION OF PROPOSED IMPLEMENTATION PROGRAMS REQUIRING SURVEYS FOR AND PROTECTION OF ARCHAEOLOGICAL RESOURCES, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Plan Area is sensitive for unknown cultural resources. As such, development facilitated by the Housing Element has the potential to impact known and unknown archaeological resources in the Plan Area. The Housing Element does not propose any specific development. However, it envisions development on parcels that could contain archaeological resources.

Effects on archaeological resources can only be determined once a specific project has been proposed because the effects are highly dependent on both the individual project site conditions and the characteristics of the proposed ground-disturbing activity. Ground-disturbing activities associated with development facilitated by the Housing Element have the potential to damage or destroy previously unknown historic or prehistoric archaeological resources. Proposed Implementation Program CR-A would require archaeological resources surveys, and proposed Implementation Program CR-B would require mitigation to reduce impacts to archaeological resources to a less than significant level. In addition, proposed Implementation Program CR-C would require construction monitoring, which would further reduce potential impacts. Therefore, impacts to archaeological resources would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact CUL-4 DEVELOPMENT FACILITATED BY BOLLINGER CANYON REZONING WOULD HAVE THE POTENTIAL TO IMPACT ARCHAEOLOGICAL RESOURCES IN THE STUDY AREA. WITH IMPLEMENTATION OF PROPOSED IMPLEMENTATION PROGRAMS REQUIRING SURVEYS FOR AND PROTECTION OF ARCHAEOLOGICAL RESOURCES, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Analysis discussed in Impact CUL-3 applies to the Bollinger Canyon Study Area. Development facilitated by Bollinger canyon Rezoning does not propose any specific development within the Bollinger Canyon Study Area. However, it envisions development on parcels that could contain archaeological resources. Impacts to archaeological resources can only be determined once a specific project has been proposed. Proposed Implementation Program CR-A would require archaeological resources surveys, and proposed Implementation Program CR-B would require mitigation to reduce impacts to archaeological resources to a less than significant level. Proposed Implementation Program CR-C would require construction monitoring, which would further reduce potential impacts. Therefore, impacts to archaeological resources would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3: Would the project disturb any human remains, including those interred outside of formal cemeteries?

Housing Element

Impact CUL-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD RESULT IN DAMAGE TO OR DESTRUCTION OF HUMAN BURIALS IN THE PLAN AREA. HOWEVER, COMPLIANCE WITH EXISTING REGULATIONS ON HUMAN REMAINS WOULD ENSURE LESS THAN SIGNIFICANT IMPACTS.

Human burials outside of formal cemeteries often occur in prehistoric archeological contexts. The Plan Area could contain unknown human burials, and therefore, development facilitated by the Housing Element has the potential to impact the resources. Although development has occurred within the Moraga Center area and the Rheem Park area, the potential still exists for these resources to be present within the Housing Opportunity Sites. Excavation during construction activities would have the potential to disturb these resources, including Native American burials. However, development facilitated by the Housing Element would be required to adhere to existing

regulations such as the California Health and Safety Code (see Section 4.4.3, *Regulatory Setting*) regarding the treatment of human remains. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact CUL-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD RESULT IN DAMAGE TO OR DESTRUCTION OF HUMAN BURIALS IN THE STUDY AREA. HOWEVER, COMPLIANCE WITH EXISTING REGULATIONS ON HUMAN REMAINS WOULD ENSURE LESS THAN SIGNIFICANT IMPACTS.

Analysis discussed in Impact CUL-5 applies to the Bollinger Canyon Study Area. Although limited, low-density residential development has occurred within the Bollinger Canyon Study Area, the potential still exists for cultural resources to be present. Excavation during construction activities would have the potential to disturb these resources, including Native American burials. However, development facilitated by the Bollinger Canyon Rezoning would be required to adhere to existing regulations such as the California Health and Safety Code (see Section 4.4.3, *Regulatory Setting*) regarding the treatment of human remains. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.5 Energy

This section evaluates impacts to energy, including the potential wasteful, inefficient, or unnecessary consumption of energy, associated with development facilitated by the Planning Initiative. This analysis follows the guidance for evaluation of energy impacts contained in Appendix F and Appendix G of the *California Environmental Quality Act (CEQA) Guidelines*. The physical environmental impacts associated with the generation of electricity and burning of fuels have been accounted for in Section 4.2, *Air Quality*, and Section 4.7, *Greenhouse Gas Emissions*. The physical impacts of constructing additional electrical transmission infrastructure, particularly in the Bollinger Canyon Study Area are discussed in Section 4.16, *Utilities and Service Systems*.

4.5.1 Setting

Energy relates directly to environmental quality because energy use can adversely affect air quality and other natural resources. Fossil fuels are burned to create electricity to power homes and vehicles, which creates heat. Transportation energy use relates to the fuel efficiency of cars and trucks, and the availability and use of public transportation, the choice of different travel modes (auto, carpool, and public transit), and the miles traveled by these modes. Construction and routine operation and maintenance of infrastructure also consume energy, as do residential land uses, typically in the form of natural gas and electricity.

Energy Supply

Natural gas-fired generation has dominated electricity production in California for many years. In 2020, however, the two largest sources of energy produced in California were crude oil at approximately 815 trillion British thermal units (Btu), and renewable energy sources at approximately 1,014 trillion Btu, while natural gas production was 192 trillion Btu and nuclear electric power was 170 trillion Btu (Energy Information Administration [EIA] 2020).

Energy Consumption and Sources

Total energy consumption in the United States in 2021 was approximately 93 quadrillion Btu (EIA 2022a). In 2021, petroleum provided approximately 36 percent of that energy, with other sources of energy coming from natural gas (approximately 32 percent), coal (approximately 11 percent), total renewable sources (approximately 12 percent), and nuclear power (approximately eight percent). On a per capita basis in 2020, California was ranked the fourth lowest state in terms of total energy consumption (175 million Btu [MMBtu] per person), or about 38 percent less than the U.S. average per capita consumption of 280 MMBtu per person (EIA 2022b).

The smallest scale at which energy consumption information is readily available is the county level. Therefore, energy consumption in Contra Costa County is used herein to characterize the Town's existing consumption of petroleum, electricity, and natural gas as detailed in the following subsections.

Electricity

Most of the electricity generated in California is from natural gas-fired power plants, which provided approximately 50 percent of total electricity generated in 2021. In 2021, California produced 69 percent of the electricity it used and imported the rest from outside the state (California Energy Commission (CEC) 2022a). In 2020, California used 279,510 gigawatt hours (GWh) of electricity, with

190,913 GWh produced in-state. Contra Costa County consumed approximately 8,622 GWh of electricity in 2020 from residential and non-residential uses (CEC 2022b). Table 4.5-1 illustrates the County’s 2020 electricity consumption in comparison to statewide consumption and displays the County’s equivalent per capita energy consumption from its electricity demand. With a population of 1,165,927 in 2020 (Department of Finance [DOF] 2022), the County’s 2020 per capita electricity consumption was approximately 7,395 kWh, or approximately 25 million Btu.

Table 4.5-1 2020 Annual Electricity Consumption

Jurisdiction	Electricity Use (GWh)	Proportion of Statewide Consumption	Consumption per Capita (kWh)	Consumption per Capita (MMBtu)
Contra Costa County	8,622	3.1%	7,395	25.23
California	279,510	N/A	7,069	24.12

GWh = gigawatt-hours

MMBtu = Million British Thermal Unit

¹ For reference, the population of Contra Costa County (1,165,927 persons) is approximately 3.0 percent of the population of California (39,538,223 persons) (DOF 2022).

² PG&E provider

Source: CEC 2022b

Residential and commercial electricity accounts in the Town have been automatically enrolled in Marin Clean Energy (MCE) since April 2018. MCE has 50 active supply contracts in California, the Pacific Northwest, and Colorado and ensures procured energy from solar, wind, biogas, geothermal, and small hydroelectric. The electricity options MCE offers are “Light Green” (50 percent from renewable sources) and “Deep Green” (100 percent renewable). In addition, residents can opt out of Pacific Gas and Electric (PG&E), which has a default option of 33 percent renewable and a “Solar Choice” offer of 100 percent renewable (Town of Moraga 2022). The power system that PG&E is responsible for maintaining is one of the nation’s largest and includes 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2022a). PG&E’s power mix in 2021 contained 50 percent renewable, 39 percent nuclear, and 7 percent natural gas. Approximately 93 percent of the power mix came from greenhouse gas free resources (PG&E 2022b). In conjunction with the utility companies, the California Public Utilities Commission (CPUC) is involved in energy conservation programs.

CPUC and CEC are constantly assessing population growth, electricity demand, and reliability. The CEC is tasked with conducting assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand and prices. The CEC uses these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state’s economy, and protect public health and safety (Public Resources Code Section 25301[a]).

Power plants that provide electricity for PG&E are required to go through individual environmental review processes, which may be through the CEC’s certified regulatory program under CEQA, or through the CPUC’s CEQA processes. The CEC is continuously tracking potential projects 50 MW and larger (CEC 2022c). Similarly, the CPUC conducts and manages environmental review of infrastructure projects, including electric, gas, water and telecommunications (CPUC 2022).

Natural Gas

California relies on out-of-state natural gas imports for nearly 90 percent of its natural gas supply (CEC 2022a). Contra Costa County as a whole consumed approximately 1.062 billion million therms of natural gas in 2020 in both residential and non-residential uses (CEC 2022d). Table 4.5-2 illustrates the County’s 2020 natural gas consumption in comparison to statewide consumption and displays the County’s equivalent per capita energy consumption from its natural gas demand. Contra Costa County’s 2020 per capita natural gas consumption was approximately 910.9 therms, or approximately 91.1 million Btu.

Table 4.5-2 2020 Annual Natural Gas Consumption

Jurisdiction	Natural Gas Consumption (billion of U.S. therms)	Proportion of Statewide Consumption	Consumption per Capita (U.S. therms)	County per Capita Consumption (MMBtu)
Contra Costa County	1.062	8.6%	910.9	91.1
California	12.332	N/A	300	30

MMBtu = Million British Thermal Unit

¹ For reference, the population of Contra Costa County (1,165,927 persons) is approximately 3.0 percent of the population of California (39,538,223 persons) (DOF 2022).

² PG&E provider

Source: CEC 2022d

The Town is located within PG&E’s natural gas service area, which spans central and northern California (PG&E 2022c). In 2020, PG&E customers consumed a total of 4.5 billion therms of natural gas. Residential users accounted for approximately 42 percent of PG&E’s natural gas consumption. Industrial and commercial users accounted for another 35 percent and 19 percent, respectively. The remainder was used for mining, construction, agricultural, and water pump accounts (CEC 2022e). In 2020, Contra Costa users accounted for approximately 23.6 percent of PG&E’s total natural gas consumption across the entire service area. PG&E’s service area is equipped with approximately 6,700 miles of gas transmission pipelines as well as 42,000 miles of gas distribution pipelines (PG&E 2022d).

The 2022 California Gas Report presents a comprehensive outlook for natural gas requirements and supplies for California through the year 2035. The report is prepared in even-numbered years, followed by a supplemental report in odd-numbered years, in compliance with CPUC Decision D.95-01-039. The projections contained in the California Gas Report are for long-term planning and do not necessarily reflect the day-to-day operational plans of the utilities (California Gas and Electric Utilities [CGEU] 2022).

California natural gas demand, statewide and utility-driven, is expected to decrease at a rate of 1.1 percent per year through 2035. The projected decline comes from less gas demand in the major market segment areas of residential, electric generation, commercial and wholesale markets. Total Statewide residential gas demand is projected to decrease at an annual average rate of 2.4 percent per year, a faster decline than the 1.7 percent annual rate of decline that had been forecasted in the 2020 Report. Electric generation demand is projected to decrease at an annual rate of 1.1 percent per year, which is a slightly less rapid rate than the 1.5 percent annual decline that had been forecasted in 2020. The statewide commercial demand is projected to decrease at an annual average rate of 1.8 percent per year, which is slightly more accelerated than the 1.5 percent annual

decline from the 2020 California Gas Report. The aggregate statewide wholesale market segment is expected to decline at an annual average rate of 0.25 percent per year. The segments where growth in demand is expected are the natural gas vehicle sector and the industrial market segments. The industrial market segment and the natural gas vehicle sectors are expected to grow at an annual average rate of 0.16 percent and 2.3 percent per year over the forecast period. Stricter codes and standards coupled with more aggressive energy efficiency programs discussed in Section 4.5.2, *Regulatory Setting*, are making a significant impact on the forecasted load for the residential, commercial, and industrial markets (CGEU 2022).

Petroleum

Petroleum fuels are generally purchased by individual users such as residents and employees. There are no petroleum refineries located in the Town limits (CEC 2022f); approximately six gasoline stations are present in the Town limits. According to the DOC and Division of Oil, Gas & Geothermal Resources (DOGGR), no orphaned or operating oil wells exist within the Town limits (DOGGR 2022).

Energy consumed by the transportation sector accounts for roughly 34 percent of California’s energy demand, amounting to approximately 2,355 trillion Btu in 2020 (EIA 2022c). Petroleum-based fuels are used for approximately 83 percent of the state’s transportation activity (EIA 2022d). Most gasoline and diesel fuel sold in California for motor vehicles is refined in California to meet state-specific formulations required by the California Air Resources Board (CARB). California’s transportation sector, including on-road and rail transportation, consumed approximately 524 million barrels of petroleum fuels in 2020 (EIA 2022d).

As shown in Table 4.5-3, Contra Costa County consumed an estimated 336 million gallons of gasoline and 23 million gallons of diesel fuel in 2020 (CEC 2020). The County’s annual per capita fuel consumption in 2020 consisted of 288 gallons of gasoline and 20 gallons of diesel fuel per person.

According to the CEC, one gallon of gasoline is equivalent to approximately 109,786 Btu, while one gallon of diesel is equivalent to approximately 127,460 Btu (Schremp 2017). Based on this formula, approximately 109 billion Btu in transportation fuel were consumed per day in 2020 in Contra Costa County. As shown in Table 4.5-3, each person in Contra Costa County consumed approximately 35 million Btu in transportation fuel in 2020.

Table 4.5-3 2020 Annual Gasoline and Diesel Consumption

Fuel Type	Contra Costa County (million gallons)	California (million gallons)	Proportion of Statewide Consumption	County per Capita Consumption (gallons)	County per Capita Consumption (MMBtu)
Gasoline	336	12,572	1.3%	288	32
Diesel	23	1,744	1.7%	20	3

Source: CEC 2020

Alternative Fuels

A variety of alternative fuels are used to reduce petroleum-based fuel demand. The use of these fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard and Health and Safety Code Section 38566 [Senate Bill (SB) 32]). Conventional gasoline and diesel may be replaced, depending on the capability of the vehicle, with many alternative fuels including the following:

Hydrogen is being explored for use in combustion engines and fuel cell electric vehicles. The interest in hydrogen as an alternative transportation fuel stems from its clean-burning qualities, its potential for domestic production, and the fuel cell vehicle's potential for high efficiency (two to three times more efficient than gasoline vehicles). Currently, 56 open hydrogen refueling stations are in California. There are no hydrogen refueling stations in Town of Moraga, but there are two in Contra Costa at 605 Contra Costa Boulevard, Concord and 4475 Norris Canyon Road, San Ramon. The hydrogen refueling stations are approximately 8 and 9 miles from the Town of Moraga. California Fuel Cell Partnership 2022).

Biodiesel is a renewable alternative fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is biodegradable and cleaner-burning than petroleum-based diesel fuel. Biodiesel can run in any diesel engine generally without alterations but fueling stations have been slow to make it available. There are 10 biodiesel refueling stations in California, none in Contra Costa County (U.S. Department of Energy 2022).

Electricity can be used to power electric and plug-in hybrid electric vehicles directly from the power grid. The electricity grid usually provides electricity used to power vehicles, which store it in the vehicle's batteries. Fuel cells are being explored to use electricity generated on board the vehicle to power electric motors. Three electrical charging stations are available in the Town.

Energy and Fuel Efficiency

Though the demand for gasoline and diesel fuel is rising because of population growth and limited mass transit, the increase in demand can be offset partially by efficiency improvements. Land use policies that encourage infill and growth near transit centers (e.g., following SB 375, the Sustainable Communities and Climate Protection Act of 2008), improvements to fuel efficiency, and gradual replacement of the vehicle fleet with new, more fuel-efficient and alternative-fuel as well as electric cars will all reduce fuel use.

4.5.2 Regulatory Setting

Programs and policies at the state and national levels have emerged to bolster the previous trend towards energy efficiency, as discussed below.

a. Federal Regulations

Energy Policy and Conservation Act

Enacted in 1975, the Energy Policy and Conservation Act established fuel economy standards for new light-duty vehicles sold in the United States. The law placed responsibility on the National Highway Traffic and Safety Administration (NHTSA), a part of the United States Department of Transportation, for establishing and regularly updating vehicle standards. The United States Environmental Protection Agency (USEPA) administers the Corporate Average Fuel Economy (CAFE) program, which determines vehicle manufacturers' compliance with existing fuel economy standards.

National Energy Policy Act of 1992

The National Energy Policy Act of 1992 (EPACT92) calls for programs that promote efficiency and the use of alternative fuels. EPACT92 requires certain federal, state, and local governments and private operators to stock vehicle fleets with a percentage of light duty alternative fuel vehicles each year.

In addition, EFACT92 has financial incentives: federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of alternative fuel vehicles. EFACT92 also requires states to consider a variety of incentive programs to help promote alternative fuel vehicles.

Energy Policy Act of 2005

The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act, enacted by Congress in 2007, is designed to improve vehicle fuel economy and help reduce the United States dependence on foreign oil. It expands the production of renewable fuels, reducing dependence on oil, and confronting climate change. Specifically, it does the following:

- Increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard, requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels
- Reduces United States demand for oil by setting a national fuel economy standard of 35 miles per gallon (mpg) by 2020 – an increase in fuel economy standards of 40 percent

The Energy Independence and Security Act of 2007 also set energy efficiency standards for lighting (specifically light bulbs) and appliances. Development would also be required to install photosensors and energy-efficient lighting fixtures consistent with the requirements of 42 USC Section 17001 et seq.

Corporate Average Fuel Economy Standards

The CAFE standards are Federal rules established by the NHTSA that set fuel economy and greenhouse gas (GHG) emissions standards for all new passenger cars and light trucks sold in the United States. The CAFE standards generally become more stringent with time, reaching an estimated 38.3 miles per gallon for the combined industry-wide fleet for model year 2020 (77 Federal Register 62624 et seq. October 15, 2012 Table I-1). It is, however, legally infeasible for individual municipalities to adopt more stringent fuel efficiency standards. The Clean Air Act (42 United States Code Section 7543[a]) states that “no state or any political subdivision therefore shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part.” In August 2016, the USEPA and NHTSA announced the adoption of the phase two programs related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower carbon dioxide (CO₂) emissions by approximately 1.9 billion metric tons of CO₂ and reduce oil consumption by up to 3.9 billion barrels over the lifetime of the vehicles sold under the program (77 Federal Register 62665 et seq. October 15, 2012 Table I-22).

As of March 2020, NHTSA and USEPA finalized the rulemaking process to establish the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light

Trucks (SAFE Vehicles Rule). The SAFE Vehicles Rule would amend the existing CAFE standards such that the requirements for model years 2021 through 2026 are lowered to the 2020 standards of 43.7 mpg and 204 grams of CO₂ per mile for passenger cars and 31.3 mpg and 284 grams of CO₂ per mile for light duty trucks (83 Federal Register 42989 August 24, 2018 Table I-1 and Table I-2).

Construction Equipment Fuel Efficiency Standard

USEPA sets emission standards for construction equipment. The first federal standards (Tier 1) were adopted in 1994 for all off-road engines over 50 horsepower and were phased in by 2000. A new standard was adopted in 1998 that introduced Tier 1 for all equipment below 50 horsepower and established the Tier 2 and Tier 3 standards. The Tier 2 and Tier 3 standards were phased in by 2008 for all equipment. The current iteration of emissions standards for construction equipment are the Tier 4 efficiency requirements are contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068. Emissions requirements for new off-road Tier 4 vehicles were to be completely phased in by the end of 2015.

Energy Star Program

In 1992, USEPA introduced Energy Star as a voluntary labeling program designed to identify and promote energy-efficient products to reduce GHG emissions. The program applies to major household appliances, lighting, computers, and building components such as windows, doors, roofs, and heating and cooling systems. Under this program, appliances that meet specification for maximum energy use established under the program are certified to display the Energy Star label. In 1996, USEPA joined with the Energy Department to expand the program, which now also includes qualifying commercial and industrial buildings, as well as homes (Energy Star 2022).

b. State Regulations

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established a State policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The CPUC regulates privately owned utilities in the energy, rail, telecommunications, and water fields.

California Energy Plan

The CEC is responsible for preparing the California Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The 2008 California Energy Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies several strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs, as well as encouragement of urban designs that reduce vehicle miles travelled (VMT) and accommodate pedestrian and bicycle access.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), the CEC and CARB prepared and adopted a joint-agency report, *Reducing California's Petroleum Dependence*, in 2003. Included

in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT. One of the performance-based goals of AB 2076 is to reduce petroleum demand to 15 percent below 2003 demand. Furthermore, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Reports*, the Governor directed the CEC to take the lead in developing a long-term plan to increase alternative fuel use.

Integrated Energy Policy Report

Senate Bill 1389 (Chapter 568, Statutes of 2002) required the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The CEC uses these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. The most recent assessment, the *2021 Integrated Energy Policy Report*, highlights the implementation of California's innovative policies and the role they have played in establishing a clean energy economy and provides more detail on several key energy policies, including decarbonizing buildings, increasing energy efficiency savings, and integrating more renewable energy into the electricity system (CEC 2021).

California Renewable Portfolio Standard and Senate Bill 100

Established in 2002 under SB 1078, and accelerated by SB 107 (2006), SB X 1-2 (2011), and SB 100 (2018), California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent total retail sales of electricity from renewable energy sources by 2020, 60 percent by 2030, and 100 percent by 2045. SB 100 also states "that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045." The CPUC and the CEC are jointly responsible for implementing the program. Electricity users in the Town of Moraga have been automatically enrolled in MCE since April 2018, which has options of "Light Green" (50 Percent from renewable sources) and "Deep Green" (100 percent renewable). For residents that opt for PG&E service, PG&E's default option is 33 percent renewable, while it also offers a 100 percent renewable option called "Solar Choice." (Town of Moraga 2022).

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. The Act also requires doubled energy efficiency savings in electricity and natural gas for retail customers through increased efficiency and conservation by December 31, 2030.

Assembly Bill 1493: Reduction of Greenhouse Gas Emissions

Assembly Bill 1493 (Chapter 200, Statutes of 2002), known as the Pavley bill, amended Health and Safety Code sections 42823 and 43018.5 requiring CARB to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles, light-duty trucks, and other vehicles used for noncommercial personal transportation in California.

Implementation of new regulations prescribed by AB 1493 required that the state apply for a waiver under the federal Clean Air Act. Although the USEPA initially denied the waiver in 2008, the USEPA

approved a waiver in June 2009, and in September 2009, CARB approved amendments to its initially adopted regulations to apply the Pavley standards that reduce GHG emissions to new passenger vehicles in model years 2009 through 2016. According to CARB, implementation of the Pavley regulations is expected to reduce fuel consumption while also reducing GHG emissions.

Energy Action Plan

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CPUC, CEC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs. They emphasized the importance of the impacts of energy policy on California's environment.

In the October 2005 EAP II, the CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements earlier EAPs and examines the State's ongoing actions in the context of global climate change.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statutes of 2005) required the CEC to prepare a State plan to increase the use of alternative fuels in California. The CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with CARB and in consultation with other State, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative, nonpetroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Bioenergy Action Plan, Executive Order S-06-06

Executive Order (EO) S-06-06, April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs State agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels in California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 Plan and provides a more detailed action plan to achieve the following goals:

1. Increase environmentally and economically sustainable energy production from organic waste
2. Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications

3. Create jobs and stimulate economic development, especially in rural regions of the State
4. Reduce fire danger, improve air and water quality, and reduce waste

Title 24, California Code of Regulations (CCR)

CCR, Title 24, Part 6, is California's Energy Efficiency Standards for Residential and Non-Residential Buildings. The CEC established Title 24 in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and nonresidential buildings. The standards are updated on an approximately three-year cycle to allow consideration and possible incorporation of new efficient technologies and methods. In 2019, the CEC updated Title 24 standards with more stringent requirements effective January 1, 2020. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2022 update was adopted August 11, 2021 but does not go into effect until January 1, 2023. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The building efficiency standards are enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary due to local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in Title 24.

PART 6 (BUILDING ENERGY EFFICIENCY STANDARDS)

Part 6 of Title 24 contains the 2016 Building Energy Efficiency Standards for new residential and CCR Title 24, Part 6 is the Building Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. The most current standards are the 2019 Title 24 standards. The 2019 Standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018). Under the 2019 Standards, nonresidential buildings will be 30 percent more energy-efficient compared to the 2016 Standards. The CEC adopted the 2022 Energy Code on August 11, 2021, but it does not apply until January 1, 2023. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements, expands solar and battery storage standards, and other stricter requirements.

California Green Building Standards Code (2019), CCR Title 24, Part 11

California's green building code, referred to as CALGreen, was developed to provide a consistent approach to green building within the State. CALGreen lays out the minimum requirements for newly constructed residential and nonresidential buildings to reduce GHG emissions through improved efficiency and process improvements. The requirements pertain to energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. It also includes voluntary tiers to further encourage building practices that improve public health, safety, and general welfare by promoting a more sustainable design.

c. Local Regulations

Plan Bay Area 2050

Plan Bay Area 2050 is a state-mandated, integrated long-range transportation, land-use, and housing plan, known as a Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), that would support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area (Metropolitan Transportation Commission/Association of Bay Area Governments [MTC/ABAG] 2021). Plan Bay Area 2050 builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. Plan Bay Area 2050 focuses on advancing equity and improving resiliency in the Bay Area by creating strategies in the following four elements: Housing, Economy, Transportation, and Environment. The Plan discusses how the future is uncertain due to anticipated employment growth, lack of housing options, and outside forces, such as climate change and economic turbulence. These uncertainties will impact growth in the Bay Area and exacerbate issues for those who are historically and systemically marginalized and underserved and excluded. Thus, Plan Bay Area 2050 has created strategies and considered investments that will serve those systemically underserved communities and provide equitable opportunities. The Plan presents a total of 35 strategies to outline how the \$1.4 trillion dollar investment would be utilized. The strategies include, but are not limited to, the following: providing affordable housing, allowing higher-density in proximity to transit-corridors, optimizing the existing roadway network, creating complete streets, providing subsidies for public transit, reducing climate emissions, and expanding open space area. To bring these strategies to fruition, it will require participation by agencies, policymakers, and the public. An implementation plan is also included as part of the Plan to assess the requirements needed to carry out the strategies, identify the roles of pertinent entities, create an appropriate method to implement the strategies, and create a timeline for implementation.

Moraga 2002 General Plan

The Town of Moraga General Plan (2002) contains a set of goals, policies, and action programs that prioritizes the community values. The 2002 General Plan Open Space and Conservation Element contains policies related to the Town's energy conservation. Policies specifically related to energy conservation are as follows:

Goal OS5: Lower levels of energy consumption and use of more environmentally friendly energy alternatives.

Policy OS5.1: Building Standards. Require that all new buildings and additions be in compliance with the energy efficiency standards of the California Building Standards Code (Title 24, California Code of Regulations).

Policy OS5.2: Energy Conservation Measures. Encourage energy conservation in new construction and through retrofitting of existing buildings, utilizing passive solar design, use of alternative energy systems, solar space and water heating, adequate insulation, and other measures where feasible and cost effective.

Policy OS5.3: Trip Reduction. Encourage energy conservation through measures that reduce automobile trips, such as transit supportive development, provisions for pedestrian and bicycle circulation, and promotion of home-based offices and telecommuting.

4.5.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, a significant energy impact would occur if new development facilitated by the Planning Initiative would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
2. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Methodology

Public Resources Code Section 21100(b)(3) states that an EIR shall include “mitigation measures proposed to minimize significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy.” The physical environmental impacts associated with the use of energy, including the generation of electricity and burning of fuels, are discussed in Section 4.2, *Air Quality*, and Section 4.7, *Greenhouse Gas Emissions*. Energy consumption is analyzed herein in terms of construction and operational energy. In addition, the physical impacts of constructing additional electrical transmission infrastructure in the Bollinger Canyon Study Area is discussed in Section 4.16, *Utilities and Service Systems*.

Construction energy demand for the Planning Initiative is evaluated qualitatively because project-specific information regarding construction is unavailable for individual projects proposed under the Housing Element Update. Construction energy demand accounts for anticipated energy consumption during construction of development facilitated by the Planning Initiative, such as fuel consumed by construction equipment and construction workers’ vehicles traveling to and from the construction site. These construction activities would temporarily create a higher demand for energy supplies. The extent of energy use generated by construction equipment would depend on the quantity of equipment used and the hours of operation for each project.

The California Emissions Estimator Model (CalEEMod) version 2020.4.0 was used to approximate the operational natural gas and electricity consumption from development facilitated by the Planning Initiative. The Planning Initiative assumptions for CalEEMod are described under Section 4.7, *Greenhouse Gas Emissions*. The CalEEMod output data for the proposed project, which also reports input data of project details that were used in the model, is provided in Appendix D.

This analysis then determined whether energy consumed during operation for full buildout of the Planning Initiative would be wasteful, inefficient, or unnecessary. Operational energy demand accounts for the anticipated energy consumption from development facilitated by the Planning Initiative, such as fuel consumed by cars, trucks, and public transit; natural gas consumed for on-site power generation and heating building spaces; and electricity consumed for building power needs, including, but not limited to, lighting, water conveyance, and air conditioning. The estimate of total daily VMT associated with the proposed Planning Initiative is based on VMT data provided in Section 4.14, *Transportation*.

b. Project Impacts and Mitigation Measures

Threshold 1: Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
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Housing Element

Impact ENG-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT RESULT IN A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO THE WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES DURING CONSTRUCTION OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

Construction and demolition activities associated with the implementation of the Housing Element would require energy resources primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary power may also be provided for construction trailers and electric construction equipment. Construction resulting from development facilitated by the Housing Element would also use building materials that would require energy use during the manufacturing and/or procurement of that material. However, as noted in the California Natural Resources Agency's Final Statement of Reasons for Regulatory Action Amendments to the CEQA Guidelines, "a full 'lifecycle' analysis that would account for energy used in building materials and consumer products will generally not be required" (California Natural Resources Agency 2018). Therefore, this analysis does not provide a full lifecycle assessment of energy impacts for Planning Initiative construction but considers impacts only of construction itself. It is reasonable to assume that manufacturers of building materials such as concrete, steel, lumber, or other building materials would employ energy conservation practices in the interest of minimizing the cost of doing business. Therefore, the consumption of energy required for the manufacturing of building and construction material is not considered wasteful, inefficient, or unnecessary in relation to the Housing Element.

Energy use during demolition and construction would be temporary in nature, and construction equipment used would be typical of construction projects in the region. In addition, the contractors that would typically be employed for development facilitated by the Housing Element would be expected to comply with applicable CARB regulations that restrict the idling of heavy-duty diesel motor vehicles and govern the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. Construction contractors would be required to comply with the provisions of 13 California Code of Regulations Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes, which would minimize unnecessary fuel consumption. Construction equipment would be subject to the USEPA Construction Equipment Fuel Efficiency Standard (discussed in detail in Section 4.2, *Air Quality*), which would minimize inefficient fuel consumption. These construction equipment standards are contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068. Electrical power would be consumed during demolition and construction activities, and the demand, to the extent required, would be supplied from existing electrical infrastructure in the region.

Overall, demolition and construction activities would not have a substantial adverse impact on available electricity supplies or infrastructure. Demolition and construction activities would be expected to use fuel-efficient equipment consistent with state and federal regulations and comply

with state measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. In addition, pursuant to applicable regulatory requirements such as 2019 or later CALGreen, the Planning Initiative would be required to comply with construction waste management practices to divert a minimum of 65 percent of construction and demolition debris. These practices would result in efficient use of energy necessary to implement the Housing Element. Therefore, demolition and construction activities associated with the Planning Initiative would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy, and impacts would be less than significant.

Operation

Operational energy demand from development facilitated by the Housing Element would include fuel consumed by passenger vehicles; natural gas consumed for heating and cooking in residential buildings; and electricity consumed by residential and buildings including, but not limited to lighting, water conveyance, and air conditioning.

As shown in Table 4.5-4, vehicle trips related to the Housing Element (including those resulting from development within the Bollinger Canyon Study Area) would require approximately 986,401 gallons of gasoline and 174,126 gallons of diesel fuel, or 130,487 MMBtu annually (see Appendix E for energy calculation sheets).¹ Gasoline and diesel fuel demands would be met by existing gasoline stations in the Planning Initiative vicinity.

Table 4.5-4 Housing Element Operational Energy Usage

Source	Energy Consumption	
Vehicle Trips		
Gasoline	986,401 gallons	108,293 MMBtu
Diesel	174,126 gallons	22,194 MMBtu
Built Environment		
Electricity	10,157,620 kWh	34,658 MMBtu
Natural Gas Usage	49,736,200 kBtu	49,736 MMBtu

See Appendices D and E for CalEEMod default values for fleet mix and average distance of travel and energy calculation sheets.

Proposed Policies H-7.1 and H-7.3 in the Housing Element would encourage sustainable development that would result in increased energy efficiency:

Goal H-7: Efficiency and Conservation. Promote energy efficiency and water conservation in existing and new residential development and in support of the Town’s goal to reduce greenhouse gas emissions.

Policy H-7.1: Environmental Sustainability. The Town shall promote cost effective sustainability, energy efficiency, water conservation, and waste reduction in new construction and renovations to existing homes.

Policy H-7.3: Energy Efficiency in New Construction. The Town shall require all newly built single family and multifamily dwellings be constructed to achieve Energy Star certification

¹ According to Fehr & Peers, the Planning Initiative would result in approximately 63,022 net new daily VMT. The energy analysis uses the inputs from Section 4.14, *Transportation*.

criteria as prescribed by the California Advanced Homes Program and California Multifamily New Homes, respectively.

Implementation of Goal H-7 and the associated policies would lower reliance on fossil fuels and energy impacts for operation of residences.

As discussed in Section 2, *Project Description*, the Housing Element would permit residential development in Moraga Center, the Rheem Park area, and the Bollinger Canyon Study Area. The Housing Opportunities Sites in Moraga Center focus on new residential development within walking distance of the shopping center. By clustering development, this would provide residents with easy access to new and existing opportunities for shopping, dining, socializing and recreation within the Moraga Center area and nearby facilities such as the Moraga Commons and Moraga Library. In addition, adding housing opportunities for St. Mary's College students, staff or employees and/or workforce dwelling units would reduce commute trips into and out of the Town and reduce peak hour traffic in Lamorinda for St. Mary's employees. Overall, Housing Opportunities Sites and other development sites would mostly be infill residential developments in proximity to goods and services, which would reduce automobile travel and associated energy use. As discussed in Section 4.14, *Transportation*, the regionwide (Contra Costa County-wide) boundary VMT per service population in 2040 under the Housing Element would be slightly less than in 2040 than under the 2002 General Plan. Furthermore, vehicles driven by future residents, employees, visitors, and patrons facilitated by the Housing Element would be subject to increasingly stringent federal and State fuel efficiency standards, thereby minimizing the potential for the inefficient consumption of vehicle fuels. As a result, vehicle fuel consumption resulting from the Housing Element would generally not be wasteful, inefficient, or unnecessary.

As shown in Table 4.5-4, the Housing Element would consume approximately 10 million kWh per year of electricity for lighting and large appliances (including electricity use resulting from development within the Bollinger Canyon Study Area). The Housing Element would consume approximately 50 million kBtu or 50,000 MMBtu per year of natural gas for heating and cooking (see Appendix D for CalEEMod results) (including natural gas use resulting from development within the Bollinger Canyon Study Area). Electricity would be supplied by MCE or PG&E and natural gas would be supplied by PG&E. As discussed in detail in Section 4.7, *Greenhouse Gas Emissions*, the 2019 Building Energy Efficiency Standards require installation of solar photovoltaic systems for single-family residences and multi-family buildings of three stories and less, which would supply much of the on-site electricity demand. Given historic electricity usage, CEC's and CPUC's long range planning efforts, and on-site solar generation, there would be adequate capacity to meet demand for electricity.

The anticipated 5,067 residents that would be accommodated by the Housing Element are likely already located within the ABAG jurisdiction and therefore would not represent new energy demands within the region. Due in part to its proximity to the San Francisco Bay Area and St. Mary's College, demand for housing in Town of Moraga is high as indicated by the low jobs per housing rate (between one half and one job per household), which thereby requires individuals to commute greater distances to reach employment (ABAG 2020). Ultimately, the Housing Element encourages denser mixed use development that would result in less energy consumption as compared to existing conditions that facilitate patterns of low density single family development. Overall, federal, State, regional, and local regulations, Housing Element Update, and strategic placement of development facilitated by the Housing Element would reduce energy impacts. As a result, the Housing Element would not result in potentially significant environmental effects due to the

wasteful, inefficient, or unnecessary consumption of energy, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact ENG-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO THE WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES DURING CONSTRUCTION OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction and demolition activities associated with the implementation of the Bollinger Canyon Rezoning would require energy resources primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary power may also be provided for construction trailers and electric construction equipment. Energy use during demolition and construction would be temporary in nature, and construction equipment used would be typical of construction projects in the region. In addition, the contractors that would typically be employed for development facilitated by the Bollinger Canyon Rezoning would be expected to comply with applicable CARB regulations that restrict the idling of heavy-duty diesel motor vehicles and govern the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. Any development would be required to comply with construction waste management practices to divert a minimum of 65 percent of construction and demolition debris in Bollinger Canyon. In addition, compliance with applicable regulatory requirements such as 2019 or later CALGreen is mandatory. These practices would result in efficient use of energy necessary to implement development facilitated by the Bollinger Canyon Rezoning. Therefore, demolition and construction activities associated with the Bollinger Canyon Rezoning would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy, and impacts would be less than significant.

Operational energy demand from development facilitated by the Bollinger Canyon Rezoning would include fuel consumed by passenger vehicles; natural gas consumed for heating and cooking in residential buildings; and electricity consumed by residential and buildings including, but not limited to lighting, water conveyance, and air conditioning. As discussed in Section 2, *Project Description*, the development facilitated by Bollinger Canyon Rezoning could create, through future subdivision, approximately 50 residential units. Table 4.5-4 shows the operational energy consumption for development facilitated by the Bollinger Canyon Rezoning. Since the Bollinger Canyon Study Area is not located as near to services or employment as other Planning Initiative growth areas, development would not be as energy efficient as that in the rest of the Plan Area. However, development in the Study Area would be required to be consistent with current Title 24 requirements for building energy efficiency and water conservation. Therefore, development facilitated by the Bollinger Canyon Rezoning would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy, and impacts would be less than significant.

Threshold 2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Housing Element

Impact ENG-3 THE HOUSING ELEMENT UPDATE WOULD NOT CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.5.2, *Regulatory Setting*, several state plans as well as the Town’s Housing Element Update include energy conservation and energy efficiency strategies intended to enable the State and the Town to achieve GHG reduction and energy conservation goals. A full discussion of the Housing Element’s consistency with GHG reduction plans is included in Section 4.7, *Greenhouse Gas Emissions*. As shown in Table 4.5-5, the Housing Element would be consistent with State renewable energy regulations and energy efficiency plans.

Table 4.5-5 Consistency with State Renewable Energy and Energy Efficiency Plans

Renewable Energy or Energy Efficiency Plan	Planning Initiative Consistency
<p>California Energy Plan. The plan identifies several strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs, as well as encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.</p>	<p>Consistent. The Housing Element would encourage the development of mixed use residential units (24 units/acre) in proximity to goods, services, and jobs, thereby minimizing the potential for wasteful or unnecessary consumption of vehicle fuels.</p>
<p>2018 Integrated Energy Policy Report. Volume I highlights the implementation of California’s innovative policies and the role they have played in establishing a clean energy economy. Volume II provides more detail on several key energy policies, including decarbonizing buildings, increasing energy efficiency savings, and integrating more renewable energy into the electricity system.</p>	<p>Consistent. The Housing Element would include several components that promote the use of renewable energy and energy efficiency in new buildings. Goal H-5 promotes energy efficiency in existing and new residential development in support of the Town’s goal. Goal H-5 and Policies H-5.1 and H-5.2 would encourage energy efficiency and construct newly built single-family and multi-family dwellings to achieve Energy Star certification. In addition, the Housing Element would comply with 2019 Title 24 Building Energy Efficiency Standards that requires single-family residences and multi-family buildings of three stories and less to install a solar PV system equal to the electricity usage of the proposed residential buildings. Electricity for the Housing Element would be provided by MCE and PG&E, which source some or all of their power from renewable sources depending on the consumer’s choice. With adherence to these regulations and construction of these features, development facilitated by the Housing Element would facilitate the decarbonization of buildings, the increase in energy efficiency savings, and the integration of more renewable energy into the electricity system. Therefore, the Housing Element would not conflict with or obstruct implementation of the 2018 Integrated Energy Policy Report.</p>

Renewable Energy or Energy Efficiency Plan	Planning Initiative Consistency
<p>California Renewable Portfolio Standard. California’s RPS obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent total retail sales of electricity from renewable energy sources by 2020, 60 percent by 2030, and 100 percent by 2045.</p>	<p>Consistent. While this action primarily applies to the energy providers, the Town would be supplied with renewable energy consistent with State’s RPS goal. The Town is supplied electricity from PG&E and MCE. PG&E is required to generate electricity that would increase renewable energy resources to 60 percent by 2030 and 100 percent by 2045. In 2021, PG&E’s power mix included 93 percent carbon-free sources (PG&E 2022b). PG&E reached California’s goal of 50 percent RPS by 2020 and is on track to meet the new 60 percent RPS by 2030. MCE continues exceed the minimum RPS requirements with 60 percent of MCE’s Light Green portfolio and will ramp up to 85 percent by 2029. Approximately 97.6 percent of customers are in the Light Green service. The Deep Green, and Local Sol service options currently provide 100 percent RPS (MCE 2020). Because PG&E, and MCE would provide electricity service to the Housing Opportunities Sites, development facilitated by the Housing Element would not conflict with or obstruct implementation of the California Renewable Portfolio Standard.</p>
<p>Energy Action Plan. In the October 2005, the CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the state’s ongoing actions in the context of global climate change. The nine major action areas in the EAP include energy efficiency, demand response, renewable energy, electricity adequacy/reliability/infrastructure, electricity market structure, natural gas supply/demand/infrastructure, transportation fuels supply/demand/infrastructure, research/development/demonstration, and climate change.</p>	<p>Consistent. The Housing Element would include several components that promote the use of renewable energy and energy efficiency in new buildings. Goal H-5 and Policies H-5.1 and H-5.2 would encourage energy efficiency and construct newly built single-family and multi-family dwellings to achieve Energy Star certification. In addition, the residential units that are three stories or less in height would be required to comply with the 2019 Title 24 of the California Building Code, which includes rooftop solar on all residential buildings. Electricity for the Housing Element would be provided by MCE and PG&E, which source some or all of their power from renewable sources depending on the consumer’s choice. With adherence to these regulations and construction of these features, the Housing Element would facilitate implementation of the nine major action areas in the Energy Action Plan. Therefore, the Housing Element would not conflict with or obstruct implementation of the Energy Action Plan.</p>
<p>Title 24, California Code of Regulations – Part 6 (Building Energy Efficiency Standards) and Part 11 (CALGreen). The 2019 Building Energy Efficiency Standards move toward cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multi-family buildings of three stories and less. The CALGreen Standards establish green building criteria for residential and nonresidential projects. Updates to the 2016 Standards include the following: increasing the number of parking spaces that must be prewired for electric vehicle chargers in residential development; requiring all residential development to adhere to the Model Water Efficient Landscape Ordinance; and requiring more appropriate sizing of HVAC ducts.</p>	<p>Consistent. Buildings whose permit applications are dated on or after January 1, 2020, must comply with the 2019 Standards. Therefore, the Housing Element would not conflict with or obstruct implementation of the Title 24 standards.</p>

The Town of Moraga does not have an adopted plan for renewable energy or energy efficiency. However, MTC/ABAG’s Plan Bay Area 2050, as described under Section 4.5.2, *Regulatory Setting*, contains strategies related energy efficiency that are applicable to the Housing Element. As shown in Table 4.5-6 the Housing Element would be consistent with the energy conservation and efficiency strategies contained in Plan Bay Area.

Table 4.5-6 Consistency with Plan Bay Area 2050

Strategy	Planning Initiative Consistency
Housing. Spur Housing Production for Residents of all Income Levels	
<p>Strategy H3: Allow a greater mix of housing densities and types in Growth Geographies. Allow a variety of housing types at a range of densities to be built in Priority Development Areas, select Transit-Rich Areas and Select High-Resource Areas.</p>	<p>Consistent. Buildout of the Housing Element includes locating a variety of residential uses near transit and/or within mixed use development areas. For example, the Moraga Center Housing Opportunities Sites would provide residents with easy access to new and existing opportunities for shopping, dining, socializing and recreation within the Moraga Center area and nearby facilities such as the Moraga Commons and Moraga Library. In addition, the Housing Element would add Housing Opportunities Sites near St. Mary’s College for students, faculty and staff. The buildout would reduce reliance on personal vehicles and their associated energy use.</p>
<p>Strategy H5: Integrate affordable housing into all major housing projects. Require a baseline of 10-20% of new market-rate housing developments of five units or more to be affordable to low-income households.</p>	<p>Consistent. Development facilitated under the Housing Element Update is envisioned to include at least 501 very low and low income units to meet Town of Moraga’s Regional Housing Needs Assessment, ensuring that affordable housing is integrated into housing projects. Affordable housing is associated with lower VMT and would therefore reduce energy use from personal vehicle use (Governor’s Office of Planning and Research 2018).</p>
Economic. Shift the Location of Jobs	
<p>Strategy EC4: Allow greater densities for new commercial development in Growth Geographies. Allow greater densities for new commercial development in select Priority Development Areas and Transit-Rich Areas to encourage more jobs to locate near public transit.</p>	<p>Consistent. The Housing Element does not provide for substantial commercial growth but it is focused on providing housing, much of which would be in proximity to goods and services.</p>

Source: ABAG 2021

The Housing Element would be consistent with relevant MTC/ABAG’s adopted energy conservation and efficiency strategies contained in Plan Bay Area 2050. As described under Impact ENG-1, construction and operation of the Housing Element would be required to comply with relevant provisions of CALGreen and Title 24 of the California Energy Code. Therefore, impacts would be less than significant.

Bollinger Canyon Rezoning

Impact ENG-4 THE BOLLINGER CANYON REZONING WOULD NOT CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.5.2, *Regulatory Setting*, several state plans as well as the Town's Housing Element Update include energy conservation and energy efficiency strategies intended to enable the State and the Town to achieve GHG reduction and energy conservation goals. The Bollinger Canyon Study Area would provide energy efficiency built residential units to achieve Energy Star certification and would comply with the 2019 Title 24 Building Energy Efficiency Standards and install solar PV systems. In addition, it would be required to comply with relevant provisions of CALGreen and other Title 24 California Energy Code provisions. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.6 Geology and Soils

This section analyzes the potential physical environmental effects related to seismic hazards, underlying soil characteristics, slope stability, erosion, and paleontological resources within the Town of Moraga from implementation of the Planning Initiative.

4.6.1 Setting

a. Regional Geology

The Town of Moraga is located within the Coast Ranges Geomorphic Province of California, which is characterized by northwest-trending mountain ranges and valleys that subparallel the San Andreas and Hayward faults (California Geological Survey [CGS] 2002). The geology of Moraga, and Contra Costa County is a result of the past tectonic, volcanic, erosional, and sedimentation processes of the California Coast Range geomorphic province. The Coast Ranges are northwest-trending mountain ranges (2,000 to 4,000, occasionally 6,000 feet elevation above sea level) and valleys, and are composed of thick Mesozoic and Cenozoic sedimentary strata. Strata dip beneath alluvium of the Valley. To the west is the Pacific Ocean. The coastline is uplifted, terraced, and wave-cut. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The northern Coast Ranges are dominated by irregular, knobby landslide-topography of the Franciscan Complex. The eastern border is characterized by strike-ridges and valleys in Upper Mesozoic strata. In several areas, Franciscan rocks are overlain by volcanic cones and flows of Quien Sabe, Sonoma, and Clear Lake volcanic fields. The San Andreas Fault is more than 600 miles long, extending from Point Arena to the Gulf of California. West of the San Andreas is the Salinian Block, a granitic core extending from the Big Pine Fault in Ventura County to the north at Point Reyes (CGS 2002).

b. Local Geologic Setting

Soils

According to the US Department of Agriculture, Natural Resources Conservation Service (NRCS), clay soils comprise most of the soils throughout Moraga. The most common soil types include the following soils, with their approximate share of all soil within the town indicated in parentheses: Los Osos (38 percent), Clear Lake (10 percent) Alo (10 percent), and Cropley (7 percent) soils, which are clay and clay loam soils (NRCS 2022). These are native soil types and do not account for placement of cut and fill engineered fill, which comprise approximately an additional 8 percent of soil types. Remaining native soils include Altamont-Fontana, Botella, Conejo, Diablo, Dibble, Lodo, Millsholm, and Sehorn.

Seismic Hazards

Northern California is a region of high seismic activity. Like most of the East Bay region, the Town of Moraga is subject to risks associated with potentially destructive earthquakes. Earthquakes are most common along geologic faults, which are planes of weakness or fractures along which rocks have been displaced. There are no Alquist-Priolo Fault Zones within Moraga. The nearest Alquist-Priolo Fault Zone is approximately 3 miles southwest of Moraga (California State Geoportal 2022) and is associated with the Hayward Fault.

Ground Shaking

The major cause of structural damage from earthquakes is ground shaking. The intensity of ground motion expected at a particular site depends upon the type of fault, magnitude of the earthquake, the distance to the epicenter, and the geology of the area between the epicenter and the property. Greater movement can be expected at sites located on poorly consolidated material, such as alluvium, within close proximity to the ruptured fault, or in response to a seismic event of great magnitude. Historically, the Town of Moraga has been impacted by ground shaking during major earthquakes in the seismically active Northern California region and is likely to experience ground shaking from major earthquakes in the future.

Regional Faults

San Andreas Fault Zone

This San Andreas fault zone runs southeast to northwest and is located approximately 23 miles southwest of the Town (DOC 2022). The fault zone extends over 700 miles from the Gulf of California to the Cape Mendocino area where it continues northward along the ocean floor. The length of the fault and its active seismic history indicates it has a very high potential for large-scale movement in the near future (7.9 Moment Magnitude [Mw]) and should be considered important in land use planning for most cities in California. The most recent large earthquake on the San Andreas Fault to affect the Bay Area was the Loma Prieta earthquake in 1989, which had a Mw of 6.9.

Hayward Fault Zone

The Hayward Fault zone runs northwest for approximately 74 miles along the east side of the San Francisco Bay and is located approximately 3 miles southwest from Moraga at its closest point. In 2015, scientists discovered that it is linked to the Rodgers Creek Fault (Watt 2015). It is predicted that the Rodgers-Hayward system together could produce a maximum magnitude 7.2 earthquake and it is possible that a seismic event on either fault would result in movement on the other fault.

Calaveras Fault Zone

The Calaveras Fault zone runs northwest for approximately 94 miles beginning in San Benito County to the south. The fault runs roughly parallel to the Hayward fault between about two to eight miles to the east along a similar northwest plane. The northern terminus of the fault lies approximately 2 miles east of Moraga Town limits and 4 miles east of Moraga Road. The Alquist-Priolo Fault Zone associated with this fault zone begins in Danville about 6 miles southeast of Moraga and does not extend into the town.

Local Faults

Moraga and Miller Creek Fault

The Moraga and Miller Creek Fault, shown in Figure 4.6-1, begins about 10 miles south-southeast of the town and runs northwest underneath Moraga and terminates near San Pablo Bay. This fault is largely inactive and has no known fault displacement in the last 700,000 years (DOC 2010, DOC 2015).

Southampton Fault

The Southampton Fault, shown in Figure 4.6-1, begins at the northern border of the Bollinger Canyon Study Area, runs north approximately four miles, and terminates north of State Route 24 and west of Walnut Creek. This fault is considered to be inactive.

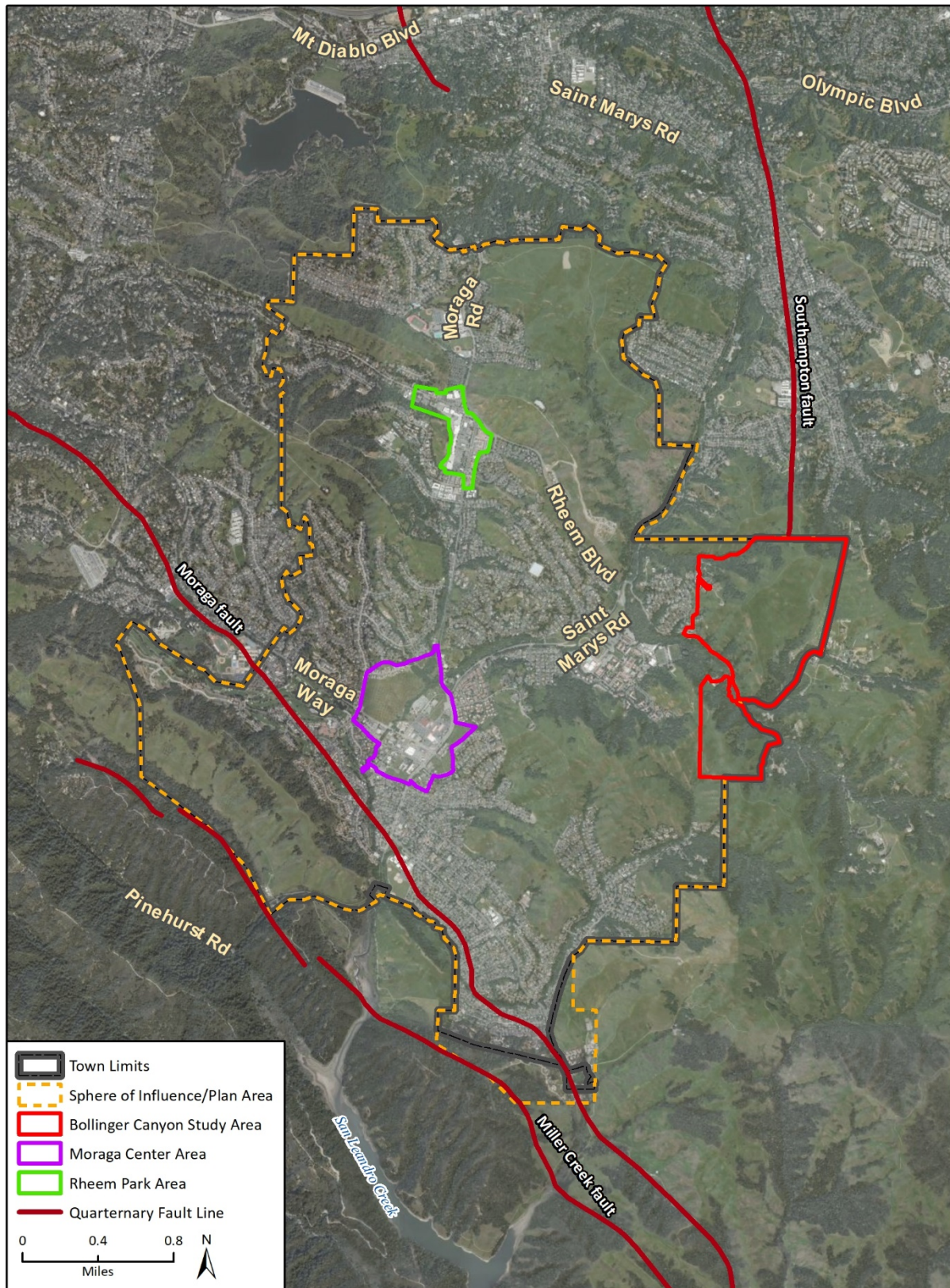
Surface Rupture

Surface rupture represents the breakage of ground along the surface trace of a fault, which is caused by the intersection of the fault surface area ruptured in an earthquake with the earth's surface. Fault displacement occurs when material on one side of a fault moves relative to the material on the other side of the fault. This can have particularly adverse consequences when buildings are located within the rupture zone. It is not feasible from a structural or economic perspective to design and build structures that can accommodate rapid displacement involved with surface rupture. Amounts of surface displacement can range from a few inches to tens of feet during a rupture event.

Faults are geologic hazards because of both surface fault displacement and seismic ground shaking that are distinct but related properties. Surface fault displacement results when the fault plane ruptures and that rupture surface extends to, or intersects, the ground surface. Surface fault rupture can be very destructive to structures constructed across active faults. However, the zone of damage is limited to a relatively narrow area along either side of the fault as opposed to seismic ground shaking damage that can be widespread. Faults are categorized as active, potentially active, and inactive. A fault is classified as active if it has moved during the Holocene time, which consists of approximately the last 11,000 years. A fault is classified as potentially active if it has experienced movement within Quaternary time, which is during the last 1.8 million years. Faults that have not moved in the last 1.8 million years are generally considered inactive.

The two closest faults, Moraga & Miller Creek fault and Southampton fault (both of which are inactive), to Moraga are described above. Figure 4.6-1 shows the Plan Area in relation to nearby Quaternary faults. There are no Holocene faults or Alquist-Priolo Fault Zones in the town.

Figure 4.6-1 Fault Zones



Imagery provided by Microsoft Bing and its licensors © 2022.
Additional data provided by California Department of Conservation, 2022.

Fig 4.6-1 Fault Zones

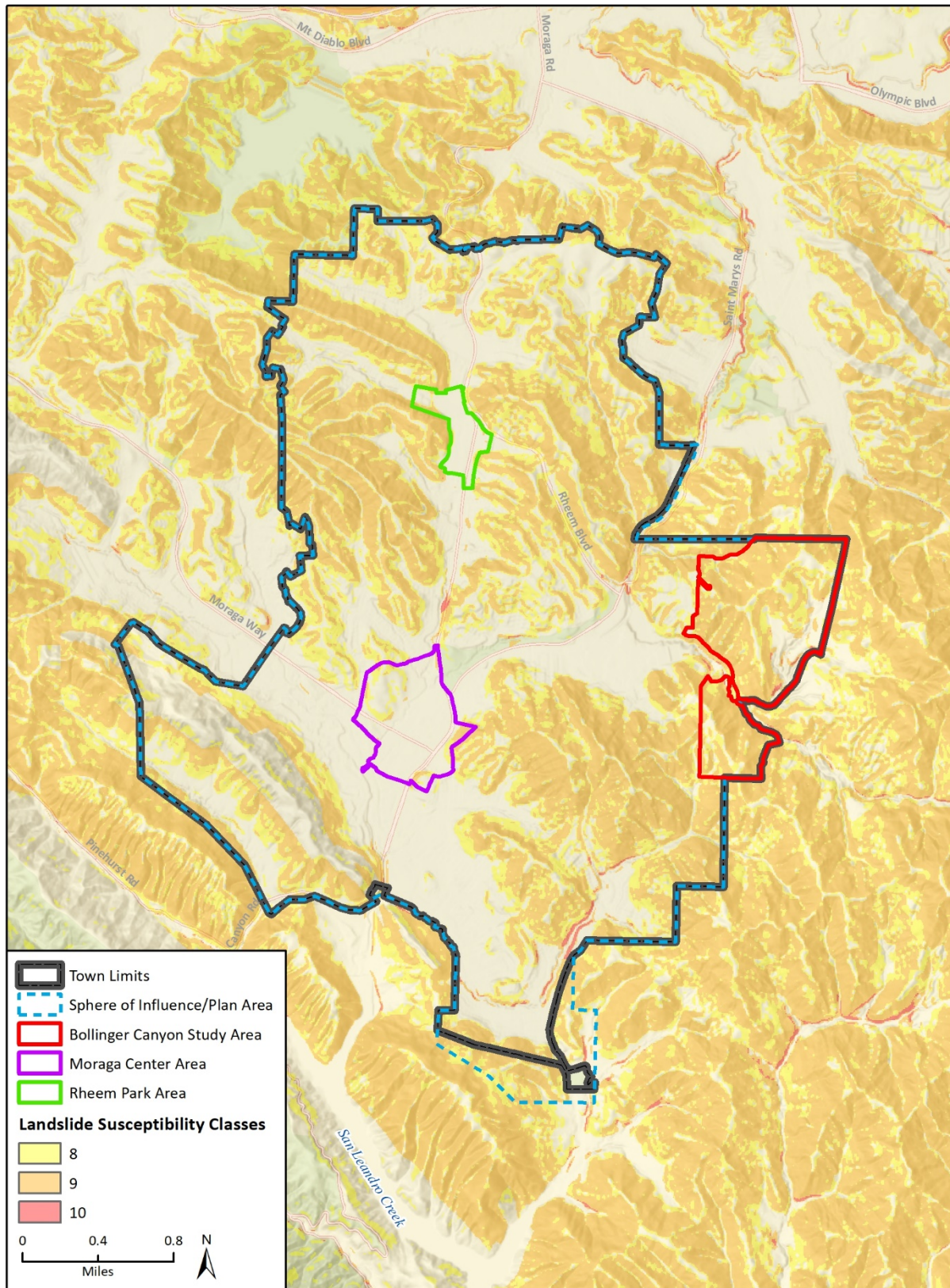
Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated granular and non-plastic fine-grained soils lose their structure/strength when subjected to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) shallow groundwater within the top 50 feet of the ground surface; 2) low-density non-plastic soils; and 3) high-intensity ground motion. There are areas of high liquefaction susceptibility under Housing Opportunity Sites in the Moraga Center and Rheem Center areas (USGS 2006).

Landslides and Slope Stability

Seismic ground shaking can also result in landslides and other slope instability issues. Landslides occur when slopes become unstable, and masses of earth material move downslope. Landslides are usually rapid events, often triggered during periods of rainfall or by earthquakes. Mudslides and slumps are a shallower type of slope failure. They typically affect the upper surficial soils horizons rather than bedrock features. Usually, mudslides and slumps occur during or soon after periods of rainfall, but they can be triggered by seismic shaking. The areas most susceptible to landslides are shown on maps prepared by the California Division of Mines and Geology, Figure 4.6-2. Landslide susceptibility is grouped into classes ranging from zero to ten, which are calculated based upon a combination of rock strength and slope. Classes seven through ten indicate very high landslide susceptibility and include both very steep slopes in hard rocks and moderate to very steep slopes in weak rocks (CGS 2011). In addition, landslides occur where faults have fractured rock and along the base of slopes or cliffs where supporting material has been removed by stream or wave erosion, or human activities. Heavy rainfall, human actions, or earthquakes can trigger landslides. They may take the form of a slow continuous movement such as a slump or may move very rapidly as a semi-liquid mass such as a debris flow or avalanche. As shown in Figure 4.6-2, the slopes in north-central Moraga on either side of Moraga Road and slopes to the south of St. Mary's College and in the Bollinger Canyon Study Area have the highest susceptibility to landslides and debris flows. Many of these slopes are undeveloped open areas, such as the Mulholland Ridge Open Space; however, there is moderately dense residential development east of Moraga Center and in the Campolindo neighborhood, which may be susceptible to debris flow because it is downslope from debris flow source areas. There are other locations throughout the town where steeper slopes are present that are also debris flow source areas.

Figure 4.6-2 Landslide Zones



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 Additional data provided by California Department of Conservation, 2022.

Fig 4.6-2 Landslide Zones

Subsidence

Subsidence or settlement can occur from immediate settlement, consolidation, shrinkage of expansive soil, and liquefaction. Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period and is followed by secondary compression, which is a continued change in void ratio (ratio of the volume of voids to volume of solids) under the continued application of the load. Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties (such as soil particle size and soil types) over an area, which is referred to as differential settlement. Areas underlain by soft sediments or undocumented fills are most prone to settlement.

Expansive Soils

Expansive soils swell with increases in moisture content and shrink with decreases in moisture content. These soils usually contain high expansive clay content. Foundations for structures constructed on expansive soils require special design considerations. Because expansive soils can expand when wet and shrink when dry, they can cause foundations, basement walls and floors to crack, causing substantial structural damage. As such, structural failure due to expansive soils near the ground surface is a potential hazard. These types of soils can be found throughout the Town including the Housing Opportunity sites.

Soil Erosion

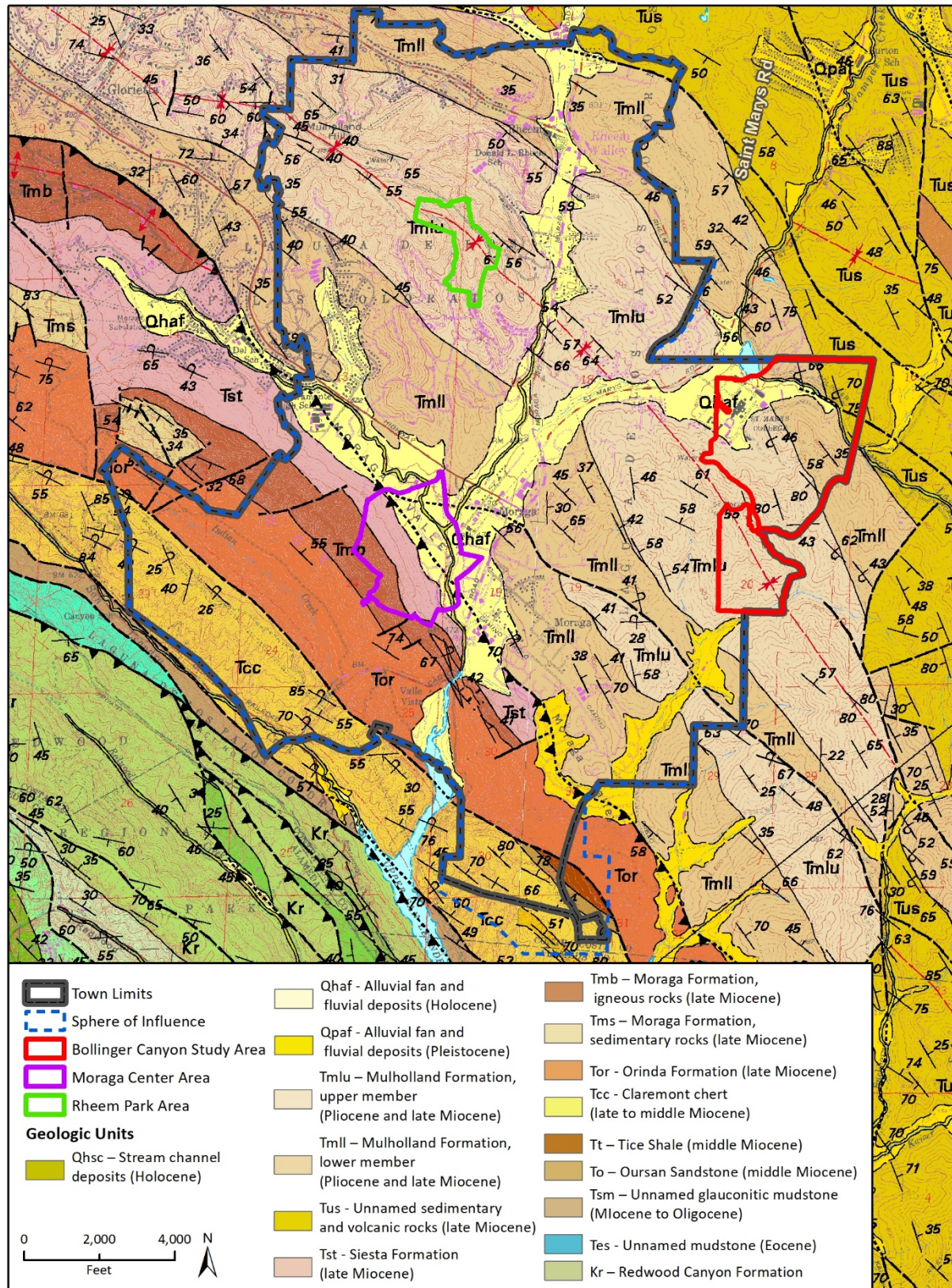
Erosion refers to the removal of soil by water or wind. Factors that influence erosion include the amount of rainfall and wind, the length and steepness of the slope, and the amount and type of vegetative cover. Depending on how well protected the soil is from these forces, the erosion process can be very slow or rapid. Properties of the soil also contribute to how likely or unlikely it is to erode. Removal of natural or man-made protection can result in substantial soil erosion and excessive sedimentation and pollution problems in streams, lakes, and estuaries. Construction activities represent the greatest potential cause of erosion.

Paleontological Resources

Paleontological resources, or fossils, are the remains and traces of prehistoric life. Fossils are typically preserved in layered sedimentary rocks and the distribution of fossils is a result of the sedimentary history of the geologic units within which they occur. Fossils occur in a non-continuous and often unpredictable distribution within some sedimentary units, and the potential for fossils to occur within sedimentary units depends on several factors. Although it is not possible to determine whether a fossil will occur in any specific location, it is possible to evaluate the potential for geologic units to contain scientifically significant paleontological resources.

The Town of Moraga is located within the *Oakland East*, *Las Trampas Ridge*, and *Briones Valley* United States Geological Survey 7.5-minute topographic quadrangles. The regional geology was mapped at a scale of 1:50,000 by Graymer (2000) who identified thirteen distinct geologic units underlying the town as shown in Figure 4.6-3. The geographic distribution, lithological characteristics, and paleontological history, of each geologic unit is discussed below.

Figure 4.6-3 Geologic Map of Town of Moraga



Imagery provided by R.W. Graymer, 2000.

Fig. 4.6-3 Geologic Map of Town of Moraga

Holocene stream channel deposits (Qhsc)

Holocene stream channel deposits underlie the creeks that drain the Moraga Valley (Figure 4.6-3). Holocene stream channel deposits consist of poorly sorted to well-sorted silt, sand, or sandy gravel with some cobbles (Graymer 2000). Holocene stream channel deposits are undergoing active sedimentation, and thus, are too young (i.e., less than 5,000 years old) to preserve paleontological resources (SVP 2010). Therefore, Holocene stream channel deposits have low paleontological sensitivity.

Holocene alluvial fan and fluvial deposits (Qhaf)

Holocene alluvial fan and fluvial deposits underlie the parts of Moraga Center and running north, parallel to Moraga Road and northwest, north of Moraga Way (Figure 4.6-3). These sediments are brown, poorly sorted, sandy or gravelly clay (Graymer 2000). Due to their Holocene age, Holocene alluvial fan and fluvial deposits are likely too young to preserve scientifically significant paleontological resources (SVP 2010). Therefore, Holocene alluvial fan and fluvial deposits have low paleontological sensitivity.

Pleistocene alluvial fan and fluvial deposits (Qpaf)

Pleistocene alluvial fan and fluvial deposits are found in small parts of southeastern Moraga (Figure 4.6-3). Pleistocene alluvial fan and fluvial deposits consist of brown, gravelly and clayey sand or clayey gravel that fines upward to sandy clay (Graymer 2000). Pleistocene alluvial and fluvial sediments have produced fossils throughout Contra Costa County, including mammoth (*Mammuthus*), mastodon (*Mammut*), ground sloth (*Megalonyx*, *Paramylodon*), camel (*Camelops*), rodents, birds, and invertebrates (Jefferson 2010, Paleobiology Database [PBDB] 2022, University of California Museum of Paleontology [UCMP] 2022). Given this fossil-producing history, Pleistocene alluvial fan and fluvial deposits have high paleontological sensitivity.

Mulholland Formation (Tmlu & Tmll)

The Mulholland Formation underlies much of northern Moraga (Figure 4.6-3). The Mulholland Formation is split into an upper member (Tmlu), which consists of conglomerate, sandstone, and mudstone, and a lower member (Tmll), which consists of sandstone and mudstone (Graymer 2000). The Mulholland Formation is Pliocene to late Miocene in age. The Mulholland Formation bears many significant fossil localities in Contra Costa County, bearing taxa such as horses (*Pliohippus*), bears (*Agriotherium*, *Indarctos*), rhinos (*Teleoceras*), rodents, birds, and invertebrates (May 1981, PBDB 2022, Stirton 1939, UCMP 2022). Given this fossil-bearing history, both the upper and lower members of the Mulholland Formation have high paleontological sensitivity.

Unnamed sedimentary and volcanic rocks (Tus)

Unnamed sedimentary and volcanic rocks underlie the northeastern edge of Moraga, in the Bollinger Canyon Study Area (Figure 4.6-3). These rocks consist of conglomerate, sandstone, and siltstone, and are Miocene in age (Graymer 2000). Miocene sedimentary rocks throughout the Coast Ranges and Contra Costa County have produced paleontological resources (PBDB 2022, Stirton 1939, UCMP 2022) but because these rocks cannot be confidently referred to any named geologic unit, the potential for these rocks to bear fossils cannot be confidently assessed. Therefore, unnamed sedimentary and volcanic rocks have undetermined paleontological sensitivity.

Siesta Formation (Tst)

The Siesta Formation underlies parts of central and western Moraga (Figure 4.6-3). The Siesta Formation consists of siltstone, claystone, sandstone, and limestone, and is late Miocene in age (Graymer 2000). The Siesta Formation has produced numerous significant fossil localities in Contra Costa County, yielding taxa such as elephants (*Gomphotherium*), horses (*Mesohippus*, *Pliohippus*), camels (*Pliauchenia*), beavers (*Eucastor*, *Prodipoides*), hares, and invertebrates (PDDB 2022, Stirton 1939, UCMP 2022). Given this fossil-producing history, the Siesta Formation has high paleontological sensitivity.

Moraga Formation, igneous rocks (Tmb)

Igneous rocks of the Moraga Formation underlie parts of southwestern Moraga (Figure 4.6-3). These rocks consist of basaltic and andesitic flows dated to the late Miocene (Graymer 2000). Basaltic and andesitic rocks form from the cooling of lava at Earth's surface, so they cannot preserve paleontological resources. Therefore, the igneous rocks of the Moraga Formation have no paleontological sensitivity.

Orinda Formation (Tor)

The Orinda Formation underlies southern Moraga (Figure 4.6-3). The Orinda Formation consists of bedded or massive, pebble to boulder conglomerate, sandstone, siltstone, and mudstone (Graymer 2000). The Orinda Formation has produced significant fossil localities throughout Contra Costa County, yielding taxa such as cats (*Barburolfelis*), horses (*Hipparion*, *Pliohippus*), elephants (*Gomphotherium*), hares, tortoises, and invertebrates (PBDB 2022, Poust 2017, Stirton 1939, UCMP 2022). Given this fossil-producing history, the Orinda Formation has high paleontological sensitivity.

Claremont Chert (Tcc)

The Claremont Chert underlies southwestern Moraga (Figure 4.6-3). The Claremont Chert consists of laminated and bedded chert with local beds of brown shale and white sandstone that is late to middle Miocene in age (Graymer 2000). The Claremont Chert has produced fossils of marine taxa such as whales (*Kamphalophos*), sea cows (Sirenia), sharks (Chondrichthyes), bony fish (Osteichthyes), invertebrates, and microfossils (PBDB 2022; UCMP 2022). Given this fossil-producing history, the Claremont Chert has high paleontological sensitivity.

Tice Shale (Tt)

The Tice Shale underlies a portion of southern Moraga (Figure 4.6-3). The Tice Shale consists of brown siliceous shale that is middle Miocene in age (Graymer 2000). The Tice Shale has produced fragmentary invertebrate fossils and microfossils (Foraminifera) (UCMP 2022). Miocene invertebrate and microfossils are quite common throughout California and do not represent significant paleontological resources themselves. Therefore, the Tice Shale has low paleontological sensitivity.

Oursan Sandstone (To)

The Oursan Sandstone underlies a portion of southern Moraga (Figure 4.6-3). The Oursan Sandstone consists of greenish-gray, medium-grained sandstone with frequent calcareous concretions that is middle Miocene in age (Graymer 2000). The Oursan Sandstone has produced fragmentary invertebrate fossils and microfossils (Foraminifera) (UCMP 2022). Miocene invertebrate and microfossils are quite common throughout California and do not represent significant

paleontological resources themselves. Therefore, the Oursan Sandstone has low paleontological sensitivity.

Unnamed glauconitic mudstone (Tsm)

Unnamed glauconitic mudstone underlies a portion of southern Moraga (Figure 4.6-3). Unnamed glauconitic mudstone consists of brown mudstone that is interbedded with sandy mudstone with glauconite grains and phosphate nodules that is Miocene to Oligocene in age (Graymer 2000). Miocene and Oligocene fine-grained sedimentary rocks throughout the Coast Ranges and Contra Costa County have produced paleontological resources (PBDB 2022, Stirton 1939, UCMP 2022), but because these rocks cannot be confidently referred to any named geologic unit, the potential for these rocks to bear fossils cannot be confidently assessed. Therefore, unnamed glauconitic mudstone has undetermined paleontological sensitivity.

Summary

The town is underlain by thirteen geologic units, as shown in Figure 4.6-3. Table 4.6-1 summarizes these thirteen geologic units, including their sensitivity.

Table 4.6-1 Paleontological Sensitivity of Geologic Units in Moraga

Geologic Unit¹	Age	Paleontological Sensitivity (SVP 2010)
Holocene stream channel deposits (Qhsc) [^]	Holocene	Low
Holocene alluvial fan and fluvial deposits (Qhaf) ^{*^}	Holocene	Low
Pleistocene alluvial fan and fluvial deposits (Qpaf)	Pleistocene	High
Mulholland Formation, Upper Member (Tmlu) ^{*†}	Pliocene to late Miocene	High
Mulholland Formation, Lower Member (Tml) [*]	Pliocene to late Miocene	High
Unnamed sedimentary and volcanic rocks (Tus) [*]	Miocene	Undetermined
Siesta Formation (Tst) [^]	Late Miocene	High
Moraga Formation, igneous rocks (Tmb) [^]	Late Miocene	None
Orinda Formation (Tor)	Late Miocene	High
Claremont Chert (Tcc)	Late to middle Miocene	High
Tice Shale (Tt)	Middle Miocene	Low
Oursan Sandstone (To)	Middle Miocene	Low
Unnamed glauconitic mudstone (Tsm)	Miocene to Oligocene	Undetermined

¹ Source: Graymer 2000

* Geologic unit is found in Bollinger Canyon Study Area

[^] Geologic unit is found in Moraga Center Area

[†] Geologic unit is found in Rheem Park Area

Abbreviation: SVP—Society of Vertebrate Paleontology

4.6.2 Regulatory Setting

a. Federal

U.S. Geological Survey Landslide Hazard Program

The USGS created the Landslide Hazard Program in the mid-1970s; the primary objective of the program is to reduce long-term losses from landslide hazards by improving our understanding of the causes of ground failure and suggesting mitigation strategies. The federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a State and local responsibility. In Contra Costa County, plans and programs designed for the protection of life and property are coordinated by the Contra Costa Sheriff Emergency Services Division.

Clean Water Act

Congress enacted the Clean Water Act (CWA), formerly the Federal Water Pollution Control Act of 1972, with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is administered by the California State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCB). The Town of Moraga is located within the San Francisco Bay RWQCB jurisdiction.

Projects within the town that disturb more than one acre are required to obtain NPDES coverage under the California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit). The Construction General Permit (Order 2009-0009, as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing best management practices (BMPs) the discharger would use to prevent and retain storm water runoff and to prevent soil erosion. Further information regarding NPDES permits can be found in Section 4.9, *Hydrology and Water Quality*.

Disaster Mitigation Act of 2000

Congress passed the Disaster Mitigation Act of 2000 to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act by invoking new and revitalized approaches to mitigation planning. Section 322 of the Act emphasized the need for state and local government entities to closely coordinate on mitigation planning activities and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. Communities with an adopted and federally approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next declared disaster.

To implement the new Stafford Act provisions, FEMA published requirements and procedures for local hazard mitigation plans in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201.6. These regulations specify minimum standards for developing, updating, and submitting local hazard mitigation plans for FEMA review and approval at least once every five years. The Town of

Moraga is included as a partner in the adopted 2018 Contra Costa County local hazard mitigation plan with a Volume 1, Planning Area-Wide Elements, and Volume 2 – Planning Partner Annexes, Chapter 9 – Town of Moraga, of the Contra Costa County Hazard Mitigation Plan, as the Town’s Local Hazard Mitigation Plan.

National Historic Preservation Act of 1966 (16 USC 470)

The National Historic Preservation Act (NHPA) applies to paleontological resources that are found in culturally-related contexts; such related materials qualify as cultural resources. Consequently, recovery and treatment protocols included in the Project-specific Cultural Resources Management Plan should be followed for discoveries of paleontological resources in culturally-related contexts.

Paleontological Resources Preservation Act of 2009

The Paleontological Resources Preservation Act (PRPA) is part of the Omnibus Public Land Management Act of 2009 (PL 111-011 Subtitle D). This act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land and to develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this act, establishes penalties for violation of this act, and creates a program to increase public awareness about these resources. A paleontological resource use permit is required to collect paleontological resources of scientific interest. The act requires that paleontological resources collected under a permit remain United States property, preserved for the public in an approved repository, and available for scientific research and public education. The act also requires that the nature and location of paleontological resources on public lands remain confidential as a means of protecting the resources from theft and vandalism. Section 6301 of the PRPA and Departmental Proposed Rule at 43 CFR Part 49 define a paleontological resource as:

Any fossilized remains, traces, or imprints of organisms, preserved in or on the earth’s crust, that are of paleontological interest and that provide information about the history of life on earth, except that the term does not include— (A) any materials associated with an archaeological resource... (B) any cultural item... (3) Resources determined in writing by the authorized officer to lack paleontological interest or not provide information about the history of life on earth, based on scientific and other management considerations.

Consistent with the definition of a paleontological resource under the PRPA, those paleontological resources that lack scientific interest (e.g., resources that are ubiquitous or do not provide information about the history of life on earth) are considered scientifically non-significant fossils.

b. State Regulations

California Building Code

The California Building Code (CBC), Title 24, Part 2 provides building codes and standards for the design and construction of structures in California. The 2016 California Building Code is based on the 2015 International Building Code, with the addition of more extensive structural seismic provisions. Chapter 16 of the California Building Code contains definitions of seismic sources and the procedure used to calculate seismic forces on structures. The CBC requires addressing soil-related hazards, such as treating hazardous soil conditions involving removal, proper fill selection, and compaction.

In cases where soil remediation is not feasible, the CBC requires structural reinforcement of foundations to resist the forces of expansive soils.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 was passed into law following the destructive February 9, 1971 magnitude 6.6 San Fernando earthquake. The Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the Act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep. This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive.

The Alquist-Priolo Earthquake Fault Zoning Act regulates development near the surface traces of active faults to mitigate the hazard of surface fault rupture. Essentially, this Act contains two requirements: (1) it prohibits the location of most structures for human occupancy across the trace of active faults; and (2) it establishes Earthquake Fault Zones and requires geologic/seismic studies of most proposed development within 50 feet of the zone. The Earthquake Fault Zones are delineated and defined by the State Geologist and identify areas where potential surface rupture along a fault could occur. According to CGS, there are no Earthquake Fault Zones in the town (CGS 2022).

California Public Resources Code

Public Resources Code Section 5097.5 states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

The term “public lands” means those owned by, or under the jurisdiction of, the State or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with Public Resources Code Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

c. Local Regulations

Town of Moraga Local Hazard Mitigation Plan

The Town of Moraga is included as a partner in Contra Costa County Local Hazard Mitigation Plan (LHMP). Volume 2, Chapter 9 of the Contra Costa County LHMP contains a jurisdictional annex specifically pertaining to Moraga’s unique needs. The Town adopted the annex in 2018. The LHMP is intended to maintain and enhance a disaster-resistant region by reducing the potential loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters (Contra Costa County 2018).

Town of Moraga 2002 General Plan

The Town of Moraga 2002 General Plan includes policies designed to ensure that planning of land uses and new development is compatible with the local geologic and soil conditions. Guiding and implementing policies relevant to the project include:

Goal OS3: Water Quality and Conservation. Protection of water resources through protection of underground water aquifers and recharge areas; maintenance of watercourses in their natural condition; and efficient water use.

Policy OS3.1: Sewer Connections. Require all development to be connected to a sewage system, with exceptions granted only in those areas where it is demonstrated that a sewer connection is not feasible *and* it has been confirmed by a competent technical counsel that septic system effluent will not infiltrate underground aquifers.

Goal PS1: General Public Safety. A semi-rural environment that is relatively free from hazards and as safe as practicable.

Policy PS1.3: High Risk Areas. Prohibit development in 'high risk' areas, which are defined as being (1) upon active or inactive slides, (2) within 100 feet of active slides, as defined in Figure 4 of the Safety Element Appendix, or (3) at the base of the centerline of a swale, as shown on the Town's Development Capability Map.

Policy PS1.4: Moderate Risk Areas. Moderate Risk Areas. Avoid building in 'moderate risk' areas, which are defined as being (1) those areas within 100 yards of an active or inactive landslide, as defined by the Town's Landslide Map, or (2) upon a body of colluvium, as shown in Figure 2 of the Public Safety Element background information. Where it is not possible to avoid building in such areas entirely, due to parcel size and configuration, limit development accordingly through density regulations, subdivision designs that cluster structures in the most stable portions of the subdivision, site designs that locate structures in the most stable portion of the parcel, and specific requirements for site engineering, road design, and drainage control.

Goal PS4: Seismic and Geologic Hazards. Minimal risk to lives and property due to earthquakes and other geologic hazards.

Policy 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.

Policy 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

Policy PS4.3: Development Densities in Hazard Areas. Minimize the density of new development in areas prone to seismic and other geologic hazards.

Policy 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.

Policy 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.

Town of Moraga Municipal Code

Moraga Municipal Code Title 14, *Grading*, sets forth the Town’s Grading Ordinance. The Grading Ordinance ensures compliance with the General Plan, Municipal Code, Town Design Guidelines, and federal and State regulations, overall aiming to minimize hazards, preserve the natural environment, and avoid watercourse pollution from runoff. Grading requires a permit under the conditions outlined in Section 14.04.031.

The CBC, implemented through Moraga Municipal Code Chapter 15.04, provides minimum standards for building design and construction modified for conditions in California, including additional engineering standards related to geology, soils, and seismic activity and specific requirements for seismic safety, excavation, foundations, retaining walls, site demolition, and grading activities, such as drainage and erosion control.

4.6.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, geology and soil impacts from development facilitated by the Planning Initiative would be significant if the development would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - a. 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
 - b. Strong seismic ground shaking
 - c. Seismic-related ground failure, including liquefaction
 - d. Landslides;
2. Result in substantial soil erosion or the loss of topsoil;
3. 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;

4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirectly risks to life or property;
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Methodology

The study area for both geological and paleontological resources is defined as the Plan Area. This is an appropriate geographic extent of analysis because the Planning Initiative likewise applies to the entirety of the Plan Area and impacts related to soils, geologic hazards and paleontological resources are site-specific.

Paleontological Resources

The methodology for analyzing impacts of the Planning Initiative for paleontological resources involved conducting desktop research and analysis and developing a thorough characterization of the existing conditions which comprise the general geologic setting and paleontological sensitivity within the Plan Area and surrounding region. The activities of the Planning Initiative were then compared to the existing conditions for paleontological resources. The analysis of impacts focuses on project construction and the location of potential sites because paleontological resources would only be impacted during construction-related ground disturbing activities.

To determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). CEQA does not define “a unique paleontological resource or site.” However, SVP has defined a “significant paleontological resource” in the context of environmental review as follows:

Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are typically older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years) (SVP 2010).

The paleontological sensitivity of the geologic units that underlie the Plan Area were evaluated to assess the Planning Initiative’s potential for significant impacts to scientifically important paleontological resources. The analysis was based on the results of a review of existing information in the scientific literature regarding known fossils within geologic units mapped in the Plan Area. According to the SVP (2010) classification system, geologic units can be assigned a high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources. Following the literature review, a paleontological sensitivity classification was assigned to each geologic unit mapped within the Plan Area. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units.

b. Impact Analysis

Threshold 1: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

Housing Element

Impact GEO-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT BE SUBJECT TO RUPTURE OF A KNOWN EARTHQUAKE FAULT. THERE WOULD BE NO IMPACT.

There are no Alquist Priolo Earthquake Fault Zones in the Plan Area. While the Quaternary Moraga Fault runs northwest/southeast between the Moraga Center area and the southern edge of the town (see Figure 4.6-1), the Moraga Fault is considered inactive (USGS n.d., USGS 2022) and there are no associated Alquist-Priolo zones. As such, development facilitated by the Housing Element would not directly or indirectly cause substantial adverse effects involving rupture of a known earthquake fault. There would be no impacts related to rupture of a known earthquake fault.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

No impact.

Bollinger Canyon Rezoning

Impact GEO-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT BE SUBJECT TO RUPTURE OF A KNOWN EARTHQUAKE FAULT; THEREFORE, THERE WOULD BE NO IMPACT.

The Bollinger Canyon Study Area is not within or near Alquist Priolo Earthquake Fault Zones. The Quaternary Southampton Fault runs north/south and abuts the Bollinger Canyon Study Area to the north (see Figure 4.6.1); however, the Southampton Fault is considered inactive (USGS 2022). As such, development facilitated by the Bollinger Canyon Rezoning would not directly or indirectly cause substantial adverse effects involving rupture of a known earthquake fault. There would be no impact related to rupture of a known earthquake fault in the Bollinger Canyon Study Area.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

- Threshold 2:** Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?
- Threshold 3:** Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?
- Threshold 4:** Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Housing Element

Impact GEO-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD BE LOCATED IN AREAS THAT WOULD BE EXPOSED TO SEISMIC EVENTS, INCLUDING GROUND SHAKING, LIQUEFACTION, AND LANDSLIDES. COMPLIANCE WITH THE CBC AND SAFETY ELEMENT POLICIES WOULD REDUCE GROUND SHAKING, LIQUEFACTION, AND LANDSLIDE HAZARDS. HOWEVER, WITH REQUIRED ADHERENCE TO EXISTING POLICIES AND REGULATIONS THAT REQUIRE GEOLOGIC HAZARD INVESTIGATIONS WHERE WARRANTED, CONTROL SITING OF DEVELOPMENT, AND REQUIRE SAFE CONSTRUCTION PRACTICES, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Housing Element would potentially expose a larger number of residents to the effects of seismic ground shaking, liquefaction, and landslides from local and regional earthquakes. The Moraga Center and Rheem Parks areas, where Housing Opportunity Sites are concentrated, are not located in high-susceptibility landslide areas but are located in liquefaction zones. Development on the Housing Opportunity Sites would be required to be built to current seismic standards that could better withstand the adverse effects of strong ground shaking.

In addition to compliance with mandatory CBC requirements as codified in Moraga Municipal Code Chapter 15.04, Moraga Municipal Code Chapter 14.04 identifies that the Town Building Official may require the preparation an engineering geologist's investigation and/or a preliminary soil report based on submittals of plans. Compliance with provisions of Moraga Municipal Code Chapter 14.04 would reduce potential impacts related to seismic hazards of individual development projects facilitated by the Housing Element. Compliance with 2002 General Plan guiding and implementing policies would further reduce the potential for loss, injury, or death following a seismic event and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GEO-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD BE LOCATED IN AREAS THAT WOULD BE EXPOSED TO SEISMIC EVENTS, INCLUDING GROUND SHAKING, LIQUEFACTION, AND LANDSLIDES. COMPLIANCE WITH THE CBC, GRADING ORDINANCE, AND SAFETY ELEMENT POLICIES WOULD REDUCE IMPACTS RELATED TO GROUND SHAKING, LIQUEFACTION, AND LANDSLIDE HAZARDS. HOWEVER, WITH REQUIRED ADHERENCE TO EXISTING POLICIES AND REGULATIONS THAT REQUIRE GEOLOGIC HAZARD INVESTIGATIONS WHERE WARRANTED, CONTROL SITING OF DEVELOPMENT, AND REQUIRE SAFE CONSTRUCTION PRACTICES, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would potentially expose additional residents to the effects of seismic ground shaking, liquefaction, and landslides from local and regional earthquakes. Structures built in landslide zones would be exposed to an existing risk of landslide or, if improperly constructed, could exacerbate existing landslide conditions. Much of the Bollinger Canyon Study Area has a high landslide susceptibility, as shown in Figure 4.6-2. 2002 General Plan Policies PS1.3 and PS1.4 would minimize impacts by regulating development in 'moderate risk' or 'high risk' landslide areas. Policies PS4.1, PS4.2, and PS4.3 provide a framework for requiring geotechnical evaluations of geologically hazardous areas, review and approval by the Town, and lower development density. For instance, Policies PS4.1 and PS4.2 prohibit development in geologic hazard areas until appropriate technical evaluation is completed and require development proposals to address geologic hazards with a technical report by an independent licensed soil engineer, geologist, and/or structural engineer. Policies PS4.3 and PS4.6 seek to minimize density of new development in areas prone to seismic and other geologic hazards and to ensure new construction or remodeling projects are built to established seismic and geologic safety standards. Policy PS4.10 establishes grading requirements on land with an average slope of 25 percent or greater. Additionally, compliance with Moraga Municipal Code Title 14, with a specific project would require issuance of a grading permit prior to ground disturbance. Approval of the grading permit would be contingent upon attachment of a grading plan and report that complies with the recommendations of the design level geotechnical report and geologic report.

No new structures are likely to experience substantial damage from liquefaction, since there are no liquefaction zones in the Bollinger Canyon Study Area. Development in the Bollinger Canyon Study Area would be required to be built to current seismic standards that could withstand the adverse effects of strong ground shaking. Potential structural damage and the exposure of people to the risk of injury or death from structural failure would be minimized by compliance with CBC engineering design and construction measures. Foundations and other structural support features would be required to be designed to resist or absorb damaging forces from strong ground shaking and liquefaction. CBC requirements, Moraga Municipal Code, 2002 General Plan policies, and Safety Element policies would apply to development in the Bollinger Canyon Study Area and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 5: Would the project result in substantial soil erosion or the loss of topsoil?

Housing Element

Impact GEO-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCLUDE GROUND DISTURBANCE SUCH AS EXCAVATION AND GRADING THAT WOULD RESULT IN LOOSE OR EXPOSED SOIL. DISTURBED SOIL COULD BE ERODED BY WIND OR DURING A STORM EVENT, WHICH WOULD RESULT IN THE LOSS OF TOPSOIL. ADHERENCE TO PERMIT REQUIREMENTS, TOWN REGULATIONS, AND GENERAL PLAN POLICIES WOULD ENSURE THAT THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Housing Element would involve construction activities such as stockpiling, grading, excavation, paving, and other earth-disturbing activities. Loose and disturbed soils are more prone to erosion and loss of topsoil by wind and water.

Construction activities that disturb one or more acres of land are subject to the Construction General Permit. Compliance with the permit requires each qualifying development project to file a Notice of Intent with the SWRCB. Permit conditions require preparation of a SWPPP, which must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and non-storm water management controls. As described in Section 4.9, *Hydrology and Water Quality*, development on Housing Opportunity Sites would be subject to the applicable NPDES Municipal Regional Stormwater Permit (Order R2-2009-0074, as amended by Order R2-2011-0083; NPDES Permit No. CAS612008), which requires measures to reduce and eliminate stormwater pollutants, installation of appropriate BMPs to control stormwater runoff from construction sites, and that grading and drainage permits be obtained prior to construction. Grading and drainage plans accompanying the permit application must include BMPs for erosion prevention and sediment control, fencing at waterways and in sensitive areas, and limitation of disturbed areas. The permit applications must also demonstrate compliance with NPDES permit provisions. Enforcement of these permit requirements would reduce soil erosion impacts.

Pursuant to Moraga Municipal Code Chapter 14, *Grading* (Section 14.04), the Town Building Official may require the preparation an engineering geologist's investigation and/or a preliminary soil report based on submittals of plans. Compliance with provisions of Moraga Municipal Code Chapter 14 would reduce potential impacts related to soil erosion and loss of topsoil of individual development projects facilitated by the project. Additionally, 2002 General Plan policy PS4.2 requires review of individual development proposals for construction methods and site design that minimize soil erosion, which would reduce impacts of individual development projects facilitated by the Housing Element.

Adherence to the requirements of the NPDES Permit, including installation of appropriate BMPs to control stormwater runoff, and implementation of General Plan Policy PS4.2 would ensure proper management of loose and disturbed soil and would, therefore, reduce the potential for development facilitated by the Housing Element to cause erosion or the loss of topsoil. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GEO-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCLUDE GROUND DISTURBANCE SUCH AS EXCAVATION AND GRADING THAT WOULD RESULT IN LOOSE OR EXPOSED SOIL. DISTURBED SOIL COULD BE ERODED BY WIND OR DURING A STORM EVENT, WHICH WOULD RESULT IN THE LOSS OF TOPSOIL. ADHERENCE TO PERMIT REQUIREMENTS, TOWN REGULATIONS, AND GENERAL PLAN POLICIES WOULD ENSURE THAT THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would be subject to the same requirements discussed in Impact GEO-5, including the NPDES General Permit, Moraga Municipal Code Chapter 14, and 2022 General Plan policies. Slopes in the Bollinger Canyon Study Area may present higher erosion potential; however, the Town’s regulations and policies, including requirements for site-specific geotechnical reports prior to future development, would apply and be sufficient to avoid a significant impact. Therefore, the analysis under Impact GEO-5 would apply to development within the Bollinger Canyon Study Area and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 6: Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?
Threshold 7: Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Housing Element

Impact GEO-7 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD BE LOCATED ON A GEOLOGIC UNIT OR SOIL THAT IS UNSTABLE OR COULD BECOME UNSTABLE RESULTING IN ON OR OFF-SITE LANDSLIDE, LATERAL SPREADING, SUBSIDENCE, LIQUEFACTION, OR COLLAPSE. COMPLIANCE WITH THE CBC AND SAFETY ELEMENT POLICIES WOULD REDUCE HAZARDS RESULTING FROM EXPANSIVE SOILS AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Housing Element on expansive soils could be subject to damage or could become unstable when the underlying soil shrinks or swells (see Section 4.6.1, *Setting*). The Moraga and Rheem Center areas, where Housing Opportunity Sites are concentrated, have low landslide susceptibility but are located in potential liquefaction zones. The adverse effects of expansive soils can be avoided through proper subsoil preparation, drainage, and foundation design. To design an adequate foundation, it must be determined if the site contains expansive soils through appropriate soil sampling and laboratory soils testing. Expansive soils are identified through

expansion tests of samples of soil or rock, or by means of the interpretation of a standard soils testing procedure. The CBC includes requirements to address soil-related hazards, including testing to identify expansive soils and design specifications where structures are to be constructed on expansive soils. Typical measures to treat expansive soil conditions involve removal, proper fill selection, and compaction. In cases where soil remediation is not feasible, the CBC requires structural reinforcement of foundations to resist the forces of expansive soils. Pursuant to Moraga Municipal Code Chapter 14, *Grading*, the Town Building Official may require the preparation an engineering geologist's investigation and/or a preliminary soil report based on submittals of plans. Compliance with provisions of Moraga Municipal Code Chapter 14 would reduce potential impacts related to locating future development on expansive soils. Compliance with the requirements of the CBC, as well as relevant 2002 General Plan policies (including Policies PS4.10 and PS4.6), would reduce impacts. Furthermore, Moraga's proposed Safety Element would include policies that would reduce potential impacts of expansive soils. Therefore, impacts related to expansive soils would be less-than-significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GEO-8 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD BE LOCATED ON A GEOLOGIC UNIT OR SOIL THAT IS UNSTABLE OR COULD BECOME UNSTABLE RESULTING IN ON OR OFF-SITE LANDSLIDE, LATERAL SPREADING, SUBSIDENCE, LIQUEFACTION, OR COLLAPSE. COMPLIANCE WITH THE CBC AND SAFETY ELEMENT POLICIES WOULD REDUCE HAZARDS RESULTING FROM EXPANSIVE SOILS AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would be subject to the same requirements to address soil-related hazards discussed in Impact GEO-7, including CBC requirements, Moraga Municipal Code Chapter 14, 2002 General Plan policies, and policies in the Safety Element. Slopes in the Bollinger Canyon Study Area present higher landslide potential, however the Town's regulations, requirements for geotechnical reports, and policies, as discussed under Impact GEO-4, would apply and be sufficient to reduce impacts to a less than significant level. The analysis in Impact GEO-7 would apply to development within the Bollinger Canyon Study Area and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 8: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Housing Element

Impact GEO-9 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD MOSTLY OCCUR ON OR NEAR DEVELOPED SITES THAT WOULD BE SERVED BY EXISTING SANITATION INFRASTRUCTURE. NEW DEVELOPMENT IS NOT ANTICIPATED TO INCLUDE THE USE OF SEPTIC SYSTEMS. THEREFORE, IMPACTS RELATED TO THE USE OF SEPTIC TANKS OR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS WOULD BE LESS THAN SIGNIFICANT

As discussed in Section 4.16, *Utilities and Service Systems*, development facilitated by the Housing Element would occur in areas where existing wastewater infrastructure exists such as the Moraga Center and Rheem Park areas. 2002 General Plan Policy OS3.1 requires all development to be connected to a sewage system. Exceptions are granted only in areas where it is demonstrated that a sewer connection is not feasible, and it has been confirmed by a competent technical expert that site soils and proposed design are appropriate for the proposed on-site system and that septic system effluent would not infiltrate underground aquifers. As such, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GEO-10 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING MAY USE SEPTIC TANKS OR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS. GENERAL PLAN POLICY WOULD REQUIRE NEW DEVELOPMENT TO CONNECT TO A SEWAGE SYSTEM. HOWEVER, IF A SEWER CONNECTION IS DEMONSTRATED AS NOT FEASIBLE, A COMPETENT TECHNICAL EXPERT MUST DETERMINE VIABILITY AND SAFETY OF A SEPTIC SYSTEM. BY ADHERING TO RECOMMENDATIONS PROVIDED BY A QUALIFIED TECHNICAL EXPERT REGARDING THE USE OF ONSITE SEPTIC SYSTEMS ON A POTENTIAL DEVELOPMENT SITE, IMPACTS RELATED TO THE USE OF SEPTIC TANKS OR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.16, *Utilities and Service Systems*, development within the Bollinger Canyon Study Area would be located away from existing wastewater infrastructure and would be less dense than the Moraga Center and Rheem Park areas. 2002 General Plan Policy OS3.1 requires all development to be connected to a sewage system. Exceptions are granted only in areas where it is demonstrated that a sewer connection is not feasible, and it has been confirmed by a competent technical expert that site soils and proposed design are appropriate for the proposed on-site system and that septic system effluent would not infiltrate underground aquifers. As such, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 9: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Housing Element

Impact GEO-11 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT HAS THE POTENTIAL TO IMPACT PALEONTOLOGICAL RESOURCES. PROPOSED IMPLEMENTATION PROGRAM PAL-A IN THE HOUSING ELEMENT WOULD REDUCE IMPACTS TO PALEONTOLOGICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Moraga Center area is underlain by four geologic units: Holocene stream channel deposits (low paleontological sensitivity); Holocene alluvial fan and fluvial deposits (low sensitivity); Siesta Formation (high sensitivity); and Moraga Formation, igneous rocks (no sensitivity) (see Table 4.6-1 and Figure 4.6-3). The Rheem Park Area is underlain by one geologic unit: Mulholland Formation, Upper Member (high paleontological sensitivity) (see Table 4.6-1).

Ground disturbance in previously undisturbed portions of geologic units with high paleontological sensitivity may result in significant impacts to paleontological resources. However, potentially significant impacts to paleontological resources can only be determined once a specific project has been proposed. This is because the effects are highly dependent on both the individual project site conditions and the characteristics of the proposed ground-disturbing activity. Ground disturbing activities, particularly in areas that have not previously been developed with urban uses, have the potential to damage or destroy paleontological resources that may be present on or below the ground surface in areas of high paleontological sensitivity. Consequently, damage to or destruction of fossils could occur due to development from the Housing Element in the Moraga Center area and Rheem Park area. Impacts would be potentially significant.

The Town currently has no provisions within its 2002 General Plan that address paleontological resources. The following proposed Implementation Programs pertaining to paleontological resources, are intended to supplement the 2002 General Plan's existing policies and would be included as part of the General Plan Update:

Implementation Program PAL-A: Paleontological Survey. Retain a qualified professional paleontologist to determine the project's potential to significantly impact paleontological resources. Mitigation may be required to reduce impacts to paleontological resources during ground disturbing activities.

Implementation Program PAL-A would require a paleontological survey be conducted by a qualified paleontologist and would require mitigation to reduce or avoid impacts to paleontological resources.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GEO-12 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING HAS THE POTENTIAL TO IMPACT PALEONTOLOGICAL RESOURCES. PROPOSED IMPLEMENTATION PROGRAM PAL-A WOULD REDUCE IMPACTS TO PALEONTOLOGICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT

The Bollinger Canyon Study Area is underlain by Holocene stream channel deposits (low sensitivity); Holocene alluvial fan and fluvial deposits (low sensitivity); Mulholland Formation, lower and upper members (high sensitivity), and Unnamed Cenozoic sedimentary and volcanic rocks (undetermined sensitivity) (see Table 4.6-1). The area proposed to be rezoned to Residential (1 du/acre) is largely underlain by the low sensitivity Holocene stream channel deposits. The area proposed to be rezoned to Rural Residential (5 du/acre) is underlain by the high sensitivity Mulholland Formations. The analysis in Impact GEO-11 would also apply to development within the Bollinger Canyon Study Area and impacts would be potentially significant. As described in Impact GEO-11, Implementation Program PAL-A would require paleontological surveys, and reduce impacts to paleontological resources to less than significant levels. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.7 Greenhouse Gas Emissions

This section analyzes the potential impacts of the project, which includes the Housing Element and Bollinger Canyon Rezoning, related to greenhouse gas (GHG) emissions and climate change. The analysis is based on the Housing Element Update growth forecasts as described in Section 2, *Project Description*, as well as vehicle miles traveled (VMT) data provided by Fehr and Peers in Section 4.14, *Transportation*.

4.7.1 Setting

a. Greenhouse Gases and Climate Change

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as “carbon dioxide equivalent” (CO₂e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is 30 times greater than CO₂ on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2021).¹

GHGs are emitted by natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are usually by-products of fossil fuel combustion, and CH₄ results from off-gassing associated with agricultural practices and landfills. Human-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases and SF₆ (United States Environmental Protection Agency [USEPA] 2021a).

Climate change is the observed increase in the average temperature of the Earth’s atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term “climate change” is often used interchangeably with the term “global warming,” but climate change is preferred because it conveys that other changes are happening in addition to rising temperatures. The baseline against which these changes are measured originates in historical records that identify temperature changes that occurred in the past, such as during previous ice ages. The global climate is changing continuously, as evidenced in the geologic record which indicates repeated episodes of substantial warming and cooling. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming over the past 150 years. The IPCC expressed that the rise and

¹ The Intergovernmental Panel on Climate Change’s (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change’s (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

continued growth of atmospheric CO₂ concentrations is unequivocally due to human activities in the IPCC's Sixth Assessment Report (2021). Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, that a total of 2,390 gigatonnes of anthropogenic CO₂ was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021). Furthermore, since the late 1700s, estimated concentrations of CO₂, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (USEPA 2021a). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 33 degrees Celsius (°C) cooler (World Meteorological Organization 2022). However, since 1750, estimated concentrations of CO₂, CH₄, and N₂O in the atmosphere have increased by 47 percent, 156 percent, and 23 percent, respectively, primarily due to human activity (IPCC 2021). GHG emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, are believed to have elevated the concentration of these gases in the atmosphere beyond the level of concentrations that occur naturally.

b. Greenhouse Gas Emissions Inventory

Global Emissions Inventory

In 2018, worldwide anthropogenic GHG emissions totaled 48,940 million MT of CO₂e, which is a 50 percent increase from 1990 GHG levels (USEPA 2021b). Specifically, 36,442 million metric tons (MMT) of CO₂e of CO₂, 8,298 MMT of CO₂e of CH₄, 3,064 MMT of CO₂e of N₂O, and 1,136 MMT of CO₂e of fluorinated gases were emitted in 2018. The largest source of GHG emissions were energy production and use (includes fuels used by vehicles and buildings), which accounted for 76 percent of the global GHG emissions. Agriculture uses and industrial processes contributed 12 percent and six percent, respectively. Waste sources contributed for three percent. These sources account for approximately 97 percent because there was a net sink of three percent from land-use change and forestry (ClimateWatch 2022)

United States Emissions Inventory

U.S. GHG emissions were 5,981.4 MMT of CO₂e in 2020. Emissions decreased by 9 percent from 2019 to 2020; total U.S. emissions have decreased by 7.3 percent from 1990 to 2020, down from a high of 15.7 percent above 1990 levels in 2007. The sharp decline in emissions from 2019 to 2020 is largely due to the impacts of the coronavirus (COVID-19) pandemic on travel and economic activity; however, the decline also reflects the combined impacts of long-term trends in many factors, including population, economic growth, energy markets, technological changes including energy efficiency, and the carbon intensity of energy fuel choices. In 2020, transportation activities accounted for the largest portion (27.2 percent) of total U.S. GHG emissions. Emissions from electric power accounted for the second largest portion (24.8 percent), while emissions from industry accounted for the third largest portion (23.8 percent) of total U.S. GHG emissions in 2020 (USEPA 2022).

California Emissions Inventory

Based on the California Air Resource Board (CARB) California GHG Inventory for 2000-2019, California produced 418.2 MMT of CO₂e in 2019, which is 7.2 MMT of CO₂e lower than 2018 levels. The major source of GHG emissions in California is the transportation sector, which comprises 40 percent of the state's total GHG emissions. The industrial sector is the second largest source, comprising 21 percent of the state's GHG emissions while electric power accounts for approximately 14 percent (CARB 2021). The magnitude of California's total GHG emissions is due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions as compared to other states is its relatively mild climate. In 2016, the State of California achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO₂e (CARB 2021). The annual 2030 statewide target emissions level is 260 MMT of CO₂e (CARB 2017).

Local Emissions Inventory

Based on the Moraga Climate Action Plan (CAP), the town of Moraga generated an estimated 93,945 MT of CO₂e in 2005. The largest contributor to the town emissions was the transportation sector which included emissions from vehicles on local roads, and off road equipment. Together these emission sources accounted for approximately 49% of total emissions. The next largest contributor was residential energy use with 34% of total emissions. The commercial sector made up 15% of overall emissions and included electricity and natural gas used by local businesses and schools. Solid waste sent to landfill comprised 2% of emissions followed by wastewater treatment, which accounted for less than 1% of emissions (Town of Moraga 2014).

4.7.2 Regulatory Setting

Federal Clean Air Act

The U.S. Supreme Court determined in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) that the USEPA has the authority to regulate motor vehicle GHG emissions under the federal Clean Air Act. The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires annual reporting of emissions. In 2012, the USEPA issued a Final Rule that established the GHG permitting thresholds that determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities.

In *Utility Air Regulatory Group v. Environmental Protection Agency* (134 Supreme Court 2427 [2014]), the US Supreme Court held the USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source can be considered a major source required to obtain a Prevention of Significant Deterioration or Title V permit. The Court also held that Prevention of Significant Deterioration permits otherwise required based on emissions of other pollutants may continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

Safer Affordable Fuel-Efficient Vehicles Rule

On September 27, 2019, the USEPA and the National Highway Traffic Safety Administration published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program.

The SAFE Rule Part One revokes California’s authority to set its own GHG emissions standards and to adopt its own zero-emission vehicle mandates. On April 30, 2020, the USEPA and the National Highway Traffic Safety Administration published Part Two of the SAFE Vehicles Rule, which revised corporate average fuel economy and CO₂ emissions standards for passenger cars and trucks of model years 2021-2026 such that the standards increase by approximately 1.5 percent each year through model year 2026 as compared to the approximately five percent annual increase required under the 2012 standards (National Highway Traffic Safety Administration 2022). To account for the effects of the SAFE Vehicles Rule, CARB released off-model adjustment factors on June 26, 2020, to adjust GHG emissions outputs from the EMFAC model (CARB 2020).

c. State Regulations

CARB is responsible for the coordination and oversight of State and local air pollution control CARB is responsible for the coordination and oversight of state and local air pollution control programs in California. There are numerous regulations aimed at reducing the state’s GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California’s Advanced Clean Cars program (referred to as “Pavley”), requires CARB to develop and adopt regulations to achieve “the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles.” Pavley I regulates model years from 2009 to 2016 and Pavley II, now referred to as “LEV (Low Emission Vehicle) III GHG,” regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles, and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, the rules will be fully implemented, and new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32)

The “California Global Warming Solutions Act of 2006,” (AB 32), outlines California’s major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 MMT of CO₂e, which was achieved in 2016. CARB approved the Scoping Plan on December 11, 2008, which included GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others (CARB 2008). Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Scoping Plan’s approval.

The CARB approved the 2013 Scoping Plan update in May 2014. The update defined the CARB’s climate change priorities for the next five years, set the groundwork to reach post-2020 statewide goals, and highlighted California’s progress toward meeting the “near-term” 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state’s longer term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 and SB 100 (discussed below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of 6 MT of CO₂e by 2030 and 2 MT of CO₂e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the Metropolitan Planning Organizations' Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy (categorized as "transit priority projects") can receive incentives to streamline California Environmental Quality Act (CEQA) processing.

On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Metropolitan Transportation Commission (MTC)/Association of Bay Area Government (ABAG) was assigned targets of a 10 percent reduction GHGs from per capita GHG emissions from passenger vehicles by 2020 and a 19 percent reduction in per capita GHG emissions from passenger vehicles by 2035. The MTC/ABAG adopted Plan Bay Area 2050 on October 21, 2021, which meets the requirements of SB 375.

California Integrated Waste Management Act (Assembly Bill 341)

The California Integrated Waste Management Act of 1989, as modified by AB 341 in 2011, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities and (2) diversion of 50 percent of all solid waste on and after January 1, 2000.

Senate Bill 1383

Adopted in September 2016, SB 1383 (Lara, Chapter 395, Statutes of 2016) requires the CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels

Comprehensive Advanced Planning Initiative

- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires the California Department of Resources Recycling and Recovery, in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state’s Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. Development facilitated by the project would be automatically enrolled in Marin Clean Energy (MCE). The electricity options MCE offers are “Light Green” (50 percent from renewable sources) and “Deep Green” (100 percent renewable). In addition, residents can opt out of Pacific Gas and Electric (PG&E), which has a default option of 33 percent renewable and a “Solar Choice” offer of 100 percent renewable (Town of Moraga 2022).

Executive Order B-55-18

On September 10, 2018, the former Governor Brown issued Executive Order (EO) B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Building Standards Code

The California Code of Regulations Title 24 is referred to as the California Building Standards Code. It consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, and handicap accessibility for persons with physical and sensory disabilities. The current iteration is the 2019 Title 24 standards. The California Building Standards Code’s energy-efficiency and green building standards are outlined below.

Part 6 – Building Energy Efficiency Standards/Energy Code

California Code of Regulations Title 24, Part 6 is the Building Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings to reduce California’s energy demand. New construction and major renovations must demonstrate their compliance with the current Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission (CEC). The 2019 Title 24 standards are the applicable building energy efficiency standards for the project because they became effective on January 1, 2020.

Part 11 – California Green Building Standards

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 California Building Standards Code). The 2019 CALGreen includes mandatory

minimum environmental performance standards for all ground-up new construction of residential and non-residential structures. It also includes voluntary tiers (Tiers I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

d. Regional Regulations

Bay Area Air Quality Management District

The town of Moraga is located in the San Francisco Bay Air Attainment Basin, which is under the jurisdiction of Bay Area Air Quality Management District (BAAQMD). BAAQMD is responsible for enforcing standards and regulating stationary sources in their jurisdiction. BAAQMD regulates GHG emissions through specific rules and regulations as well as project and plan level emissions thresholds for GHGs to ensure that the Bay Area contributes to its fair share of emissions reductions. In 2017, BAAQMD published the 2017 Clean Air Plan, which includes policy approaches, control measures, and technical programs that will help the region make progress toward the 2050 GHG emissions goal of reducing GHG emissions by 2050 to 80 percent below 1990 levels (BAAQMD 2017). BAAQMD's 2017 Clean Air Plan also contains guidance regarding compliance with AB 32, stating that AB 32 requires the reduction of statewide GHG emissions to 1990 levels by 2020, which may be satisfied by local jurisdictions through a 15-percent reduction from an emissions baseline established in 2008 or earlier (BAAQMD 2017).

Plan Bay Area 2050

Plan Bay Area 2050 is a state-mandated, integrated long-range transportation, land-use, and housing plan that would support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area (MTC/ABAG 2021). The SCS builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. Plan Bay Area 2050 focuses on advancing equity and improving resiliency in the Bay Area by creating strategies in the following four elements: Housing, Economy, Transportation, and Environment. Plan Bay Area 2050 discusses how the future is uncertain due to anticipated employment growth, lack of housing options, and outside forces, such as climate change and economic turbulence. These uncertainties will impact growth in the Bay Area and exacerbate issues for those who are historically and systemically marginalized and underserved and excluded. Thus, Plan Bay Area 2050 has created strategies and considered investments that will serve those systemically underserved communities and provide equitable opportunities. Plan Bay Area 2050 presents a total of 35 strategies to outline how the \$1.4 trillion dollar investment would be utilized. The strategies include, but are not limited to, the following: providing affordable housing, allowing higher-density in proximity to transit-corridors, optimizing the existing roadway network, creating complete streets, providing subsidies for public transit, reducing climate emissions, and expanding open space area. To bring these strategies to fruition, it will require participation by agencies, policymakers, and the public. An implementation plan is also included as part of Plan Bay Area 2050 to assess the requirements needed to carry out the strategies, identify the roles of pertinent entities, create an appropriate method to implement the strategies, and create a timeline for implementation.

e. Local Regulations

Moraga 2002 General Plan

The Town of Moraga General Plan (2002) contains a set of goals, policies, and action programs that prioritizes the community values. The General Plan Community Design, Conservation, Housing, and Open Space and Conservation Elements contains policies that would have the effect of reducing GHG emissions in the Town. These policies are as follows:

Community Design Element

Policy CD-2.5: Connections. Designate pedestrian and bicycle routes that connect selected public places with each other and with residential neighborhoods, schools, and commercial centers.

Policy CD-4.2: Neighborhood Character and Improvements. Work with individual neighborhoods to define their architectural and landscape character and identify improvements to strengthen and enhance that character. Examples of potential improvements include tree planting, sidewalks, bike paths, and landscaping.

Policy CD-5.1: Location. Locate new multi-family developments in close proximity to commercial centers, transit stops, and community facilities such as parks and schools, with site design and landscaping to create buffers between adjacent uses while providing connection to pedestrian and bicycle paths.

Circulation Element

Policy C-4.1: Pedestrian Circulation. Provide a safe, continuous and connected system of pedestrian pathways through the Town, including sidewalks, paths, trails and appropriate crosswalks along all principal streets, to link residential neighborhoods, commercial areas, community facilities such as schools and parks, and other important destinations. Link this network as appropriate with the regional trails system.

Policy C-4.2: Bicycle Circulation. Develop a complete bicycle system with direct, continuous, interconnected pathways between residential and commercial areas, community facilities, commuter corridors and transit hubs.

Housing Element

Policy H-1.4: Infill Housing Opportunities. The Town shall continue working with property-owners in the Moraga Center and Rheem Park commercial districts to support and proactively encourage the development of housing on vacant and underutilized sites. This should include implementation of the Moraga Center Specific Plan as well as additional plans and programs to make residential and mixed-use development more viable in both the Moraga Center and Rheem Park areas.

Policy H-3.3: High-Resource Neighborhoods. The Town shall foster the development of housing, particularly affordable housing, in areas with services, high-quality schools, and other resources.

Policy H-7.1: Environmental Sustainability. The Town shall promote cost effective sustainability, energy efficiency, water conservation, and waste reduction in new construction and renovations to existing homes.

Policy H-7.3: Energy Efficiency in New Construction. The Town shall require all newly built single family and multifamily dwellings be constructed to achieve Energy Star certification

criteria as prescribed by the California Advanced Homes Program and California Multifamily New Homes, respectively.

Open Space and Conservation

Policy OS-3.7: Water Conservation Measures. Encourage water conservation in new building construction and retrofits, through measures such as low-flow toilets and drought-tolerant landscaping.

Policy OS-3.8: Water Recycling. When and where feasible and appropriate, encourage the use of recycled water for landscape irrigation purposes.

Policy OS-5.1: Building Standards. Require that all new buildings and additions be in compliance with the energy efficiency standards of the California Building Code (Title 24, California Code of Regulations).

Policy OS-5.2: Energy Conservation Measures: Encourage energy conservation in new construction and through retrofitting of existing buildings, utilizing passive solar design, use of alternative energy systems, solar space and water heating, adequate insulation, and other measures where feasible and cost effective.

Policy OS5.3: Trip Reduction. Encourage energy conservation through measures that reduce automobile trips, such as transit supportive development, provisions for

4.7.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines*, impacts related to GHG emissions from the project would be significant if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Most individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*CEQA Guidelines*, Section 15064[h][1]). The 2017 BAAQMD *CEQA Air Quality Guidelines* provides project-level and plan level thresholds for determining the significance of GHGs. The approaches are as follows:

1. Project-level
 - a. Compliance with a qualified GHG reduction strategy
 - b. Annual emissions less than 1,100 MT of CO₂e per year

- c. Annual emissions less than 4.6 MT of CO₂e per service population (residents and employees) per year by 2020.
2. Plan-level
 - a. Compliance with a qualified GHG reduction strategy
 - b. Annual emissions less than 6.6 MT of CO₂e per service population (residents and employees) per year by 2020.

The Town of Moraga’s Climate Action Plan was not adopted and does not contain GHG emission reductions to achieve State reduction goals post 2020. Therefore, the first approach is not feasible.

The second threshold of 6.6 MT of CO₂e per service population per year by 2020 is relevant for use. However, given the recent legislative attention and judicial action regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed beyond the year 2020, the Association of Environmental Professionals’ Climate Change Committee published a white paper in 2016 recommending that CEQA analyses for most land use development projects can continue to rely on current thresholds for the immediate future, but that the significance determination should be based on demonstrating substantial progress along a post-2020 trajectory (Association of Environmental Professional 2016). Therefore, although the BAAQMD has not yet quantified a threshold for 2030, reduction of the per service population thresholds by 40 percent would be consistent with state goals detailed in SB 32. As such, the adjusted per service population thresholds would be 2.8 MT of CO₂e per service population at the project-level and 4.0 MT of CO₂e per service population at the plan-level by 2030.

Since the project’s buildout year is in 2031², the 2031 GHG per service population threshold was determined by interpolating between the 2030 adjusted per service population threshold and the EO B-55-18 2045 carbon neutrality goal. Therefore, the GHG thresholds for the project would be adjusted to be 2.6 MT of CO₂e per service population at the project-level and 3.7 MT of CO₂e per service population at the plan-level. This analysis of the project, which includes both the Housing Element and Bollinger Canyon Rezoning, is from a plan-level perspective since the Housing Element identifies Housing Opportunity Sites to be added to the Town’s General Plan Housing Element site inventory. The project would comply with State law. It would implement current General Plan Policies and Programs that require the Town to identify urban sites near jobs and transit, which may accommodate additional housing. As such, the BAAQMD’s Plan-level thresholds are applicable, reasonable and appropriate for use in this analysis. In addition, because this document may be used for tiering and/or streamlining of future CEQA review for individual housing sites, for informational purposes, the project’s GHG emissions are also compared to the BAAQMD’s project-level threshold. On a project-by-project basis, construction emissions would be quantified.

Methodology

The focus of this analysis and the estimate of GHG emissions are limited to only those potential emissions that would result from net new buildout of the project, which includes traffic modeling based on regional trips and vehicle trips that pass through the Town. While emissions generated in the Town and the region, such as those emissions generated by businesses or individual operations, may contribute to GHG emissions globally, only those emissions that may change under project implementation compared to existing conditions are included in this EIR as a reasonable approach to estimate GHG impacts of the project. Emissions not directly resulting from project buildout,

² GHG emissions from mobile sources for buildout year 2031 is conservative in comparison to the year 2040, which would have lower mobile emission factors.

including both the Housing Element and Bollinger Canyon Rezoning, are considered outside the scope of this CEQA analysis because it would be speculative to analyze impacts not directly related to the project.

The California Emissions Estimator Model (CalEEMod) version 2020.4.0 was used to estimate GHG emissions associated with the project. The analysis focuses on CO₂, CH₄, and N₂O because these make up 97 percent of all GHG emissions by volume (USEPA 2022) and are the GHG emissions that the project would emit in the largest quantities. Emissions of all GHGs are converted into their equivalent weight in CO₂ (CO₂e).

Construction Emissions

Construction GHG emissions were evaluated qualitatively since project-specific information about construction is unavailable at this stage in the planning process.

Operational Emissions

CalEEMod calculates operational emissions from energy use, including electricity and natural gas use, based on the CEC-sponsored California Commercial End Use Survey for residential land uses. Future development from the Housing Element and Bollinger Canyon Rezoning would procure electricity from MCE; therefore, the GHG emission intensity factors for MCE were used in this analysis. Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating are calculated based on standard emission rates from CARB, USEPA, and district-supplied emission factor values. Emissions from waste generation are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste. Waste disposal rates by land use and overall composition of municipal solid waste in California are primarily based on data provided by California Department of Resources Recycling and Recovery. Emissions from water and wastewater usage calculated in CalEEMod are based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern California (California Air Pollution Control Officers Association 2021). Emissions from mobile sources for the project were quantified using CalEEMod. The estimate of total daily VMT associated with the project is based on VMT data provided in Section 4.14, *Transportation*. The project's design features would reduce traffic GHG emissions by increasing the Town's dwelling units per acre density and citing housing near transit, services, and workplaces. Therefore, the CalEEMod modeling included these features, consistent with Section 2, *Project Description*.

b. Impact Analysis

Threshold 1: Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Housing Element

Impact GHG-1 GHG EMISSIONS FROM DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT EXCEED THE BAAQMD INTERPOLATED 2031 PROJECT-LEVEL OR PLAN-LEVEL THRESHOLDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Construction Emissions

Construction activities associated with buildout of the Housing Element would generate temporary short-term GHG emissions primarily due to the operation of construction equipment and worker and hauling trips. GHG emissions would be emitted from travel to and from the worksite and the operation of construction equipment such as graders, backhoes, and generators. Site preparation and grading typically generate the greatest number of emissions due to the use of grading equipment and soil hauling. Construction activity is assumed to occur for the Housing Element until projected buildout in 2031. The amount of GHG emissions emitted from construction activities would be dependent on the intensity of construction proposed for each individual development. It would be speculative to quantify the construction related GHG emissions at a programmatic scale without project level construction data. In addition, BAAQMD has no threshold to quantify construction-related GHG emissions impacts. Construction GHG emissions represent a very small portion of a project's lifetime GHG emissions. BAAQMD's thresholds for land use projects are designed to address operational GHG emissions which represent most project GHG emissions.

Operational Emissions

Table 4.7-1 shows the operational GHG emissions associated with buildout under the project, including the Housing Element and Bollinger Canyon rezoning, by 2031. As shown in the table, annual emissions from buildout would be 10,572 MT of CO₂ e per year or 2.1 MT of CO₂ e per year per service population.

Table 4.7-1 Operational GHG Emissions

Emission Source	Annual Emissions (MT of CO₂e)
Estimated 2031 Development Operational Emissions	
Area ¹	67
Energy	2,670
Mobile	6,856
Waste	697
Water	283
Total	10,572
Project Service Population ²	5,067
MT of CO₂e per Service Population	2.1
Plan-Level GHG Thresholds	3.7
Project-Level GHG Thresholds	2.6
Exceed Target?	No

MT = metric ton; CO₂e = carbon dioxide equivalent

¹ Emissions from Hearths, consumer products, architectural coating, and landscaping equipment.

²Project service population for the project is based on AMBAG projections

Source: Appendix D

The project, including the Housing Element and Bollinger Canyon rezoning, is estimated to increase existing population by 5,067 persons under full buildout. Therefore, it would result in an increase of 2.1 MT of CO₂e per service population per year. This would not exceed the BAAQMD’s interpolated 2031 target of 3.7 MT of CO₂e per service population at the plan level. The service population emissions are below the plan-level thresholds since development from the project would place future residents near the commercial and residential area, reducing VMT per resident. In addition, each residence would be required to comply with current Title 24 Building Energy Efficiency Standards, which reduces energy consumption emissions. Therefore, impacts would be less than significant. In addition, for informational purposes only, the project’s increase of 2.1 MT of CO₂e per service population per year would also not exceed the BAAQMD’s interpolated 2031 target of 2.6 MT of CO₂e per service population per year at the project level.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GHG-2 GHG EMISSIONS FROM DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT EXCEED THE BAAQMD INTERPOLATED 2031 PROJECT-LEVEL OR PLAN-LEVEL THRESHOLDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development in Bollinger Canyon Study Area would emit GHG emissions during construction and operational activity. Construction GHG emissions are emitted through the operation of construction equipment, and off-site worker and hauling trips. Operational GHG emissions are emitted through the use of electricity, water/wastewater, solid waste, and mobile activity. GHG emissions attributed to the potential development in Bollinger Canyon were accounted in Table 4.7-1. As shown, the development facilitated by the Bollinger Canyon Rezoning would not exceed Impact GHG-1 interpolated 2031 target of 3.7 MT of CO₂e per service population per at the plan-level. In addition, development would not exceed the interpolated 2031 target of 2.6 MT of CO₂e per service population per year at the project-level. However, due to the dispersed nature of the proposed development in the Bollinger Canyon Study Area and its distance from jobs and services, development facilitated by the Bollinger Canyon Rezoning would constitute a greater share of overall GHG emissions impacts from VMT per resident. The analysis under Impact GHG-1 would apply to development within the Bollinger Canyon Study Area because the impacts from GHG emissions are cumulative in nature and because it is reasonable for the Town to consider the total GHG emissions from future development associated with the Bollinger Canyon Rezoning. Therefore, for the same reasons identified in Impact GHG-1, impacts from development in Bollinger Canyon Study Area would be less than significant.

Mitigation Measure

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?
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Housing Element

Impact GHG-3 THE HOUSING ELEMENT WOULD BE CONSISTENT WITH GHG REDUCTION GOALS CONTAINED IN THE CARB 2017 SCOPING PLAN, ABAG/MTC PLAN BAY AREA 2050, AND MORAGA 2002 GENERAL PLAN. THE HOUSING ELEMENT WOULD NOT CONFLICT WITH STATE POLICIES OR REGULATIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Several plans and policies have been adopted to reduce GHG emissions in the northern California region, including the State's 2017 Scoping Plan, Moraga 2002 General Plan, Town of Moraga CAP, and Plan Bay Area 2050. The Housing Element's consistency with these plans is discussed in the following subsections.

2017 Scoping Plan

The current principal state plan and policy is SB 32. The quantitative goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Pursuant to the SB 32 goal, the 2017 Scoping Plan was created to outline goals and measures for the state to achieve the reductions. The 2017 Scoping Plan's strategies that are applicable to the Housing Element include reducing fossil fuel use, energy demand, and VMT; maximizing recycling and diversion from landfills; and increasing water conservation.

Buildout under the Housing Element would be consistent with the 2017 Scoping Plan through design and features that would be implemented on a project-by-project basis. Development facilitated by the Housing Element would need to be constructed and comply with the latest Title 24 Green Building Code and Building Efficiency Energy Standards. The 2019 Title 24 standards include requirements such as, and installing energy-efficient LED lighting, water-efficient faucets and toilets, water efficient landscaping and irrigation, and recycling. Development facilitated by the Housing Element would be served by Marin Clean Energy or Pacific Gas and Electric, which is required to increase its renewable energy procurement in accordance with SB 100 targets. The Housing Opportunity Sites would promote denser housing near residential and commercial areas, which could potentially reduce vehicle travel. Therefore, the Housing Element would be consistent with the reduction goals of the 2017 Scoping Plan.

Moraga 2002 General Plan

The policies from the Moraga 2002 General Plan and Housing Element Update would support a reduction in GHG emissions through design features. Policies that support these design features are in Open Space and Conservation Element, and applicable policies for the Housing Element are under *Section 4.7.2 Regulatory Setting, Local Regulations*,

The policies in the Open Space and Conservation Element would reduce energy used in residential buildings proposed under the project. The generation and consumption of electricity and natural gas, the main forms of energy used in buildings, result in GHG emissions. Accordingly, building operations would have reduced GHG emissions with implementations of these building design policies.

Development envisioned by the Housing Element concentrates the forecasted growth in population and employment in already urbanized areas of the Town in an effort to reduce vehicle miles travelled. The Community Development and Circulation Elements of the Moraga 2002 General Plan provides goals, policies, and programs that would identify housing locations in proximity to transit, develop complete street design policies that prioritize transit, biking, and walking throughout the Town. Applicable Community Development and Circulation Element policies for the Housing Element are included under *Section 4.7.2 Regulatory Setting, Local Regulations*.

The policies listed would encourage infill and transit-oriented development and active transportation to reduce overall GHG emissions throughout the Plan Area. Transportation GHG emissions are the largest contributor for total GHG emissions; therefore, reducing singular vehicle travel through land use placement and more multi-modal transportation would be consistent with the Moraga 2002 General Plan.

Plan Bay Area 2050

ABAG and MTC developed land use and transportation scenarios in the Plan known as Horizon that distribute the total amount of anticipated growth across the region and measure how well each

scenario measures against the Plan goals. Based upon performance, the preferred scenario provides a regional pattern of household and employment growth and a corresponding transportation investment strategy (ABAG/MTC 2021). The strategies from Plan Bay Area 2050 related to GHG emissions and applicable to the project are shown in Table 4.7-2.

Table 4.7-2 Consistency with Plan Bay Area 2050

Policies	Consistency
Housing. Spur Housing Production for Residents of all Income Levels.	
<p>H3. Allow a greater mix of housing densities and types in Growth Geographies. Allow a variety of housing types at a range of densities to be built in Priority Development Areas, select Transit-Rich Areas and Select High-Resource Areas.</p>	<p>Consistent. The Housing Element serves as a long-term framework for growth and denser housing in Priority Development Areas (PDA). There is one PDA in Moraga, which is Moraga Center. To that end, the Moraga Center would be rezoned to increase maximum allowable residential densities for multi-family uses in mixed-use and commercial zoned areas.</p>
Transportation. Build a Next-Generation Transit Network	
<p>T8. Build a Complete Streets network. Enhance streets to promote walking, biking and other micro-mobility through sidewalk improvements, car-free slow streets, and 10,000 miles of bike lanes or multi-use paths.</p>	<p>Consistent. The Housing Element would be consistent with the 2002 General Plan’s Community Development and Circulation Elements’ goals, policies, and programs that ensure complete streets for all travelers. Community Development Element Policy CD-4.2 focuses on improving the interconnection between neighborhoods through sidewalks and bike pathways. Circulation Element Policies C-4.1 and C-4.2 focus on improving the transportation network for pedestrians and bicyclists.</p>

Source: ABAG/MTC 2021

Summary

As shown above, the Housing Element would not conflict with the 2017 Scoping Plan, which was designed to identify how the State would achieve its 2030 GHG target, nor would it conflict with Moraga 2002 General Plan, which aims to reduce vehicle transportation and increase building energy efficiency. The Housing Element would comply with the Plan Bay Area 2050, which is a long-range plan with measures that would reduce GHG emissions. In addition, as mentioned in Impact GHG-1, the project would not exceed the interpolated 2031 GHG thresholds, which consider the State’s goal of carbon neutrality by 2045. Therefore, the Housing Element would not conflict with a state policy or regional plan intended to reduce GHG emissions, consistent with the EO B-55-18 goals. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact GHG-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT BE CONSISTENT WITH GHG REDUCTION GOALS CONTAINED IN THE CARB 2017 SCOPING PLAN, AND MORAGA 2002 GENERAL PLAN. DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD CONFLICT WITH THE TRANSPORTATION POLICIES IN STATE AND LOCAL PLANS BY LOCATING RESIDENTS IN A HIGH VMT PER CAPITA AREA AND FAR FROM TRANSIT SERVICES AND ALTERNATIVE MODES OF TRANSPORTATION. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Development in the Bollinger Canyon Study Area would be consistent with the State's 2017 Scoping Plan, and 2002 General Plan. Similar to Impact GHG-3 above, buildout facilitated by the Bollinger Canyon Rezoning would be required to comply with the latest iteration of the Title 24 California Code of Regulations standards. Therefore, newly constructed residential units would be installed with energy-efficient and water-efficient design features consistent with the State's 2017 Scoping Plan, and 2002 General Plan.

As shown in Table 4.7-3, Policy H3 in Plan Bay Area 2050 identifies a policy to allow a variety of housing types at a range of densities to be built in Priority Development Areas, select Transit-Rich Areas and Select High-Resource Areas. Policies in the Circulation Element of the 2002 General Plan, such as Policy C-4.1: Pedestrian Circulation, Policy C-4.2: Bicycle Circulation, and Community Development Element policies, allow and promote residential and commercial connectivity through sidewalks, bike lanes, and transit. However, development from the Bollinger Canyon Rezoning would be located away from urban centers, employment opportunities, and other residences. Due to its location, development envisioned in the Bollinger Canyon would have a high VMT per capita because it is unlikely that residents would use alternate forms of transportation given the lack of bicycle and pedestrian infrastructure in the area, which would result in high GHG emissions from vehicle transportation. The policies in Plan Bay Area 2050, the 2017 Scoping Plan, and the 2002 General Plan envision locating residential development in areas where VMT could be reduced by placing it in proximity to employment opportunities, schools, services and transit. Therefore, future development in Bollinger Canyon would not be consistent with policies adopted for the purpose of reducing GHG emissions, and the impact would be potentially significant. Mitigation Measure TRA-1 would be applied to projects in the Bollinger Canyon Study Area and would require a VMT analysis, as well as implementation of measures to reduce VMT. This measure is applicable for GHG impacts because reductions in VMT would result in reductions to GHG. However, no additional mitigation measures are feasible to reduce GHG emissions for the Bollinger Canyon Study Area.

Mitigation Measure

Mitigation Measure TRA-1 (see Section 4.14, *Transportation*)

Significance After Mitigation

The Bollinger Canyon Study Area encompasses approximately 270 acres of vacant land. It is unknown at this time where development would occur but it would likely have a high VMT per capita. While Mitigation Measure TRA-1 would be implemented to reduce VMT (which would reduce GHG emissions), future development could still result in VMT impacts that exceed thresholds, and therefore result in high GHG emissions from locating residences away from areas with employment, services, or transit. Therefore, development in Bollinger Canyon would not be consistent with the transportation strategies in the 2017 Scoping Plan, and 2002 General Plan that

were adopted for the purpose of reducing GHG emissions and impacts would be significant and unavoidable.

4.8 Hazards and Hazardous Materials

This section analyzes potential impacts relating to hazards and hazardous materials in the soil, groundwater, and existing structures associated with development facilitated by the Planning Initiative. Geologic hazards are discussed in Section 4.6, *Geology and Soils*.

4.8.1 Setting

a. Hazardous Materials

A material is considered hazardous if it appears on a list of hazardous materials from a federal, State, or local agency, or if it has characteristics defined as hazardous by an agency. A hazardous waste is defined in Title 22, Section 66261.10 of the California Code of Regulations (CCR) as one that has a characteristic that may:

Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed.

Chemical and physical properties cause a substance to be considered hazardous. Such properties include toxicity, ignitability, corrosiveness, and reactivity. Sections 66261.20 through 66261.24 of Title 22 of the CCR defines the properties for hazardous waste and may be used to define characteristics of a hazardous material. The release of hazardous materials or hazardous wastes into the environment can contaminate soils, surface water, and groundwater supplies. The types of hazardous materials are defined below:

- **Toxic Substances.** Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or even death. For example, such substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substances involved and is chemical-specific). Carcinogens, substances that can cause cancer, are a special class of toxic substances. Examples of toxic substances include benzene (a component of gasoline and suspected carcinogen) and methylene chloride (a common laboratory solvent and a suspected carcinogen).
- **Ignitable Substances.** Ignitable substances are hazardous because of their ability to burn. Gasoline, hexane, and natural gas are examples of ignitable substances.
- **Corrosive Materials.** Corrosive materials can cause severe burns. Corrosives include strong acids and bases such as sodium hydroxide (lye) or sulfuric acid (battery acid).
- **Reactive Materials.** Reactive materials may cause explosions or generate toxic gases. Explosives, pure sodium or potassium metals (which react violently with water), and cyanides are examples of reactive materials.

Soil and groundwater can become contaminated by hazardous material releases in a variety of ways, including permitted or illicit use and accidental or intentional disposal or spillage. Before the 1980s, most land disposal of chemicals was unregulated, resulting in numerous industrial properties and public landfills becoming dumping grounds for unwanted chemicals. The largest and most contaminated of these sites became Superfund sites, named for their eligibility to receive cleanup

money from a federal fund established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The National Priorities List (NPL) is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the U.S. Environmental Protection Agency (USEPA) in determining which sites warrant further investigation. Sites are added to the NPL following a hazard ranking system.

Numerous smaller properties have been designated as contaminated sites. Often these are gas station sites where leaking underground storage tanks (LUSTs) were upgraded under a federal requirement in the late 1980s. Another category of sites that may have some overlap with the types already mentioned is “brownfields” – previously used, often abandoned, sites that due to actual or suspected contamination are undeveloped or underused. Both the USEPA and California Department of Toxic Substances Control (DTSC) maintain lists of known brownfields sites. These sites are often difficult to inventory due to their owners’ reluctance to publicly label their property as potentially contaminated. The known hazardous materials release sites pertinent to the Planning Initiative are described in the *Hazardous Materials Sites* section below.

Asbestos Containing Materials

Asbestos is a naturally occurring fibrous material that was widely used in structures built between 1945 and 1978 for its fireproofing and insulating properties. Asbestos-containing materials (ACM) were banned by USEPA between the early 1970s and 1991 under the authority of the federal Clean Air Act (CAA) and the Toxic Substances Control Act (TSCA) due to their harmful health effects. Exposure to asbestos increases risk of developing lung disease, such as lung cancer, mesothelioma, or asbestosis (USEPA 2022a). Common ACMs include vinyl flooring and associated mastic, wallboard and associate joint compound, plaster, stucco, acoustic ceiling spray, ceiling tiles, heating system components, and roofing materials. Pre-1973 commercial and industrial structures are required to implement asbestos regulations if damage occurs, or if remodeling, renovation, or demolition activities disturb ACMs.

Lead and Lead-Based Paint

Lead is a naturally occurring metallic element. Because of its toxic properties, lead is regulated as a hazardous material. Excessive exposure to lead can result in the accumulation of lead in the blood, soft tissues, and bones. Children are particularly susceptible to potential lead-related health problems because it is easily absorbed into developing systems and organs. Lead can affect almost every organ and system in the body. In children, lead can cause behavior and learning problems, lower IQ and hyperactivity, hearing problems, and anemia. In adults, lead can cause cardiovascular effects, decreased kidney function, and reproductive problems. In addition, lead can result in serious effects to the developing fetus and infant for pregnant women (USEPA 2022b). Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils surrounding buildings and structures that are painted with lead-based paint (LBP). LBP was primarily used during the same period as ACMs. Pre-1978 commercial and industrial structures are required to implement LBP regulations if the paint is in a deteriorated condition or if remodeling, renovation, or demolition activities disturb LBP surfaces.

b. Existing Conditions

Hazardous Materials Sites

The locations where hazardous materials are used, stored, treated and/or disposed of comes to the attention of regulatory agencies through various means, including licensing and permitting, enforcement actions, and anonymous tips. To the extent possible, the locations of these businesses and operations are recorded in database lists maintained by various State, federal, and local regulatory agencies. In addition, federal, State, and local agencies enforce regulations applicable to hazardous waste generators and users, and the Contra Costa County Environmental Health Services Division tracks and inspect hazardous materials handlers to ensure appropriate reporting and compliance.

Permitted uses of hazardous materials include those facilities that use hazardous materials or handle hazardous wastes in accordance with current hazardous materials and hazardous waste regulations. The use and handling of hazardous materials from these sites is considered low risk, although there can be instances of unintentional chemical releases. In such cases, the site would be tracked in the environmental databases as an environmental case. Permitted sites without documented releases are, nevertheless, potential sources of hazardous materials in the soil and/or groundwater due to accidental spills, incidental leakage, or spillage that may have gone undetected. Some facilities are permitted for more than one hazardous material use and, therefore, could appear in more than one database.

The potential to encounter hazardous materials in soil and groundwater in the town is based on federal, State, and local regulatory databases that identify permitted hazardous materials uses, environmental cases, and spill sites. The DTSC EnviroStor database contains information on properties in California where hazardous substances have been released or where the potential for a release exists. The California State Water Resources Control Board (SWRCB) GeoTracker database contains information on properties in California for sites that require cleanup, such as LUST sites, which may impact water quality, including groundwater.

According to databases of hazardous material sites maintained by the DTSC (EnviroStor) and the SWRCB (GeoTracker), Moraga has two cleanup program sites that are still active or need further investigation (DTSC 2022; SWRCB 2022). One active cleanup program site is in the Moraga Shopping Center at 1425 Moraga Way (Moraga Cleaners and Laundry [SWRCB No. T10000012913]) in the Moraga Center area, adjacent to mixed-use Housing Opportunity Sites, that is open with verification monitoring. The second active cleanup program site is located at 492 and 568 Center Street (Rheem Valley Shopping Center [SWRCB No. T10000012758]) in the Rheem Park area, which overlaps a mixed-use Housing Opportunity Site at the southwest corner of the Moraga Road and Rheem Boulevard intersection and is open with site assessment. Both of these sites are dry cleaning businesses. There are hazardous materials sites identified as LUST cleanup sites in the Moraga Center area, Rheem Park area, and St. Mary's College; however, all LUST sites in the town have received case closure and are approved for residential use. There are no identified hazardous materials sites located within 100 feet of the Bollinger Canyon Study Area.

Use, Transport, and Abatement of Hazardous Materials

The use of hazardous materials is typically associated with industrial land uses. Activities such as manufacturing, plating, cleaning, refining, and finishing frequently involve chemicals that are considered hazardous when accidentally released into the environment.

To a lesser extent, hazardous materials may also be used by various commercial enterprises, as well as residential uses. In particular, dry cleaners use cleaning agents considered to be hazardous materials. Hardware stores typically stock paints and solvents, as well as fertilizers, herbicides, and pesticides. Swimming pool supply stores stock acids, algaecides, and caustic agents. Most commercial businesses occasionally use commonly available cleaning supplies that, when used in accordance with manufacturers' recommendations, are considered safe by the State of California, but when not handled properly can be considered hazardous. Private residences also use and store commonly available cleaning materials, paints, solvents, swimming pool and spa chemicals, as well as fertilizers, herbicides, and pesticides.

If improperly handled, hazardous materials can result in public health hazards through human contact with contaminated soils or groundwater, or through airborne releases in vapors, fumes, or dust. There is also the potential for accidental or unauthorized releases of hazardous materials that would pose a public health concern. The use, transport, and disposal of hazardous materials and wastes are required to occur in accordance with federal, State, and local regulations. In accordance with such regulations, the transport of hazardous materials and wastes can only occur with transporters who have received training and appropriate licensing. Additionally, hazardous waste transporters are required to complete and carry a hazardous waste manifest, which includes forms, reports, and procedures designed to seamlessly track hazardous waste.

Hazardous materials used and generated in the Moraga Center area and the Rheem Park area and their waste pass through the community en route to other destinations via local thoroughfares, including Moraga Way, Moraga Road, and Rheem Boulevard. The Town does not have direct authority over the transport of hazardous materials on the major roads in the Plan Area. Instead, the US Department of Transportation (DOT) and California Highway Patrol (CHP) regulate transportation of hazardous materials by truck.

Schools

School locations require consideration because children are particularly sensitive to hazardous materials exposure. Additional protective regulations apply to projects that could use or disturb potentially hazardous products near or at schools. The California Public Resources Code requires projects that would be located within 0.25 mile of a school and might reasonably be expected to emit or handle hazardous materials to consult with the school district regarding potential hazards. Numerous day care facilities, charter schools, and private schools are also located throughout the town. Multiple schools are located in the Moraga Center area, including Lamorinda Montessori, Creative Montessori Preschool, Growing Tree Preschool, and the Saklan School. The Rheem Park area includes the Child Day Schools. Other schools in the town include Donald L. Rheem Elementary School, Los Perales Elementary School, Campolindo High School, Joaquin Moraga Intermediate School, Camino Pablo Elementary School, and Growing Light Montessori School. Saint Mary's College is located within 0.25 mile to the south and west of the Bollinger Canyon Study Area.

c. Aviation Hazards

Moraga is located more than 10 miles from the nearest airport and no private use airports are within 2 miles of the town. The Buchanan Field Airport is located approximately 10 miles northeast of Moraga, in Concord, and the Oakland International Airport is located approximately 11.5 miles south of Moraga, in Oakland. The Contra Costa County Airport Land Use Commission maintains an Airport Land Use Compatibility Plan for the Buchanan Field Airport and the Alameda County Airport Land Use Commission maintains an Airport Land Use Compatibility Plan for the Oakland

International Airport. The plans identify the respective airport influence areas, where current or future airport-related noise, overflight, safety, or airspace protection factors may affect land uses or necessitate restrictions on those uses as determined by an airport land use commission. The safety zones and airport influence areas for both airports do not overlap with the town (Contra Costa County 2000; Alameda County 2010).

d. Natural Hazards

The most common hazards in and around the Housing Opportunity Sites are earthquakes, flooding, fires, and landslides. The Moraga Orinda Fire District (MOFD) provides fire and emergency medical service to the Housing Opportunity Sites. Earthquakes and landslides are discussed in Section 4.6, *Geology and Soils*. Fires are discussed in Section 4.17, *Wildfire*. Flooding is discussed in Section 4.9, *Hydrology and Water Quality*.

4.8.2 Regulatory Setting

The management of hazardous materials and hazardous wastes is regulated at the federal, State, and local levels through programs administered by the USEPA; agencies under the California Environmental Protection Agency (CalEPA), such as the DTSC; federal and State occupational safety agencies; the Bay Area Air Quality Management District (BAAQMD); and Contra Costa Health Services Hazards Materials Program.

a. Federal Regulations

Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA)

These acts established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. Among other things, the use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act.

Lead-Based Paint Elimination Final Rule 24 Code of Federal Regulations

Governed by the U.S. Housing and Urban Development, regulations for LBP are contained in the Lead-Based Paint Elimination Final Rule 24 Code of Federal Regulations (CFR) 33, which requires sellers and lessors to disclose known LBP and LBP hazards to prospective purchasers and lessees. Additionally, all LBP abatement activities must follow California and federal occupational safety and health administrations, California Occupational Safety and Health Administration [CalOSHA] and federal Occupational Safety and Health Administration [OSHA], respectively and with the State of California Department of Health Services requirements. Only LBP trained and certified abatement personnel can perform abatement activities. All LBP removed from structures must be hauled and disposed of by a transportation company licensed to transport this type of material at a landfill or receiving facility licensed to accept the waste.

Regulations to manage and control exposure to LBP are also described in CFR Title 29, Section 1926.62; and California Code of Regulations Title 8 Section 1532.1. These regulations cover the demolition, removal, cleanup, transportation, storage, and disposal of lead-containing material. The regulations outline the permissible exposure limit, protective measures, monitoring, and compliance to ensure the safety of construction workers exposed to lead-based materials. CalOSHA’s Lead in

Construction Standard requires project proponents to develop and implement a lead compliance plan when LBP would be disturbed during construction. The plan must describe activities that could emit lead, methods for complying with the standard, safe work practices, and a plan to protect workers from exposure to lead during construction activities. CalOSHA requires 24-hour notification if more than 100 square feet of LBP would be disturbed.

U.S. Environmental Protection Agency

The USEPA is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained in the CFR Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. The management of hazardous materials is governed by the following laws:

1. RCRA of 1976 (42 USC 6901 et seq.); Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act) (42 USC 9601 et seq.)
2. Federal Insecticide, Fungicide, and Rodenticide Act (7 USC 136 et. Seq.)
3. Superfund Amendments and Reauthorization Act of 1986 (Public Law 99 499)

These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. USEPA provides oversight and supervision for federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards.

Asbestos Regulations

The USEPA regulations under Title 40 CFR Part 61 regulate the removal and handling of ACMs. The statute is implemented by the BAAQMD. The federal Occupational Safety and Health Administration also has a survey requirement under Title 29 CFR that is implemented by CalOSHA under Title 8 California Code Regulations. These regulations require facilities to take all necessary precautions to protect employees and the public from exposure to asbestos.

b. State Regulations

At the State level, agencies such as CalOSHA, the Office of Emergency Services (OES), and the Department of Health Services (DHS) have rules governing the use of hazardous materials that parallel federal regulations and are sometimes more stringent. DTSC is the primary State agency governing the storage, transportation, and disposal of hazardous wastes. DTSC is authorized by the USEPA to enforce and implement federal hazardous materials laws and regulations. DTSC has oversight of Annual Work Plan sites (commonly known as State Superfund sites), sites designated as having the greatest potential to affect human health and the environment.

The primary California State laws for hazardous waste are the California Hazardous Waste Control Law, which is the State equivalent of the Resource Conservation and Recovery Act, and the Carpenter-Presley-Tanner Hazardous Substance Account Act, which is the State equivalent of CERCLA. State hazardous materials and waste laws are in the California Code of Regulations, Titles 22 and 26. The State regulation concerning the use of hazardous materials in the workplace is included in Title 8 of the California Code Regulations.

Government Code Section 65962.5 requires the DTSC, the State Department of Health Services, the SWRCB, and CalRecycle to compile and annually update lists of hazardous waste sites and land

designated as hazardous waste sites throughout the state. The Secretary for Environmental Protection consolidates the information submitted by these agencies and distributes it to each city and county where sites on the lists are located. Before the lead agency accepts an application for any development project as complete, the applicant must consult these lists to determine if the site at issue is included.

Department of Toxic Substances Control

As a department of the CalEPA, the DTSC is the primary agency in California that regulates hazardous waste, oversees the cleanup of existing contamination, and identifies ways to reduce hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code.

DTSC also administers the California Hazardous Waste Control Law (HWCL) to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both State and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

If any soil is excavated from a site containing hazardous materials, it would be considered a hazardous waste if it exceeded specific criteria identified by the DTSC in Title 22, Division 4.5 Section 66261.10 of the California Code of Regulations. Remediation of hazardous wastes found at a site may be required if excavation of these materials is performed, or if other soil disturbing activities would occur. Even if soil or groundwater at a contaminated site does not have the characteristics required to be defined as hazardous waste, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking jurisdiction.

California Fire Code

California Code of Regulations, Title 24, also known as the California Building Standards Code, contains the California Fire Code (CFC), included as Part 9 of that Title. Updated every three years, the CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution.

c. Local Regulations

The Regional Water Quality Control Board (RWQCB) is authorized by the SWRCB to enforce provisions of the Porter-Cologne Water Quality Control Act of 1969. This act gives the RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the State is threatened and to require remediation of the site, if necessary. Both agencies are part of the CalEPA. In the Bay Area, BAAQMD may impose specific requirements on remediation activities to protect ambient air quality from dust or other airborne contaminants.

Administration and enforcement of the major environmental programs were transferred to local agencies as Certified Unified Program Agencies (CUPA) beginning in 1996. The purpose of this was to simplify environmental reporting by reducing the number of regulatory agency contacts a facility must maintain and requiring the use of more standardized forms and reports. The Contra Costa County Health Services' Hazardous Materials Program is the CUPA for the entire Contra Costa

County including Moraga. It is responsible for regulating the storage, use, treatment, and disposal of hazardous materials and wastes in Moraga.

The Hazardous Materials Program manages areas in Moraga known or suspected to have contamination issues to advise permit applicants of potential health and environmental concerns that may be encountered during construction, including excavation or dewatering. The Hazardous Materials Program requires review of proposed development projects to determine if special requirements should apply to reduce exposure to contaminants.

Town of Moraga 2002 General Plan

The Moraga 2002 General Plan includes goals and policies to protect the community from unreasonable risks associated with hazards. Relevant policies are listed below:

Policy C1.11: Emergency Vehicle Access. Maintain and improve critical transportation facilities for emergency vehicle access and emergency evacuation needs.

Policy CD8.3: Public Safety. Regulate land use and development in Hillside Areas and on and near Ridgelines in a manner that prioritizes the protection of residents, neighbors, and the community at large from landslides, earthquakes, and other natural hazards.

Policy PS1.8: Hazardous Wastes. Require permits in accordance with State and Federal regulations any time that hazardous materials are proposed to be transmitted into, out of, or through the Town.

Policy PS2.4: Disaster Preparedness. Participate, to the extent feasible, in programs relating to multi-jurisdictional disaster preparedness and cooperate with the County Office of Emergency Services and other appropriate agencies to revise and update the Town's Disaster Preparedness Plan.

Policy PS3.6: Fire Vehicle Access. Provide access for fire-fighting vehicles to all new developments in accordance with fire access standards of the Moraga-Orinda Fire District and Town of Moraga Ordinances.

Emergency Response Plans

Moraga Emergency Operations Plan

The Town's Emergency Operations Plan (EOP) is prepared by the Town's Police Department staff in cooperation with MOFD. The EOP was last revised in 2018 and the Town's Evacuation zones were upgraded in 2021. Both are periodically updated. The EOP identifies the Town's emergency planning, organization and response policies and procedures. It meets the requirements of the County's policies on Emergency Response and Planning, the Standardized Emergency management System (SEMS) Operational Area Response, the National Incident Management System (NIMS) and defines the primary and support roles of Town agencies and departments in after-incident damage assessment and reporting requirements.

Contra Costa County Local Hazard Mitigation Plan

The Town of Moraga is included as an annex in Contra Costa County Local Hazard Mitigation Plan (LHMP). Volume 2, Chapter 9 of the Contra Costa County LHMP contains a jurisdictional annex specifically pertaining to Moraga's unique needs. The Town adopted the annex in 2018. The LHMP is intended to maintain and enhance a disaster-resistant region by reducing the potential loss of life,

property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters (Contra Costa County 2018). The plan includes policies to speed recovery and redevelopment following future disaster events.

4.8.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, hazards and hazardous materials impacts from development facilitated by the Planning Initiative would be significant if the development would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
2. 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;
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
5. 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, result in a safety hazard or excessive noise for people residing or working in the project area; or
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

CEQA Guidelines Appendix G also includes the question regarding if the project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. This potential impact is addressed in Section 4.17, *Wildfire*.

Methodology

This section describes the potential environmental impacts of the Planning Initiative relevant to hazards and hazardous materials. The impact analysis is based on an assessment of baseline conditions, including locations of hazardous materials use and storage, existing contaminated sites, and emergency response and evacuation plan requirements. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to the development that would be facilitated by the project. However, the precise increase in hazardous materials transported within Moraga as a result of buildout of the project cannot be predicted because specific development projects are not identified in the project at a level of detail allowing such analysis. This analysis focuses on the potential nature and magnitude of risks associated with the accidental release, storage, transportation, and use of hazardous materials during operations of typical residential development projects. Specific analysis would need to be conducted at the time projects are submitted for a formal application.

b. Impact Analysis

Threshold 1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
Threshold 2: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Housing Element

Impact HAZ-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD INVOLVE THE USE, STORAGE, DISPOSAL, OR TRANSPORTATION OF HAZARDOUS MATERIALS. UPSET OR ACCIDENT CONDITIONS IN THE PLAN AREA COULD INVOLVE THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT. COMPLIANCE WITH EXISTING REGULATIONS AND MITIGATION WOULD ENSURE THAT IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

Development facilitated by the Housing Element would include new buildings, as well as improvements in the public realm, such as street, sidewalk, and open space reconfiguration. The following discussion addresses the use of hazardous materials during construction activities; the potential for release of existing contaminated materials during construction; and the potential for release of LBP or ACM during demolition or construction.

Use of Hazardous Materials During Construction

Development facilitated by the Housing Element may include the temporary transport, storage, and use of potentially hazardous materials including fuels, lubricating fluids, cleaners, or solvents. If spilled, these substances could pose a risk to the environment and to human health. However, the transport, storage, use, or disposal of hazardous materials would be subject to federal, State, and local regulations pertaining to the transport, use, storage, and disposal of hazardous materials, which would assure that risks associated with hazardous materials are minimized. The transport of hazardous materials would be subject to federal, State, and local regulations such as the Toxic Substances Control Act and the Resource Conservation and Recovery Act, Hazardous Waste Control Act, and the Contra Costa County Local Hazard Mitigation Plan, as discussed in Section 4.8.2, *Regulatory Setting*. Compliance with these regulations would assure that risks associated with the transport of hazardous materials are minimized. Impacts associated with the use of hazardous materials during construction would be less than significant.

Release of Contaminated Materials During Construction

As discussed in Section 4.8.1, *Setting*, the potential for release of contaminated materials would be higher on or near closed LUST sites within the Moraga Center area and Rheem Park area. Potential health and environmental impacts related to contaminated groundwater and soil may occur during excavation and dewatering for new construction at Housing Opportunity Sites. Development facilitated by the Housing Element would require project review by the Town prior to issuance of permits. Upon project review, the Town will determine if any special requirements apply based on site conditions. In addition, development facilitated by the project would be subject to regulatory programs such as those overseen by the RWQCB and the DTSC. These agencies require applicants

for development on potentially contaminated properties to perform investigation and cleanup if the properties are contaminated with hazardous substances. Due to the presence of two active and open cleanup sites (Moraga Cleaners and Laundry and Rheem Valley Shopping Center) on or adjacent to Housing Opportunity Sites in the Moraga Center and Rheem Park area, there is some potential for contamination to be present. A potentially significant impact hazard could occur if any contaminated soil or groundwater is present on the project site. As such, Mitigation Measure HAZ-1 would be implemented to address this potential impact and would require the project applicants for future development on the two active and open cleanup sites to implement a Phase I Environmental Site Assessment (ESA) and if necessary, a Phase II ESA. Implementation of a Phase I and Phase II ESA would ensure that any potential impacts from hazardous materials or contaminants are addressed prior to construction.

Grading or excavation on sites with existing contamination may also result in the transport and disposal of hazardous materials if they are unearthed and removed from the site. However, the transport, storage, use, or disposal of hazardous materials would be subject to federal, State, and local regulations pertaining to the transport, use, storage, and disposal of hazardous materials such as the Toxic Substances Control Act and the Resource Conservation and Recovery Act, Hazardous Waste Control Act, and the Contra Costa County Local Hazard Mitigation Plan, as discussed in Section 4.8.2, *Regulatory Setting*.

Asbestos and Lead

The Plan Area has potential to contain residential and commercial buildings that, due to their age, may contain asbestos and/or LBP. Demolition or redevelopment of these structures could result in health hazard impacts to workers if not remediated prior to construction activities. Lead-based materials and asbestos exposure are regulated by CalOSHA. CCR Section 1532.1 requires testing, monitoring, containment, and disposal of lead-based materials, such that exposure levels do not exceed CalOSHA standards. Under this rule, construction workers (and by extension, neighboring properties) may not be exposed to lead at concentrations greater than 50 micrograms per cubic meter of air averaged over an eight-hour period, and exposure must be reduced to lower concentrations if the workday exceeds eight hours. Similarly, CCR Section 1529 sets requirements for asbestos exposure assessments and monitoring, methods of complying with exposure requirements, safety wear, communication of hazards, and medical examination of workers.

The control of ACM during demolition or renovation of buildings is regulated under the Federal Clean Air Act. The Federal Clean Air Act requires a thorough inspection for asbestos where demolition will occur and specifies work practices to control emissions, such as removing all asbestos-containing materials, adequately wetting all regulated asbestos-containing materials, sealing the material in leak tight containers, and disposing of the asbestos-containing waste material as expeditiously as practicable (USEPA 2022c).

Friable ACMs are regulated as a hazardous air pollutant under the Clean Air Act. As a worker safety hazard, they are also regulated under the authority of CalOSHA and by BAAQMD. In structures that would be demolished, any ACMs would be abated in accordance with State and Federal regulations prior to the start of demolition or renovation activities and in compliance with all applicable existing rules and regulations, including BAAQMD. These programs would ensure that asbestos removal would not result in the release of hazardous materials to the environment that could impair human health.

Development facilitated by the Housing Element would also be required to adhere to BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of ACM for demolition,

renovation, and manufacturing activities in the Bay Area, and CalOSHA regulations regarding lead-based materials. The California Code of Regulations Section 1532.1, requires testing, monitoring, containment, and disposal of lead-based materials, such that exposure levels do not exceed CalOSHA standards. With adherence to standard conditions of approval, BAAQMD, and CalOSHA policies regarding ACM and LBP, impacts would be less than significant.

Operations

Development facilitated by the Housing Element could involve the use, storage, disposal, or transportation of hazardous materials. The potential uses do not generally involve the use, storage, disposal, or transportation of significant quantities of hazardous materials. They may involve use and storage of some materials considered hazardous, though these materials would be primarily limited to solvents, paints, chemicals used for cleaning and building maintenance, and landscaping supplies. These materials would not be different from household chemicals and solvents already in wide use throughout the Plan Area. Residents and workers are anticipated to use limited quantities of products that could contain hazardous materials routinely for periodic cleaning, repair, and maintenance, or for landscape maintenance/pest control. Those using such products would be required to comply with all applicable regulations regarding the disposal of household waste.

The current and proposed zoning for sites in the Plan Area prohibit industrial uses. The proposed changes under the Housing Element would not establish new industrial, warehouse, auto-service, or manufacturing zones in the Plan Area. Land use strategies within the Planning Initiative prioritize commercial and residential land uses. Therefore, the project would not introduce new manufacturing, warehouse, or industrial uses that would sell, use, store, transport, or release substantial quantities of hazardous materials.

The Housing Element would allow mixed-use development in the Plan Area. New residential uses in mixed-use or commercial areas could be exposed to the transport of hazardous materials. Certain allowed uses, such as commercial development, close to mixed residential uses may use or create hazardous materials in close proximity to new housing. For example, commercial development in the Rheem Park Area may result in the transport of hazardous materials. However, the numerous hazardous material regulations detailed in Section 4.8.2, *Regulatory Setting*, would minimize impacts related to hazardous materials in the Plan Area. Hazardous materials would be required to be transported under DOT regulations. Compliance with existing laws and regulations governing the transport, use, storage, disposal, or release of hazardous materials/wastes would reduce impacts related to exposure of the public or environment to hazardous materials to less than significant.

Mitigation Measure

HAZ-1 Property Assessment – Phase I and II Environmental Site Assessment

Prior to the start of construction (i.e., demolition or grading) of development at the Housing Opportunity Sites on or adjacent to the two open and active cleanup sites (Moraga Cleaners and Laundry [SWRCB No. T10000012913] and Rheem Valley Shopping Center [SWRCB No. T10000012758]), the project applicant shall retain a qualified environmental professional, as defined by ASTM International E-1527 to prepare a project area Phase I Environmental Site Assessment (ESA) in accordance with standard ASTM methodologies, to assess the land use history of the project site that will be affected. If either of the two sites have been closed on SWRCB's GeoTracker, then this mitigation shall not be required.

After the site-specific Phase I ESA has been completed, the determination of specific areas that require a Phase II ESA (i.e., soil, groundwater, soil vapor subsurface investigations) shall be evaluated by the project applicant. The Phase II ESA shall be completed prior to construction and shall be based on the results of the Phase I ESA. Specifically, if the Phase I ESA identifies recognized environmental conditions or potential concern areas, the project applicant shall retain a qualified environmental consultant, California Professional Geologist or California Professional Engineer, to prepare a Phase II ESA of the project site to determine whether the soil, groundwater, and/or soil vapor has been impacted at concentrations exceeding regulatory screening levels for commercial/industrial land uses.

As part of the Phase II ESA, the qualified environmental consultant shall screen the analytical results against the San Francisco Regional Water Quality Control Board environmental screening levels (ESL). These ESLs are risk-based screening levels for direct exposure of a construction worker under various depth and land use scenarios. The lead agency shall review and approve the Phase I ESA prior to construction (i.e., demolition and grading).

If the Phase II ESA for the development site indicates that contaminants are detected in the subsurface at the project site, the project applicant shall take appropriate steps to protect site workers and the public. This may include the preparation of a Soil Management Plan for Impacted Soils prior to project construction.

If the Phase II ESA for the contaminant site indicates that contaminants are present at concentrations exceeding hazardous waste screening thresholds for contaminants in soil and/or groundwater (California Code of Regulations [CCR] Title 22, Section 66261.24 Characteristics of Toxicity), the project applicant shall take appropriate steps to protect site workers and the public. This may include the completion of remediation at the project prior to onsite construction.

Significance After Mitigation

Mitigation Measure HAZ-1 would ensure that hazardous materials are identified and remediated prior to construction. Impacts would be less than significant with mitigation.

Bollinger Canyon Rezoning

Impact HAZ-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD INVOLVE THE USE, STORAGE, DISPOSAL, OR TRANSPORTATION OF HAZARDOUS MATERIALS. UPSET OR ACCIDENT CONDITIONS IN THE BOLLINGER CANYON STUDY AREA COULD INVOLVE THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT. COMPLIANCE WITH EXISTING REGULATIONS WOULD ENSURE THAT IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The analysis in Impact HAZ-1 also applies to the Bollinger Canyon Study Area. Compliance with existing regulations, such as the Toxic Substances Control Act and the Resource Conservation and Recovery Act, Hazardous Waste Control Act, and the Contra Costa County Local Hazard Mitigation Plan, would reduce construction and operations impacts related to exposure of the public or environment to hazardous materials to less than significant. It should be noted that unlike the Moraga Center and Rheem Park areas, there are no known active or open cleanup sites and for that reason the mitigation identified in Impact HAZ-1 would not be required for the Bollinger Canyon Rezoning.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3: Would the project result in the emission of hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Housing Element

Impact HAZ-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD RESULT IN THE RELEASE OF POTENTIALLY HAZARDOUS MATERIALS WITHIN 0.25 MILE OF A SCHOOL. HOWEVER, COMPLIANCE WITH REGULATIONS RELATED TO HAZARDOUS MATERIALS WOULD MINIMIZE THE RISK OF RELEASES AND EXPOSURE TO THESE MATERIALS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

In addition to public schools, numerous day care facilities, charter schools, and private schools are located throughout the Plan Area. The Housing Element would facilitate residential development at a higher density in the vicinity of some schools. However, residential uses do not typically emit hazardous materials or substances. While future sites of development under the Housing Element may have unrecorded pre-existing contamination, such conditions would be determined as part of project review and would be remediated through required coordination with the appropriate regulatory agency pursuant to federal, State, and local regulations as listed in Section 4.8.2, *Regulatory Setting*.

As mentioned in Impact HAZ-1, development facilitated by the Housing Element may include the temporary transport, storage, and use of potentially hazardous materials including fuels, lubricating fluids, cleaners, or solvents. Specifically, demolition, grading, and excavation activities associated with new construction on Housing Opportunity Sites that may result in emissions and transport of hazardous materials within 0.25 mile of existing schools. However, adherence to applicable policies regarding emission and transport of hazardous materials such as the Toxic Substances Control Act and the Resource Conservation and Recovery Act, Hazardous Waste Control Act, and the Contra Costa County Local Hazard Mitigation Plan, as discussed in Section 4.8.2, *Regulatory Setting* would ensure impacts would be reduced. Therefore, impacts from a hazard to the public or the environment through routine transport, use, or disposal of hazardous materials and reasonably foreseeable upset and/or accident conditions would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HAZ-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD RESULT IN THE RELEASE OF POTENTIALLY HAZARDOUS MATERIALS WITHIN 0.25 MILE OF A SCHOOL. HOWEVER, COMPLIANCE WITH REGULATIONS RELATED TO HAZARDOUS MATERIALS WOULD MINIMIZE THE RISK OF RELEASES AND EXPOSURE TO THESE MATERIALS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Analysis discussed in Impact HAZ-3 applies to the Bollinger Canyon Study Area. Saint Mary's College is within 0.25 mile of Housing Opportunity Sites in the Bollinger Canyon Study Area. Compliance with existing applicable regulations and policies, such as the Toxic Substances Control Act and the Resource Conservation and Recovery Act, Hazardous Waste Control Act, and the Contra Costa County Local Hazard Mitigation Plan, as discussed in Section 4.8.2, *Regulatory Setting*, would minimize risks from routine use, transport, handling, storage, disposal, and release of hazardous materials. Oversight by the appropriate federal, State, and local agencies, and compliance with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of the public's potential exposure to these substances and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

<p>Threshold 4: Would the project be located on a site that is included on a list of hazardous material 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?</p>
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Housing Element

Impact HAZ-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD BE LOCATED ON A SITE INCLUDED ON A LIST OF HAZARDOUS MATERIAL SITES COMPILED PURSUANT TO GOVERNMENT CODE SECTION 65962.5. COMPLIANCE WITH APPLICABLE REGULATIONS AND MITIGATION WOULD MINIMIZE IMPACTS FROM DEVELOPMENT ON PREVIOUSLY UNKNOWN CONTAMINATED SITES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Existing sites that use or have historically used hazardous materials or that may contain contaminants in soils or groundwater in the Plan Area include large and small-quantity generators of hazardous waste, such as gas stations. There are 11 LUST sites that have received case closure and are no longer active. In addition, no Housing Opportunity Sites in the Moraga Center area and Rheem Park area are located on the LUST locations (SWRCB 2022). There are no DTSC listed cleanup sites in and around the Plan Area (DTSC 2022). Furthermore, there are no Superfund or other State Responsibility sites in the Plan Area. However, there are two active and open cleanup SWRCB sites, Moraga Cleaners and Laundry and Rheem Valley Shopping Center, that are on and adjacent to Housing Opportunity Sites, respectively, as discussed under Section 4.8.1, *Setting*.

It is also possible that USTs, which were in use prior to permitting and records being kept, could be present in the town. If an unidentified UST were uncovered or disturbed during construction, it

would be removed pursuant to a permit from Contra Costa Health Services Department and the RWQCB. If such removal would potentially undermine the structural stability of existing structures or foundations, or impact existing utilities, the tank might be closed in place without removal. Tank removal activities could pose both health and safety risks, such as the exposure of workers, tank handling personnel, and the public to tank contents or vapors. Potential risks, if any, posed by USTs would be minimized by managing the tank according to existing standards contained in California Health and Safety Code Division 20, Chapters 6.7 and 6.75 (UST Program), as enforced and monitored by the Environmental Programs Division.

The extent to which groundwater may be affected by an UST or other potential contamination source, such as the two active and open cleanup sites, depends on the type of contaminant, the amount released, the duration of the release, distance from source, and depth to groundwater. If groundwater contamination is identified, characterization of the vertical and lateral extent of the contamination and remediation activities would be required by the RWQCB prior to the commencement of any new construction activities that would disturb the subsurface. If contamination exceeds regulatory action levels, future developers would be required to undertake remediation procedures prior to grading and development under the supervision of the RWQCB, depending on the nature of any identified contamination.

Because there are two active and open cleanup sites on or adjacent to the Housing Opportunities Sites in the Moraga Center and Rheem Park areas, there is the potential to result in a significant hazard to the public or environment. Mitigation Measure HAZ-1 would be implemented to address this potential impact and would require the project applicants for future development of the Housing Opportunity Sites on or adjacent to these two open and active cleanup sites to implement a Phase I ESA and if necessary, a Phase II ESA. Implementation of a Phase I and Phase II ESA would ensure that any potential hazardous materials found on the project site are remediated prior to construction.

Mitigation Measures

Mitigation Measure HAZ-1 (see Impact HAZ-1).

Significance After Mitigation

Mitigation Measure HAZ-1 would ensure that hazardous materials are identified and remediated prior to construction. Impacts would be less than significant with mitigation.

Bollinger Canyon Rezoning

Impact HAZ-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT BE LOCATED ON A SITE INCLUDED ON A LIST OF HAZARDOUS MATERIAL SITES COMPILED PURSUANT TO GOVERNMENT CODE SECTION 65962.5. COMPLIANCE WITH APPLICABLE REGULATIONS WOULD MINIMIZE IMPACTS FROM DEVELOPMENT ON PREVIOUSLY UNKNOWN CONTAMINATED SITES AND IMPACTS WOULD BE LESS THAN SIGNIFICANT IMPACT.

The analysis discussed in Impact HAZ-5 above applies to the Bollinger Canyon Study Area. There are no hazardous material sites in the Bollinger Canyon Study Area. Compliance with 2002 General Plan policies as listed in Section 4.8.2, *Regulatory Setting*, and compliance with federal, State, and local regulations would apply to development within the Bollinger Canyon Study Area.

It is also possible that USTs, which were in use prior to permitting and records being kept, could be present in the Bollinger Canyon Study Area. If an unidentified UST were uncovered or disturbed during construction, it would be removed pursuant to a permit from the Contra Costa Health Services Department and the RWQCB. If such removal would potentially undermine the structural stability of existing structures or foundations, or impact existing utilities, the tank might be closed in place without removal. Potential risks, if any, posed by USTs would be minimized by managing the tank according to existing standards contained in California Health and Safety Code Division 20, Chapters 6.7 and 6.75 (UST Program), as enforced and monitored by the Environmental Programs Division.

As the project would not increase the likelihood for development of identified hazard sites, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 5: 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?

Housing Element

Impact HAZ-7 THE HOUSING ELEMENT AREA IS NOT LOCATED IN AN AIRPORT LAND USE PLAN OR IN THE VICINITY OF A PRIVATE AIRSTRIP. NO IMPACTS RELATED TO SAFETY HAZARD OR EXCESSIVE NOISE DUE TO AIRPORTS WOULD OCCUR.

As described in Section 4.8.1(c), *Aviation Hazards*, the Plan Area is not located in or near an airport land use plan or in the vicinity of a private airstrip. Therefore, development facilitated by the Housing Element would not result in a safety hazard for people residing or working in the Plan Area. There would be no impact.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HAZ-8 THE BOLLINGER CANYON STUDY AREA IS NOT LOCATED IN AN AIRPORT LAND USE PLAN OR IN THE VICINITY OF A PRIVATE AIRSTRIP. NO IMPACTS RELATED TO SAFETY HAZARD OR EXCESSIVE NOISE DUE TO AIRPORTS WOULD OCCUR.

The analysis discussed in Impact HAZ-7 would also apply to the Bollinger Canyon Area and there would be no impact.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 6: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Housing Element

Impact HAZ-9 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT IMPAIR IMPLEMENTATION OF OR PHYSICALLY INTERFERE WITH AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Housing Element does not include policies or programs that would impair or physically interfere with emergency response or emergency evacuation. There are no proposed physical changes to roadways or access points that would interfere or impair emergency response or evacuation. The proposed Housing Opportunity Sites are on existing parcels that are not dedicated to circulation or access and both the Moraga Center area and Rheem Park areas are located within an existing downtown center or developed area.

As discussed in Section 4.8.2, *Regulatory Setting*, the Town is in the process of updating its General Plan Safety Element as part of the Housing Element. This update includes a new framework that anticipates potential natural and human-created hazards that could affect the town's residents, businesses, and services, and prepares the community to minimize exposure to these risks. New and amended Safety Element Policies S-1 through S-10, S1.13, and S1.14 (related to emergency planning and response are listed in Section 4.17, *Wildfire*) would ensure adoption and implementation of local hazard mitigation planning; coordination among federal, state, and local plans and agencies; adequate public and interagency communication during hazard events; evacuation assistance for those with limited mobility or lack of access to a vehicle for evacuation; and siting development away from high risk areas and moderate risk landslide areas. Compliance with 2002 General Plan policies listed in Section 4.8.2, *Regulatory Setting*, would further ensure that development facilitated by the Housing Element would not result in the impairment of implementation or physical interference with evacuation or emergency response plans. Therefore, the Housing Element would not impair implementation of or physically interfere with evacuation or emergency response plans, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HAZ-10 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT IMPAIR IMPLEMENTATION OF OR PHYSICALLY INTERFERE WITH AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The analysis in Impact HAZ-9 also applies to the Bollinger Canyon Study Area. The rezoning of the Bollinger Canyon Study Area would not impair implementation of or physically interfere with evacuation or emergency response plans because emergency response and evacuation plans are updated regularly to incorporate new or proposed developments. The impact related to emergency response and evacuation plans would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.9 Hydrology and Water Quality

This section analyzes the potential impacts related to hydrology and water quality associated with development facilitated by the Planning Initiative. Water supply and wastewater conveyance are discussed in Section 4.16, *Utilities and Service Systems*. Impacts related to wetlands and waters of the U.S. are discussed in Section 4.3, *Biological Resources*.

4.9.1 Setting

The Town of Moraga is a predominantly residential community located in southwestern Contra Costa County, between two major ridge systems. To the west is the Gudde Ridge and Berkeley/Oakland Hills, and to the east is the Las Trampas Ridge. Elevation ranges from 500 to 1,200 feet above mean sea level. Moraga straddles the watershed divide of the Las Trampas/Walnut Creek drainage to Suisun Bay and the Moraga/San Leandro Creek drainage to South San Francisco Bay.

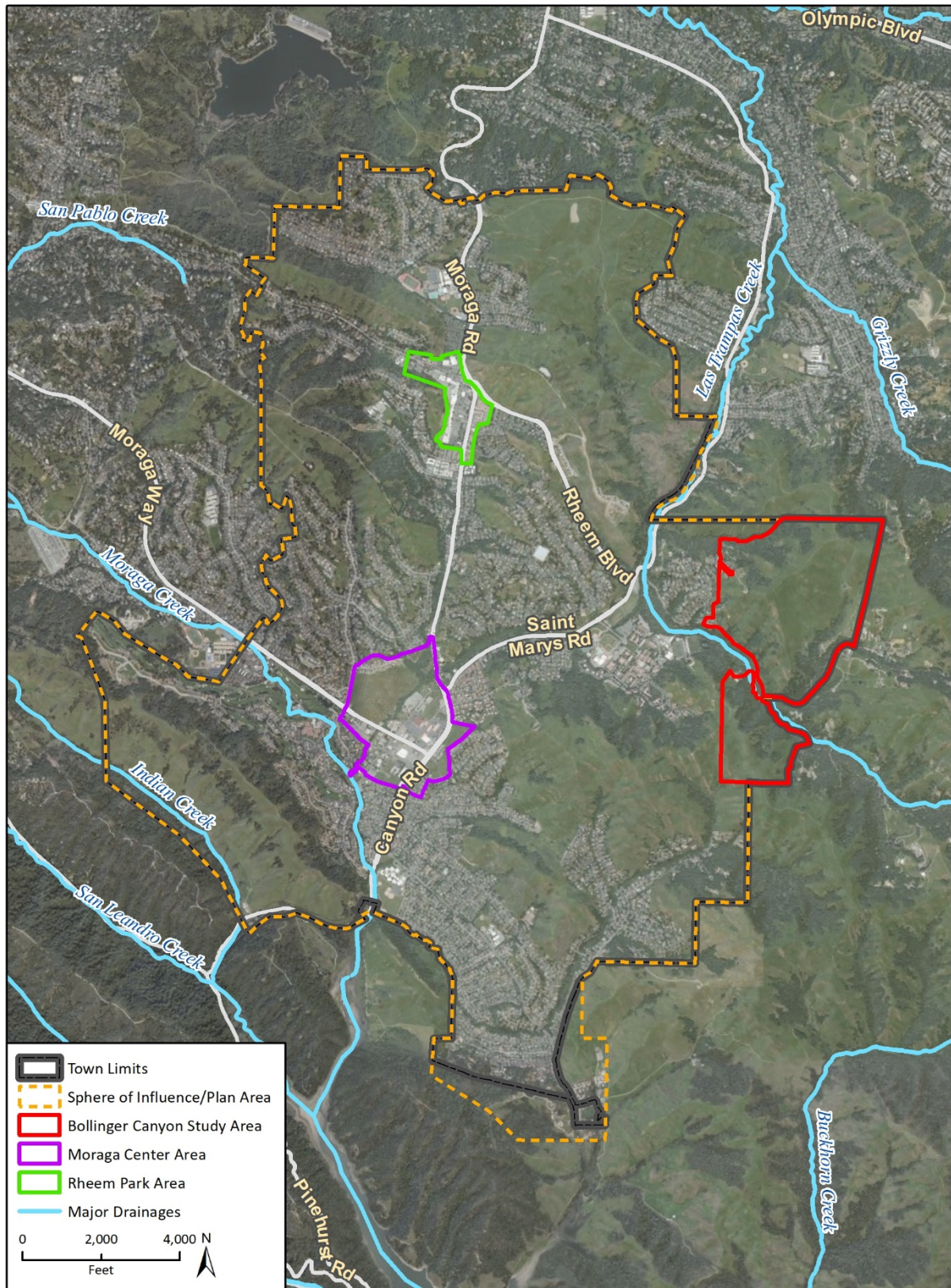
The hydrologic cycle begins with precipitation. Weather in Moraga is characterized by a typical Mediterranean climate, generally dry in the summer with mild, wet winters. During the rainy period (November – March), streams in the town have steady flow. Streams are dry or have greatly reduced flows in the summer and fall. Most of the precipitation in Contra Costa County falls in the form of rain generated from cold fronts advancing from west to east. Runoff and percolation from precipitation is captured in geologic basins. The Town averages 27 inches of rainfall per year, and Bollinger Canyon likely receives an average of 27-30 inches of rainfall per year due to its slightly higher elevation adjacent to Las Trampas Ridge (Town of Moraga 2013).

a. Surface Water

The California Department of Water Resources (DWR) divides surface watersheds in California into 10 hydrologic regions, which are further divided into hydrologic units. Moraga lies within the San Francisco Hydrologic Region, which covers approximately 4,500 square miles, and includes all of San Francisco County and portions of Marin, Sonoma, Napa, Solano, San Mateo, Santa Clara, Contra Costa, and Alameda counties (DWR 2015). Within the San Francisco Hydrologic Region, most of the Town is within the San Leandro Creek Hydrologic Unit, while an eastern portion of the Town, including the Bollinger Canyon Study Area is within the Las Trampas Creek Hydrologic Unit (DWR 2022a). The San Francisco Regional Water Quality Control Board (SFRWQCB) governs basin planning and water quality within Moraga.

Moraga's urban development is flanked by large swathes of open space, including the Bollinger Canyon Study Area, and drainage flows both naturally and via constructed drainage systems through urban areas. The drainage network in Moraga consists of Las Trampas Creek and Moraga Creek. Las Trampas Creek flows north from Las Trampas Regional Wilderness Park towards Walnut Creek, which eventually flows into the Carquinez Strait. Moraga Creek flows south and west into the Upper San Leandro Reservoir, which eventually flows into San Francisco Bay via San Leandro Creek. Figure 4.9-1 depicts major drainages within and near the Town and Figure 4.9-2 depicts watershed boundaries within and near the Town. For a description of jurisdictional features in Moraga, including wetlands, see Section 4.3, *Biological Resources*.

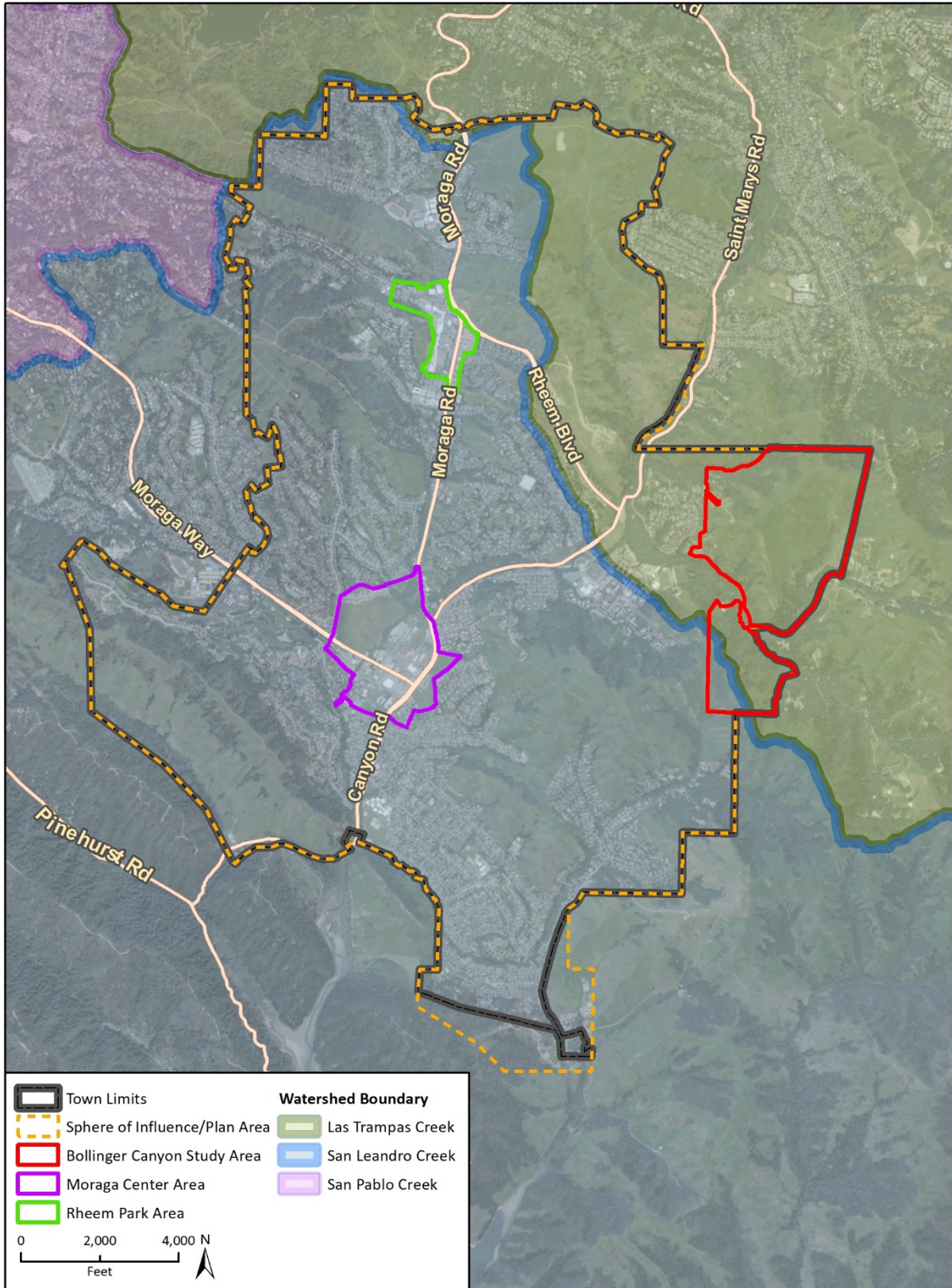
Figure 4.9-1 Major Drainages



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Additional data provided National Hydrology Dataset, 2022.

Fig 4.9-1 Major Drainages

Figure 4.9-2 Watershed Boundaries



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 Additional data provided by National Hydrology Dataset, 2022.

Fig 4.9-2 Watershed Boundaries

b. Groundwater

Groundwater is recharged through permeable materials, and natural groundwater recharge areas are an important natural resource for the replenishment and storage of water supply for wetland and riparian environments. The Town contains impervious surfaces in urban areas that typically contribute to increases in surface water runoff to creek channels and decreases in groundwater recharge. The Bollinger Canyon Study Area has few impervious surfaces, which allows for groundwater recharge. Moraga is not underlain by a groundwater basin (DWR 2018). The nearest groundwater basins are Santa Clara Valley – East Bay Plain (2-009.04) 6 miles west and the San Ramon Valley (2-007) 5 miles east (DWR 2018).

c. Water Supply

Moraga’s potable water supply is provided by the East Bay Municipal Utility District (EBMUD). Approximately 90 percent of the raw water entering EBMUD’s system originates from the Mokelumne River watershed and approximately 10 percent originates from the protected watershed lands in the East Bay Area. EBMUD’s water supply system consists of a network of reservoirs, aqueducts, water treatment plants, pumping plants, and other distribution facilities and pipelines that convey Mokelumne River water from the Pardee Reservoir to the EBMUD service areas. Recycled water is a critical element of EBMUD’s water supply management policy and supplements EBMUD’s limited drinking water supply. EBMUD produced approximately 8.3 million gallons per day (mgd) in 2020 from the six existing recycled water projects. There is the potential for additional recycled water projects to take place in the future. EBMUD does not currently have supplies of groundwater, stormwater, or desalinated water (EBMUD 2021a). See Section 4.16, *Utilities and Service Systems*, for additional details about water supply and demand for Moraga.

d. Water Quality

Stormwater and Urban Runoff

Water quality in the Town is governed by the SFRWQCB, which sets water quality standards in the Water Quality Control Plan for the San Francisco Bay Region (Basin Plan). The Basin Plan identifies surface waterbodies and groundwater basins within the region that have beneficial uses. It also establishes water quality objectives and standards to maintain those beneficial uses, such as maximum contaminant levels. The Basin Plan identifies beneficial uses for Moraga Creek and Las Trampas Creek, including freshwater replenishment, cold freshwater habitat, preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and noncontact water recreation (SFRWQCB 2019). Beneficial uses are further discussed and described in Table 4.9-1 under Section 4.9.2, *Regulatory Setting*.

The Clean Water Act (CWA) 303(d) list is a register of impaired and threatened waters, which states submit for United States Environmental Protection Agency (USEPA) approval. The list identifies all waters where pollution control measures have so far been unsuccessful in reaching or maintaining water quality standards. Waters that are listed are known as “impaired.” While none of the water bodies within the Town are listed as impaired bodies, the San Francisco Bay, to which most of the town drains, is listed as impaired (SFRWQCB 2019).

Drinking Water Quality

Moraga sources its potable drinking water primarily from the Mokelumne River watershed. Additional water is sourced from protected watershed lands in the East Bay Area and recycled water. The quality of the EBMUD's water deliveries is regulated by the State Water Resources Control Board (SWRCB) Division of Drinking Water, which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards and does not exceed Maximum Contaminant Levels. EBMUD performs water quality testing, which yields results within acceptable regulatory limits (EBMUD 2021).

Flood Hazards

Flood hazards can occur when the amount of rainfall exceeds the infiltration capacity of the surrounding landscape or the conveyance capacity of the storm water drainage system. Flood risk is defined as an annual percent-chance of flooding, or the probability that flooding would occur in any given year. A 100-year flood will occur on average once every 100 years; thus, the probability of a 100-year flood is one percent for any particular year. Two 100-year floods could occur in the same year or even in the same month, but the likelihood that two 100-year flood events would occur consecutively is very small.

Areas subject to flood risk are identified by the Federal Emergency Management Agency (FEMA) on the National Flood Hazard Layer. FEMA flood insurance maps for the Town of Moraga show that 100- and 500-year flood zones exist along Moraga Road, the Corliss Drive Tributary, Moraga Creek, Ivy Drive Tributary, Lake La Salle, Las Trampas Creek, St. Mary's Road Tributary, Laguna Creek, Indian Creek, Larch Creek, South Branch of Moraga Creek, and areas near School Street, Miramonte Drive, Crossbrook Court, Donald and Ascot Drives, St. Andrews Drive, and Country Club Drive. Areas surrounding these zones may be prone to minimal flooding. Flood risks are shown in Figure 4.9-3.

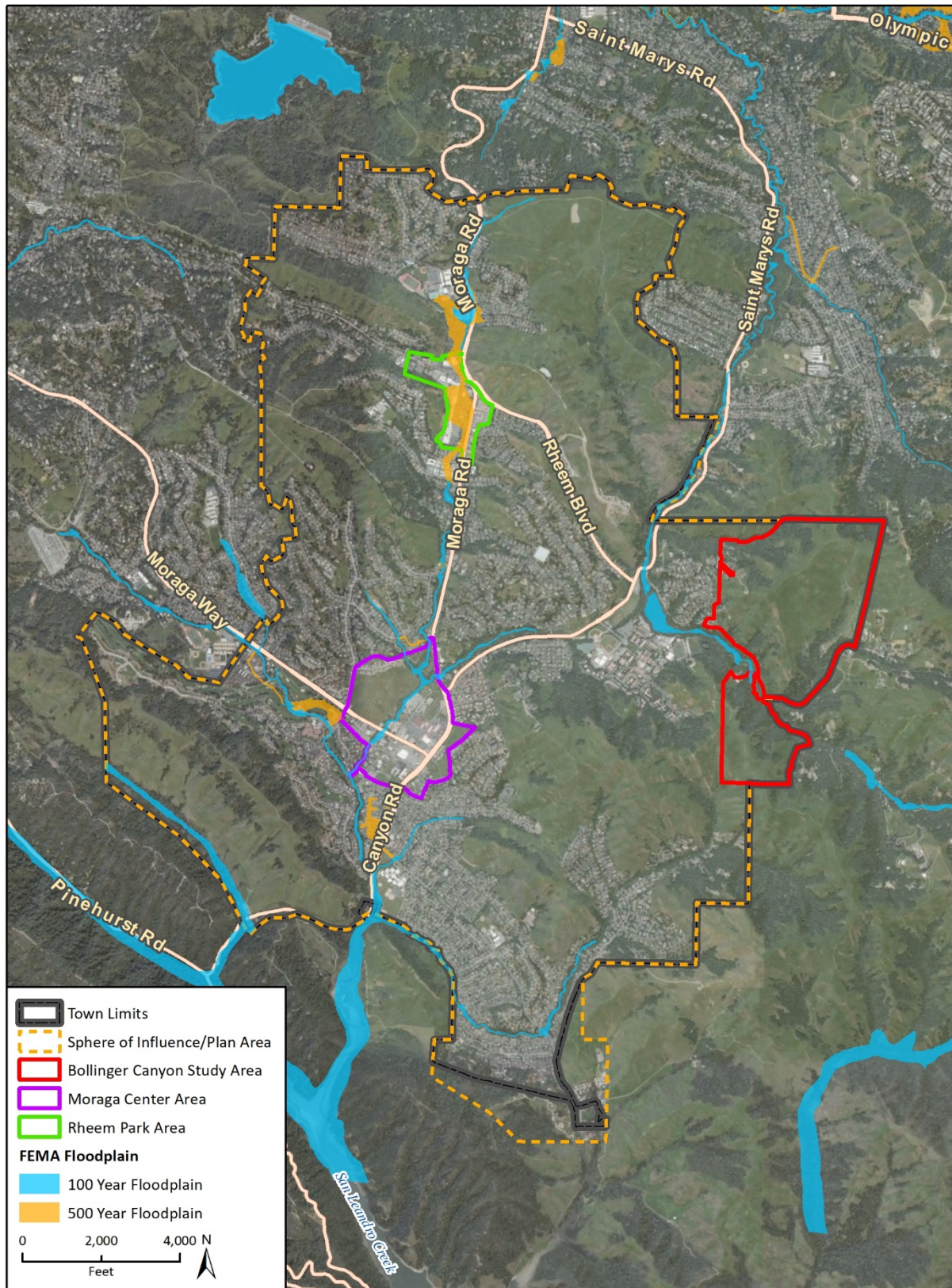
Dam Inundation

The Town of Moraga reservoir (Moraga Dam) is a covered containment structure located between Claudia Court, Donald Drive, and Derby Lane. It has a high risk of inundation according to the California Division of Safety of Dams (DWR 2022b). The Moraga Dam is owned and operated by EBMUD. If the Main Dam or Saddle Dam 1 at Moraga Dam (Moraga, No. 31-22) breach, a small extent of the Town in the direct vicinity of the reservoir may flood, as shown in Figure 4.9-4.

Tsunami

At 10 miles east of the San Francisco Bay and 22 miles east of the Pacific Ocean, Moraga is not a coastal community and is therefore not subject to impacts from tsunamis.

Figure 4.9-3 Flood Risks



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 Additional data provided by FEMA, 2022.

Fig 4.9-3 Flood Zones

Figure 4.9-4 Dam Inundation



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Additional data provided FMDS, 2022.

Fig 4.9-4 Dam Inundation

4.9.2 Regulatory Setting

a. Federal Regulations

Clean Water Act

The Federal CWA, enacted by Congress in 1972 and amended several times since, is the primary federal law regulating water quality in the United States. The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA gave the USEPA authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various contaminants in surface water, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the Clean Water Act is administered by the USEPA and USACE. At the State and regional levels in California, the Act is administered and enforced by the SWRCB and the nine regional water quality control boards. The SFRWQCB is the CWA enforcement agency for Contra Costa County.

Clean Water Act Section 303(d)

Under Section 303(d) of the CWA, States are required to develop and update a list of water bodies under their jurisdiction which fail to meet water quality standards even after point sources of pollution have utilized the minimum levels of pollution control. These are referred to as 303(d) 'impaired' bodies. Jurisdictions must establish priority rankings for 303(d) impaired water bodies and develop action plans to improve water quality to minimum standards. The plans include the setting of Total Maximum Daily Loads (TMDL) for the pollutants which are impairing the water bodies. These limits are stricter than the normal minimum standards, to bring the impaired bodies into compliance over time. There are no 303(d) listed water bodies within Town limits. However, Moraga Creek eventually discharges into the Upper San Leandro Reservoir. The Upper San Leandro Reservoir is 303(d) impaired for mercury. The Upper San Leandro Reservoir eventually discharges into the Lower San Francisco Bay, which is 303(d) impaired for a wide variety of contaminants. Those contaminants for which the SFRWQCB has set TMDLs include PCBs, dioxin-like PCBs, and mercury, while other contaminants such as DDT, furan compounds, dieldrin, chlordane, cyanide, heavy metals, and trash do not have TMDLs set but are of increasing concern (DWR 2018).

Clean Water Act Section 401

Under Section 401 of the CWA, the RWQCBs have regulatory authority over actions in waters of the United States (WOTUS) and/or the State of California through the issuance of water quality certifications, which are issued in conjunction with any federal permit (e.g., permits issued by the USACE under Section 404 of the CWA, described below).

Clean Water Act Section 402

Section 402 of the CWA regulates point-source discharges to surface waters and requires that all construction sites on an acre or greater of land, as well as municipal, industrial, and commercial facilities discharging wastewater or stormwater directly from a point source (e.g., pipe, ditch, or channel) into WOTUS must obtain permission under the National Pollutant Discharge Elimination System (NPDES) permit. All NPDES permits are written to ensure that the surface water receiving discharges will achieve specified water quality standards.

In California, the NPDES program is administered by the SWRCB through the RWQCBs and requires municipalities to obtain permits that outline programs and activities to control wastewater and stormwater pollution. The CWA prohibits discharges of stormwater or wastewater unless the discharge is in compliance with an NPDES permit. Municipal stormwater and wastewater discharges from Municipal Separate Storm Sewer Systems (MS4) and all other discharges are regulated by the local permitting authority where USEPA has approved the agency. Most MS4 Permits are tailored versions of general USEPA permits, while many industrial discharge permits are individual permits created for the specific discharge requirements of the project.

The SWRCB is the permitting authority in California, issues general MS4 permits, and adopted an NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order 2009-0009, as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The order applies to construction sites that include one or more acre of soil disturbance. Containment and spill cleanup are encompassed in the Storm Water Pollution Prevention Plan (SWPPP), which is required to be developed as a condition of permit issuance. The SWPPP must include measures to ensure that: all pollutants and their sources are controlled; non-stormwater discharges are identified and eliminated, controlled, or treated; site best management practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges; and BMPs installed to reduce or eliminate pollutants after construction are completed and maintained. In Moraga, development projects must comply with the Municipal Regional Stormwater Permit, NPDES Permit No. CAS612008, issued to the Contra Costa Clean Water Program (CCCWP) and other Bay Area jurisdictions by the San Francisco Bay RWQCB (NPDES Order No. R2-2022-0018).

Requirements for post-construction control of stormwater runoff are included in MS4 permits under Provision C.3, which allows permitting authorities to use the permit process to enforce appropriate source control and treatment measures in new development, to address operational stormwater and wastewater discharges.

Clean Water Act Section 404

Under Section 404 of the Clean Water Act, proposed discharges of dredged or fill material into WOTUS require USACE authorization. WOTUS generally include tidal waters, lakes, ponds, rivers, streams, and wetlands. Federal regulations regarding the definition of WOTUS change with some regularity under different administrations. The Clean Water Rule was promulgated in 2015, expanding the definition of WOTUS and increasing the waters under USACE jurisdiction. In 2020 in Navigable Waters Protection Rule was issued and reversed the Clean Water Rule, removing almost 60 percent of previously regulated waters from federal jurisdiction. In June 2021 USEPA and USACE announced a new rulemaking process to revise or reverse the Navigable Waters Protection Rule. The USACE identifies wetlands using a multi-parameter approach, which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. According to the *Corps of Engineers Wetlands Delineation Manual* (1987), except in certain situations, all three parameters must be satisfied for an area to be considered a jurisdictional wetland. The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2008) is also used when conducting jurisdictional wetland determinations in areas identified within the boundaries of the Region, including Contra Costa County.

National Toxics Rule and California Toxics Rule

In 1992, USEPA promulgated the National Toxics Rule, 40 CFR 131, establishing numeric criteria for priority toxic pollutants in multiple states to bring all states into compliance with the Water Quality Standards (WQS) requirements of section 303(c) of the CWA. The National Toxics Rule established WQS for 42 pollutants not covered under California's statewide water quality regulations at that time. After the court ordered revocation of California's statewide Basin Plans in September 1994, USEPA initiated efforts to promulgate additional federal WQS for California. In May 2000, USEPA issued the California Toxics Rule, which includes all the priority pollutants for which the USEPA has issued numeric criteria not included in the National Toxics Rule. The USEPA is in the process of rulemaking for setting a standard for selenium in the San Francisco Bay under the California Toxics Rule.

Safe Drinking Water Act

The Federal Safe Drinking Water Act was enacted in 1974, allowing the USEPA to promulgate national primary drinking water standards specifying Maximum Contaminants Levels (MCL) for each contaminant present in a public water system with an adverse effect on human health. Primary MCLs have been established for approximately 90 contaminants in drinking water. The USEPA has also adopted secondary MCLs as non-enforceable guidelines for contaminants that may cause cosmetic or aesthetic effects. States have the discretion to adopt them as enforceable standards. USEPA has delegated to the SWRCB the responsibility for administering California's drinking-water program. In 1976, California adopted its own safe drinking water act (see *California Safe Drinking Water Act* described below).

National Flood Insurance Act / Flood Disaster Protection Act

The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws are relevant because they led to mapping of regulatory floodplains and to local management of floodplain areas according to guidelines that include prohibiting or restricting development in flood hazard zones. As shown in Figure 4.9-3 above, sections of Moraga near creeks lie within 100-year or 500-year flood hazard zones.

Federal Emergency Management Agency

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRM) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA's minimum level of flood protection for new development is the 100-year flood event.

FEMA has also developed requirements and procedures for evaluating earthen levee systems and mapping the areas affected by those systems. Levee systems are evaluated for their ability to provide protection from 100-year flood events and the results of this evaluation are documented in the FEMA Levee Inventory System. Levee systems must meet minimum standards and must be maintained according to an officially adopted maintenance plan. Other FEMA levee system

evaluation criteria include structural design and interior drainage. Most of the jurisdictions around the San Francisco Bay, are protected by a system of levees monitored by FEMA.

In 2000, FEMA adopted revisions to 44 CFR, known as the Disaster Mitigation Act (DMA) or DMA 2000. Section 322 (a-d) of the DMA 2000 requires local governments to have a Hazard Mitigation Plan (HMP) as a condition of receiving federal disaster mitigation funds. The HMP must:

- Describe the process for assessing hazards, risks, and vulnerabilities
- Identify and prioritize mitigation actions
- Solicit input from the community (public), key stakeholders, and adjacent jurisdictions and agencies

Contra Costa County and Moraga's HMP is discussed under *Regional and Local Regulations*, below.

b. State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967 requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The Water Quality Control Plan, or Basin Plan, protects designated beneficial uses of State waters through the issuance of WDRs and through the development of TMDLs. Anyone proposing to discharge waste that could affect the quality of the waters of the State must make a report of the waste discharge to the RWQCB or SWRCB as appropriate, in compliance with the Porter-Cologne Act. The San Francisco Bay Basin Water Quality Control Plan is the Basin Plan that covers Contra Costa County (the 'Basin Plan') and is discussed under *Regional and Local Regulations*, below.

California Safe Drinking Water Act

The USEPA has delegated to the California Department of Public Health responsibility for administering California's drinking-water program. In 1976, two years after the Federal Safe Drinking Water Act was passed, California adopted its own safe drinking water act (contained in the Health and Safety Code) and adopted implementing regulations (contained in 22 CCR). California's program sets drinking water standards that are at least as stringent as the Federal standards. Each community water system also must monitor for a specified list of contaminants, and the monitoring results must be reported to the State. Responsibility for the state's Drinking Water Program was transferred from the Department of Public Health to the Division of Drinking Water, which is a division of the SWRCB that was created in July 2014.

California General Plan Law, Government Code Section 65302

Government Code Section 65302(a) requires cities and counties located within the State to review the Land Use, Conservation, and Safety elements of the general plan "for the consideration of flood hazards, flooding, and floodplains" to address flood risks. The code also requires cities and counties in the State to annually review the Land Use element with respect to "those areas covered by the plan that are subject to flooding identified by floodplain mapping prepared by FEMA or the California DWR."

Sustainable Groundwater Management Act

In September 2014, Governor Brown signed legislation requiring that California’s critical groundwater resources be sustainably managed by local agencies. The Sustainable Groundwater Management Act (SGMA) gives local agencies the power to sustainably manage groundwater, provides for the creation of regional Groundwater Sustainability Agencies (GSA) and requires Groundwater Sustainability Plans (GSP) to be developed for medium- and high-priority groundwater basins.

While the Town of Moraga does not overlay groundwater basins, their water supplier, EBMUD is the GSA for the East Bay Plain Subbasin. The greater Santa Clara Valley Groundwater Basin is a High Priority Basin due to the high reliance on groundwater supplies to provide drinking water to over a million people in the San Francisco Bay Area. The East Bay Plain Subbasin has been designated a Medium-Priority basin by DWR, due to the high population, but general lack of utilization for water supplies (DWR 2020). EBMUD GSA prepared an East Bay Plain Subbasin GSP.

Cobey-Alquist Floodplain Management Act

The Cobey-Alquist Floodplain Management Act (Water Code Section 8400-8435) gives support to the NFIP by encouraging local governments to plan, adopt, and enforce land use regulations for floodplain management, to protect people and property from flooding hazards. The Act also identifies requirements that jurisdictions must meet to receive State financial assistance for flood control.

California Green Building Standards Code

The California Green Building Standards Code (24 CCR, Part 11) includes mandatory measures for residential and nonresidential development. For example, Section 4.106.2 requires residential projects that disturb less than one acre and are not part of a larger common plan of development to manage stormwater drainage during construction through on-site retention basins, filtration systems, and/or compliance with a stormwater management ordinance. Section 5.106.1 requires newly constructed nonresidential projects and additions of less than one acre to prevent the pollution of stormwater runoff from construction through compliance with a local ordinance or implementing BMPs that address soil loss and good housekeeping to manage equipment, materials, and wastes. Section 5.303 sets measures for indoor water use for non-residential development requiring metering devices to conserve water.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code, Section 10610 et seq.), which requires urban water suppliers to develop Urban Water Management Plans (UWMP) to actively pursue the efficient use of available supplies, as well as conduct drought assessments and planning. This Act also requires the provision of water service to be affordable to lower income households (Section 10631.1). Similarly, Government Code Section 65589.7 (Senate Bill [SB] 1087) requires water service providers to reserve water allocations for low-income housing. Every five years, water suppliers are required to update their UWMPs to identify short-term and long-term water demand management measures to meet growing water demands. The 2020 UWMP for EBMUD was adopted in June 2021 and is discussed under *Regional and Local Regulations* below (EBMUD 2021).

California Construction Stormwater Permit

The California Construction Stormwater Permit (Construction General Permit), adopted by the SWRCB, regulates construction activities that include soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater, authorized non-stormwater discharges, and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 CFR 117.3 or 40 CFR 302.4, unless a separate NPDES Permit has been issued to regulate those discharges. The Construction General Permit requires that all developers of land where construction will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the Construction General Permit
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters
- Develop and implement a SWPPP, which specifies BMPs that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards
- Perform inspections and maintenance of all BMPs

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment and pollutants from construction materials, and address post construction runoff. The SWPPP also includes a plan for inspection and maintenance of all BMPs, as well as procedures for altering or increasing BMPs based on changing project conditions.

c. Regional and Local Regulations

San Francisco Bay Region Water Quality Control Plan

The SFRWQCB 2012 Basin Plan, with amendments adopted in 2014, 2015, 2016, and 2018, describes the legal and technical water quality regulations for the San Francisco Bay Area, which includes the Plan Area, including describing the beneficial uses for water bodies in the region, which is a factor in determining the types of regulations that apply to discharges to the bodies. The beneficial uses described in the Basin Plan for pertinent water bodies in the Plan Area are described in Table 4.9-1.

Table 4.9-1 Designated Beneficial Uses

Designated Beneficial Uses	Water Body	
	Moraga Creek	Las Trampas Creek
Freshwater Replenishment	Yes	No
Cold Freshwater Habitat	Yes	Yes
Preservation of Rare and Endangered Species	No	Yes
Fish Spawning	Yes	No
Warm Freshwater Habitat	Yes	Yes
Wildlife Habitat	Yes	Yes
Water Contact Recreation	Yes	Yes
Noncontact Water Recreation	Yes	Yes

Source: SFRWQCB 2019

EBMUD Urban Water Management Plan

EBMUD is responsible for implementing an UWMP. The current 2020 UWMP includes an assessment of past and future water supplies and demands, evaluation of the future reliability of the region's water supplies over a 30-year planning horizon, and discussion of demand management measures (EBMUD 2021a). EBMUD has water rights that allow for delivery up to a maximum of 325 mgd. In addition, local runoff from rainwater and water usage supplies EBMUD with an additional 23 mgd on average. During multi-year droughts when the Mokelumne River and local runoff alone cannot meet projected customer demand, EBMUD signed a contract with the United States Bureau of Reclamation for delivery of Central Valley Project water, which would provide up to 133,000 acre-feet (AF) or approximately 36,087 mgd in a single qualifying year, not to exceed a total of 165,000 AF or 44,769 mgd in three consecutive qualifying years. EBMUD's current water supply is sufficient to meet water demands during normal, single dry, and second dry year demands through 2050. However, current water supply would not be sufficient to meet water demands during third dry years (EBMUD 2021a). EBMUD also updated its Water Shortage Contingency Plan 2020 which provides a framework for EBMUD to help address water shortages that may occur to ensure a reliable water supply (EBMUD 2021b).

Contra Costa Clean Water Program

The CCCWP assists its member agencies, including the Town of Moraga to implement stormwater quality activities in compliance with state and Federal mandates. The CCWP provides guidance to member agencies regarding compliance with the Municipal Regional Stormwater Permit, including implementation of local stormwater pollution prevention activities, development of BMPs, and providing guidance and training.

Contra Costa County Hazard Mitigation Plan

Contra Costa County prepared a countywide HMP in January 2018. Volume 1 pertains to the entirety of Contra Costa County. Volume 2 of the Contra Costa County HMP contains a jurisdictional annex specifically pertaining to Moraga's unique needs. The HMP is intended to maintain and enhance a disaster-resistant region by reducing the potential loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters (Contra Costa County 2018). The HMP's annex for Moraga classifies the Town as at medium risk for severe weather and floods and low risk for drought, dam and levee failure, sea level rise, and tsunamis (Contra Costa County 2018).

Town of Moraga Municipal Ordinances

Moraga Municipal Code Chapter 8.108 regulates flood hazard areas to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions within flood prone, mudslide or flood-related erosion areas. These areas are identified by FEMA FIRMs. A development permit must be obtained before construction or other development within an area of special flood hazard. Furthermore, as mandated in Moraga Municipal Code Section 14.04.040, grading permits must be obtained for construction within an area designated a Special Flood Hazard Area (as defined in Section 8.108.040).

Moraga Municipal Code Chapter 13.04 is related to stormwater management and discharge control, whereby the Town complies with provisions of the Porter-Cologne Water Quality Control Act and the Federal Clean Water Act, as well as conditions of the Town's NPDES permit. Section 13.04.050

sets out the guidelines for preparation and implementation of a stormwater control plan for development projects that are subject to development runoff requirements. Section 13.04.060 lists prohibited discharge including non-stormwater discharges into the stormwater system and discharges that violate the NPDES permit. Section 13.04.090 lays out best management practices and standards such as proper maintenance of sidewalks, landscaped areas, parking lots, and paved areas. Construction activities are mandated to incorporate site-specific BMPs, which can be a combination of BMPs from the California BMP Handbook (January 2003), the Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices Manual (March 2003), the SFRWQCB Erosion and Sediment Control Field Manual (2002), and the Town's grading and erosion control ordinance (Moraga Municipal Code Chapter 14.04).

Town of Moraga 2002 General Plan

The Moraga 2002 General Plan has a wide set of goals and policies designed to protect water quality within streams, channels, and drainage and to mitigate and reduce flood hazards. These goals and policies include:

Goal OS2: Environmental quality in the future that is as good or better than today.

Policy OS2.2: Preservation of Riparian Environments. Preserve creeks, streams and other waterways in their natural state whenever possible.

Policy OS2.3: Natural Carrying Capacity. Require that land development be consistent with the natural carrying capacity of creeks, streams and other waterways to preserve their natural environment

Goal OS3: Protection of water resources through protection of underground water aquifers and recharge areas; maintenance of watercourses in their natural condition; and efficient water use.

Policy OS3.1: Sewer Connections. Require all development to be connected to a sewage system, with exceptions granted only in those areas where it is demonstrated that a sewer connection is not feasible and it has been confirmed by a competent technical counsel that septic system effluent will not infiltrate underground aquifers.

Policy OS3.2: Polluting Materials. Prohibit the accumulation and dumping of trash, garbage, vehicle lubricant wastes and other materials that might cause pollution.

Policy OS3.4: Watercourse Capacity. Ensure that the design capacity of watercourses is not exceeded when approving new development.

Policy OS3.5: Watercourse Preservation. Whenever possible, preserve and protect natural watercourse areas that will reflect a replica of flora and fauna of early historical conditions.

Policy OS3.6: Run-off from New Developments. Engineer future major developments to reduce peak storm runoff and non-point source pollution to local creeks and streams, taking into consideration economically viable Best Management Practices (BMPs) in the design of the project as well as factors such as the physical constraints of the site, the potential impact on public health and safety and the practicability of possible mitigation measures.

Policy OS3.7: Water Conservation Measures. Encourage water conservation in new building construction and retrofits, through measures such as low-flow toilets and drought-tolerant landscaping.

Policy OS3.8: Water Recycling. When and where feasible and appropriate, encourage the use of recycled water for landscape irrigation purposes.

Policy OS3.9: East Bay MUD Lands. Encourage the preservation of East Bay Municipal Utility District Lands for watershed use.

Goal PS5: Minimal risk to lives and property due to flooding and streambank erosion.

Policy PS5.2: Development in Floodways. Restrict new development in floodways in accordance with FEMA requirements.

Policy PS5.3: New Structures in Flood Hazard Areas. Avoid placing new structures within potentially hazardous areas along stream courses.

Policy PS5.4: Existing Structures in Flood Hazard Areas. Require the rehabilitation or removal of structures that are subject to flooding or streambank erosion hazards.

Policy PS5.5: Streambank Erosion and Flooding Potential. Reduce the potential for future streambank erosion and flooding by requiring appropriate mitigation measures.

Policy PS5.6: On-site Storm Water Retention. Require on-site storm water retention for new developments.

Policy PS5.7: Flood Control. Utilize flood control measures where appropriate to avoid damage to sensitive and critical slope areas, coordinating with the County Flood Control and Water Conservation District to evaluate watersheds and design flood control projects.

4.9.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, hydrology and water quality impacts from development facilitated by the Planning Initiative would be significant if the development would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
3. 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:
 - a. Result in substantial erosion or siltation on- or off-site;
 - b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site;
 - c. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - d. Impede or redirect flood flows.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Methodology

The impact analysis is based on an assessment of baseline conditions within the Town, including climate, topography, watersheds and surface waters, groundwater, and floodplains, as described above under Subsection 4.9.1, *Setting*. This analysis identifies potential impacts based on the predicated interaction between the affected environment and construction, operation, and maintenance activities related to the development that would occur from the Planning Initiative, and recommends mitigation measures, when necessary, to avoid or minimize impacts.

b. Impact Analysis

Threshold 1: Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Housing Element

Impact HYD-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT VIOLATE WATER QUALITY STANDARDS OR WASTE DISCHARGE REQUIREMENTS, OR OTHERWISE SUBSTANTIALLY DEGRADE SURFACE OR GROUNDWATER QUALITY. INDIVIDUAL DEVELOPMENT PROJECTS WOULD BE REQUIRED TO COMPLY WITH BEST MANAGEMENT PRACTICES IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS AND PERMIT REQUIREMENTS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

Construction activities associated with development facilitated by the Housing Element would include demolition of existing structures, construction of new development and associated roadway construction or modification, and the replacement and/or improvement of drainage facilities. Construction activities could result in soil erosion due to earth-moving activities such as excavation, grading, soil compaction and moving, and soil stockpiling. The Housing Element Sites being rezoned vary in elevation and slope. Runoff during storm events typically occurs as sheet flow for short distances across the site, and the types of pollutants contained in runoff may include sediment and other existing contaminants such as nutrients, pesticides, herbicides, trace metals, trash, and hydrocarbons that can attach to sediment and be transported downstream through erosion via overland flow, ultimately entering nearby waterways and contributing to degradation of water quality.

Construction activities would utilize hazardous materials such as diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, cement slurry, and other fluids required for the operation of construction vehicles or equipment. These types of hazardous materials are not acutely hazardous, and storage, handling, use, and disposal of these materials are regulated by county, State, and federal regulations and compliance with applicable standards identified in Section 4.9.2, *Regulatory Setting*, including the Construction General Permit and the Basin Plan. Transport of these materials to and from construction sites would also be regulated under multiple authorities as discussed in Section 4.8, *Hazards and Hazardous Materials*. Direct contamination of surface water from construction runoff is possible at the sites that are near Laguna or Moraga Creeks, including those grouped in the Moraga Center area around Moraga Road, Moraga Way, Canyon Road, and

Saint Mary's Road. Such contamination is unlikely given required adherence to relevant standards and regulations.

Development facilitated by the Housing Element would be required to comply with State and local water quality regulations designed to control erosion and protect water quality during construction, as discussed in Section 4.9.2, *Regulatory Setting*. This includes compliance with the Basin Plan; compliance with the requirements of the Construction General Permit, which requires preparation and implementation of a SWPPP for projects that disturb one acre or more of land; and compliance with Moraga's NPDES Permit, which requires measures to reduce and eliminate stormwater pollutants, installation of appropriate BMPs to control stormwater runoff from construction sites, and that grading and drainage permits be obtained prior to construction. Grading and drainage plans accompanying the permit application must include BMPs for erosion prevention and sediment control, fencing at waterways and in sensitive areas, and limitation of disturbed areas through temporary features. The permit applications must also demonstrate compliance with NPDES MS4 permit provisions. Furthermore, the General Plan contains Policy OS3.6, which calls for consideration of BMPs in project design to reduce run-off from new development to protect local creeks and streams from pollution and storm runoff. Additionally, Moraga Municipal Code Section 13.04.050 sets out the guidelines for preparation and implementation of a stormwater control plan for development projects that are subject to development runoff requirements, such as those facilitated by the Housing Element. Furthermore, Moraga Municipal Code Section 13.04.090 mandates construction activities to incorporate site-specific BMPs, as discussed under Section 4.9.2, *Regulatory Setting*.

Compliance with existing regulations discussed above would reduce the risk of water degradation from soil erosion and other pollutants related to construction activities. Because violations of water quality standards would be minimized through existing regulations, impacts to water quality from construction activities from development facilitated by the Housing Element would be less than significant.

Operations

Development facilitated by the Housing Element would result in a net increase of impervious surfaces throughout the Housing Opportunity Sites and areas being rezoned, as currently undeveloped sites with mostly permeable surfaces become built out. On-site development and associated off-site improvements greater than one acre in size would need to comply with the NPDES Construction General Permit, which requires the development of a SWPPP, and development smaller than one acre would be required to comply with provision C.6 of the NPDES Permit and the California Green Building Standards code for stormwater and construction runoff, as described in detail above. SWPPP implementation would reduce the risk of water degradation on site and off site from soil erosion and other pollutants related to project operation because a SWPPP requires the design, installation, and maintenance of post-construction stormwater controls.

As described in *Regulatory Setting*, above, provision C.3 of the NPDES Permit allows permitting authorities to enforce post-construction BMPs to control operational stormwater runoff and water quality. Construction site inspectors from the Moraga Public Works and Engineering Department enforce adherence to these BMPs. Furthermore, Moraga Municipal Code Section 13.04.060 lists prohibited discharge including non-stormwater discharges into the stormwater system and discharges that violate the NPDES permit. Section 13.04.090 lays out best management practices and standards such as proper maintenance of sidewalks, landscaped areas, parking lots, and paved areas.

Implementation of regulations, permit requirements, BMPs, and the Moraga Municipal Code described above would prevent or minimize impacts related to water quality and ensure that development facilitated by the Housing Element would not cause or contribute to the degradation of water quality in receiving waters. Development facilitated by the Housing Element would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality, and water quality impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HYD-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT VIOLATE WATER QUALITY STANDARDS OR WASTE DISCHARGE REQUIREMENTS, OR OTHERWISE SUBSTANTIALLY DEGRADE SURFACE OR GROUNDWATER QUALITY. INDIVIDUAL DEVELOPMENT PROJECTS WOULD BE REQUIRED TO COMPLY WITH BEST MANAGEMENT PRACTICES IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS AND PERMIT REQUIREMENTS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

Like development facilitated by the Housing Element, construction activities within the Bollinger Canyon Study Area would include construction of new development and the replacement and/or improvement of drainage facilities. Existing conditions of water quality, runoff potential, and construction equipment use are similar to those discussed under Impact HYD-1. Direct contamination of surface water from construction runoff is possible within the Bollinger Canyon Study Area around Las Trampas Creek, which runs alongside Bollinger Canyon Road. Such contamination is unlikely given required adherence to relevant standards and regulations.

Development facilitated by the Bollinger Canyon Rezoning would be required to comply with State and local water quality regulations designed to control erosion and protect water quality during construction, as discussed in Section 4.9.2, *Regulatory Setting*. The analysis of regulations included in Impact HYD-1 would apply to development within the Bollinger Canyon Study Area. Compliance with existing regulations would reduce the risk of water degradation from soil erosion and other pollutants related to construction activities. Because violations of water quality standards would be minimized through existing regulations, impacts to water quality from construction activities from development facilitated by the Bollinger Canyon Rezoning would be less than significant.

Operation

Like development facilitated by the Housing Element, development facilitated by the Bollinger Canyon Rezoning would result in a net increase of impervious surfaces throughout parcels that would be zoned for Rural Residential. As discussed in Impact HYD-1, development within the Bollinger Canyon Study Area would be required to comply with provisions of the NPDES permit, SWPPP, and Moraga Municipal Code. Implementation of the regulations, permit requirements, BMPs, and Moraga Municipal Code would prevent or minimize impacts related to water quality and ensure that development facilitated by the Bollinger Canyon Rezoning would not cause or

contribute to the degradation of water quality in receiving waters. Development facilitated by the Bollinger Canyon Rezoning would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality, and water quality impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Housing Element

Impact HYD-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT INTERFERE SUBSTANTIALLY WITH GROUNDWATER SUPPLIES AND RECHARGE AND THE PLANNING INITIATIVE WOULD NOT IMPEDE SUSTAINABLE GROUNDWATER MANAGEMENT OF LOCAL GROUNDWATER BASINS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.9.1, *Setting*, the Town of Moraga is not located on a groundwater basin, nor does EBMUD draw from groundwater resources. The Town is in proximity to the East Bay Plain subbasin for which the EBMUD GSA has prepared a GSP, as discussed in Section 4.9.2, *Regulatory Setting* and Impact HYD-9. Development facilitated by the Housing Element could increase the demand for water within the Town but would not impact local groundwater supplies. In addition, development facilitated by the Housing Element avoids undesirable goals outlined in the East Bay Plan GSP because EBMUD does not rely on or utilize groundwater resources for its supply.

Development facilitated by the Housing Element may increase the surface area of impervious surfaces, which may reduce the amount of water percolating into the ground to recharge groundwater supplies. However, General Plan Policy PS5.6 calls for on-site storm water retention for new developments and CalGreen requires construction of new development to manage stormwater drainage during construction through on-site retention basins, filtration systems, and/or compliance with a stormwater management ordinance, such as outlined in Moraga Municipal Code Chapter 13.04. Further, development would be required to comply with NPDES permits and associated CCCWP guidance to limit pollution from construction and stormwater runoff. Additionally, many of the Housing Opportunity Sites and other sites being rezoned, specifically those in the Moraga Center area and Rheem Park area are already urbanized with impervious surfaces and development would not significantly increase impervious surfaces. Implementation of existing local regulations and policies would ensure that development facilitated by the Housing Element would not interfere substantially with groundwater recharge, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HYD-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT INTERFERE SUBSTANTIALLY WITH GROUNDWATER SUPPLIES AND RECHARGE AND THE PLANNING INITIATIVE WOULD NOT IMPEDE SUSTAINABLE GROUNDWATER MANAGEMENT OF LOCAL GROUNDWATER BASINS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The impact of development facilitated by the Bollinger Canyon Rezoning on groundwater supplies and recharge would be as discussed above in Impact HYD-3. That analysis would apply to development within the Bollinger Canyon Study Area. Additionally, development on areas zoned Rural Residential would have minimal impervious surfaces, considering that development would be permitted at a low intensity of one unit per acre or one unit per five acres. Open space around such low intensity development would provide for ample pervious areas for groundwater recharge. Implementation of existing local regulations and policies would ensure that development facilitated by the Planning Initiative within the Bollinger Canyon Study Area would not interfere substantially with groundwater recharge, and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3a: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

Threshold 3b: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Threshold 3c: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would 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?

Housing Element

Impact HYD-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT MAY ALTER DRAINAGE PATTERNS AND INCREASE RUNOFF BUT WOULD NOT RESULT IN SUBSTANTIAL EROSION OR SILTATION ON OR OFF SITE, INCREASED FLOODING ON OR OFF SITE, CONTRIBUTE INCREASED RUNOFF THAT WOULD EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER SYSTEMS, OR CONTRIBUTE SUBSTANTIAL ADDITIONAL SOURCES OF POLLUTED RUNOFF. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

Construction activities could involve stockpiling, grading, excavation, dredging, paving, and other earth-disturbing activities that could temporarily alter existing drainage patterns. As described in Impact HYD-1, compliance with SWRCB's NPDES Construction General Permit, Moraga's NPDES Permit, and applicable local regulations would reduce the risk of short-term erosion and runoff due to drainage alterations during construction. The 2002 General Plan Policies PS5.2 through PS5.5 would reduce erosion potential during construction and operation by avoiding the placement of new structures in flood hazard areas and subsequent streambank erosion and flooding. Local alteration of drainage from development at individual Housing Opportunity and development sites may occur but such drainage alteration would be considered prior to grading or use permit approval. Permits would require construction-related alterations connect drainage to the existing storm drainage system and to avoid alteration of the course of streams or creeks.

In addition to these regulations, development facilitated by the Housing Element occurring in special flood hazard areas, as shown in Figure 4.9-3, would be required to comply with the provisions of Moraga Municipal Code Chapter 8.108, which regulates development in flood hazard areas. Therefore, impacts would be less than significant through compliance with NPDES permits, 2002 General Plan policies, and Moraga Municipal Code.

Operation

Development facilitated by the Housing Element may alter the existing drainage patterns in the Housing Opportunity and development sites through introduction of new impervious surfaces and infrastructure, such as driveways, roofs, and patios, as well as new downspout outflows from

residential rain gutters and new runoff from landscaping irrigation. These alterations could increase the rate and/or amount of surface runoff, redirect runoff to different discharge locations, or concentrate runoff from sheet flow to channelized flow. Runoff that does not infiltrate and flows off site would be captured in the local storm drain systems and ultimately discharge from Las Trampas Creek to the Carquinez Strait or Moraga Creek to the Upper San Leandro Reservoir.

As discussed in Impact HYD-1, multiple regulations require development to reduce and eliminate stormwater pollutants, as well as to implement BMPs to control post-construction operational stormwater runoff. Administration of Provision C.3 of the NPDES Permit, which requires post-construction stormwater control BMPs and Moraga Municipal Code regulations, which requires adherence to the NPDES Permit as a condition of grading and use permit approval, would ensure compliance with all relevant standards and regulations.

The 2002 General Plan includes policies intended to reduce flood hazards. Policies PS5.2 through PS5.5 would limit the impacts of floodways on new development that may result from placement of development along stream courses or banks. Policy PS5.7 calls for the utilization of flood control measures to avoid damage to sensitive and critical slope areas. Additionally, Policies OS3.1 and OS3.4 would require sewer connections and design review to ensure that watercourse capacity is not exceeded due to new development. Implementation of these policies would reduce impacts from the runoff generated by development facilitated by the Housing Element and would ensure that the capacity of existing and future storm drain systems is not exceeded.

The Housing Element would not alter the existing drainage patterns or contribute runoff water in a manner which would result in substantial erosion, siltation, or flooding, nor would it exceed the capacity of existing or planned stormwater drainage systems or result in substantial additional polluted runoff. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HYD-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING MAY ALTER DRAINAGE PATTERNS AND INCREASE RUNOFF ON INDIVIDUAL HOUSING OPPORTUNITY SITES BUT WOULD NOT RESULT IN SUBSTANTIAL EROSION OR SILTATION ON OR OFF SITE, INCREASED FLOODING ON OR OFF SITE, CONTRIBUTE INCREASED RUNOFF THAT WOULD EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER SYSTEMS, OR CONTRIBUTE SUBSTANTIAL ADDITIONAL SOURCES OF POLLUTED RUNOFF. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

While development facilitated by the Bollinger Canyon Rezoning would be less intense than on the Housing Opportunity and development sites in the Moraga Center area and Rheem Park area, the same regulations and policies discussed in Impact HYD-5 would apply. Therefore, for the same reasons identified in Impact HYD-5, development facilitated by the Bollinger Canyon Rezoning would not alter the existing drainage patterns or contribute runoff water in a manner which would result in substantial erosion, siltation, or flooding, nor would it exceed the capacity of existing or planned

stormwater drainage systems or result in substantial additional polluted runoff. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

<p>Threshold 3d: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?</p> <p>Threshold 4: In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?</p>
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Housing Element

Impact HYD-7 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD ALTER DRAINAGE PATTERNS ON OR INCREASE RUNOFF. DEVELOPMENT WITHIN AN AREA AT RISK FROM INUNDATION BY FLOOD HAZARD WOULD BE REQUIRED TO COMPLY WITH APPLICABLE 2002 GENERAL PLAN GOALS AND POLICIES TO PREVENT IMPEDANCE OR REDIRECTION OF FLOOD FLOWS OR RELEASE OF POLLUTANTS DUE TO PROJECT INUNDATION. THE HOUSING OPPORTUNITY SITES IN AREAS AT RISK FROM POST-WILDFIRE FLOODING WOULD BE REQUIRED TO COMPLY WITH APPLICABLE STATE, COUNTY, AND TOWN REGULATIONS AND POLICIES TO REDUCE IMPACTS FROM REDIRECTION OF POST-FIRE FLOWS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.9.1, *Setting* and shown in Figure 4.9-3, parts of the Rheem Park area are within a 500-year flood hazard area. In addition, 100-year floodplains run along Laguna Creek, Moraga Creek and San Leandro Creek, and there are a few development sites that may have portions within the floodplain or that might require nearby stormwater or infrastructure alterations within the 100-year floodplain. As shown on Figure 4.9-4, there are no development sites that would face high risk from dam inundation at Moraga Reservoir. Development facilitated by the Housing Element in areas not within the flood hazard areas but located on or near the hillsides may also contribute to impacts to flows from post-wildfire flooding. There are no areas within the town susceptible to risk from tsunamis or seiche due to the town's distance from the Pacific Ocean and San Francisco Bay.

For sites with portions within the 100-year floodplain or that require alterations to infrastructure that lies within the floodplain, development would be required to comply with 2002 General Plan policies that aim to achieve Goal PS5 to reduce the risk to life and property from flooding and streambank erosion. Policies PS5.2 and PS5.3 restrict new development in floodways or hazardous areas along stream courses, in accordance with FEMA requirements. Policy PS5.5 calls for mitigation measures to avoid future streambank erosion and flooding, which would reduce the risk of impeding or redirecting flood flows. Policy PS5.6 requires on-site stormwater retention, which would allow rainwater to infiltrate on new developments and avoid flood flows. Finally, Policy PS5.7 calls for utilization of flood control measures in sensitive and critical slope areas with coordination with the Contra Costa County Flood Control and Water Conservation District, which would help to

reduce impacts on developments on or near hillsides. Along with regulatory requirements discussed in Impacts HYD-1 and HYD-5, such as the Moraga Municipal Code and SFRWQCB regulations, implementation of 2002 General Plan policies would reduce impacts from development within floodplains.

Development in flood hazard areas is not an environmental impact for CEQA purposes in and of itself. Impacts from development facilitated by the Housing Element would only be significant if it exacerbated existing environmental hazards or conditions. As individual projects would be required to comply with the stated policies and ordinances designed to reduce risk from flooding, existing flood hazards would not be exacerbated. As discussed under Impacts HYD-1 and HYD-5, development facilitated by the Housing Element would be required to implement all applicable design features and BMPs to control, reduce, or eliminate pollutant runoff into the stormwater system or uncontrolled off-site runoff. Impacts would be less than significant.

Development facilitated by the Housing Element on or near the sloped hillsides in the southwestern section of the Town could alter drainage patterns or increase runoff which might redirect post-fire flood flows downslope. After a major wildfire, prolonged or intense rain events can cause flooding on newly exposed unstable slopes that previously were stabilized by vegetation. Development on the hillsides could affect post-fire flood flows by either creating new flows due to the increase of impermeable surface, or by altering the course of post-fire flooding from burned slopes through alteration of drainage or direct impedance of flood waters.

As detailed in Section 4.9.2, *Regulatory Setting*, development facilitated by the Housing Element would be subject to State, County, and Town requirements (in both the 2002 General Plan and Moraga Municipal Code), which include measures to address the risks of post-fire flooding, including compliance with the International, California, and Town of Moraga fire codes. Compliance with the relevant fire codes and Town design standards would ensure risks of alteration or impedance of post-fire flows were minimized to the greatest extent feasible. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HYD-8 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD ALTER DRAINAGE PATTERNS ON OR INCREASE RUNOFF. HOWEVER, NO AREAS OF THE BOLLINGER CANYON STUDY AREA ARE WITHIN A 100-YEAR OR 500-YEAR FLOODPLAIN. NONETHELESS, DEVELOPMENT WOULD BE AT RISK FROM POST-WILDFIRE FLOODING AND WOULD BE REQUIRED TO COMPLY WITH APPLICABLE STATE, COUNTY, AND TOWN REGULATIONS AND 2002 GENERAL PLAN POLICIES TO REDUCE IMPACTS FROM REDIRECTION OF POST-FIRE FLOWS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would include low-density residential development on vacant land on or near hillsides. As shown in Figure 4.9-3, none of the Bollinger Canyon Study Area is within a 100-year or 500-year floodplain. Therefore, development would not impede or redirect flood flows. However, development could occur on or near the sloped hillsides

and could alter drainage patterns or increase runoff, which might redirect post-fire flood flows downslope. As discussed in Impact HYD-7, development facilitated by the Bollinger Canyon Rezoning would be subject to State, County, and Town requirements (in both the 2002 General Plan and Moraga Municipal Code), which include measures to address the risks of post-fire flooding, including compliance with the International, California, and Moraga-Orinda Fire District fire codes (Ordinance No. 20-01). Compliance with the relevant fire codes and Town design standards would ensure risks of alteration or impedance of post-fire flows were minimized to the greatest extent feasible. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 5: Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Housing Element

Impact HYD-9 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN. COMPLIANCE WITH THE BASIN PLAN WOULD BE A REQUIREMENT OF ALL DEVELOPMENT FACILITATED BY THE PLANNING INITIATIVE. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.9.2, *Regulatory Setting*, the Town of Moraga does not overlay a groundwater basin nor does EBMUD (the water supplier for the Town) draw groundwater from the East Bay Plain subbasin and prepared a GSP, which includes six undesirable results. Therefore, development facilitated by the Housing Element would have a less than significant impact on the East Bay Plain GSP.

The San Francisco Region Water Quality Control Plan is the Basin Plan for the Town of Moraga. The Basin Plan describes the beneficial uses of water bodies within or near the Town that may be affected by development facilitated by the Housing Element. These uses are detailed in Table 4.9-1. The Basin Plan maintains the beneficial uses of these water bodies primarily through water quality requirements implemented through the NPDES permit system. Compliance with the Basin Plan would be a requirement of permits issued for development facilitated by the Housing Element. Therefore, the Housing Element would not conflict with or obstruct implementation of the Basin Plan. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact HYD-10 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN. COMPLIANCE WITH THE BASIN PLAN WOULD BE A REQUIREMENT OF ALL DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Impact HYD-9, development facilitated by the Bollinger Canyon Rezoning would be supplied with water by EBMUD and be required to comply with the Basin Plan. The analysis in Impact HYD-9 would apply to development within the Bollinger Canyon Study Area and for the same reasons identified in Impact HYD-9, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.10 Land Use and Planning

This section analyzes the consistency of the Planning Initiative with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect, and identifies environmental effects that would arise from such inconsistencies.

4.10.1 Setting

a. Existing Land Uses

The Town of Moraga is located in the south-central portion of Contra Costa County and consists of 9.54 square miles. The Town is bordered by unincorporated areas of Contra Costa County to the east and west, the City of Orinda and City of Lafayette to the north, and by East Bay Municipal Utility District watershed lands to the south. The Town is characterized by medium- and low-density residential neighborhoods and open space areas. Commercial development is concentrated in the Moraga Center and Rheem Park areas, with some high-density multi-family residential areas south of the Rheem Park commercial district. The Town has designated open space, parks, and recreation areas, along with public and semi-public lands and schools.

Town of Moraga General Plan Land Use Designations

Moraga's General Plan was adopted in 2002 and updated the Town's 1990 General Plan. The intent of the General Plan is to express Moraga's values and goals for future development. The 2002 General Plan includes a Land Use Map identifying the types of uses and densities/intensities of each use permitted in the Plan Area. The map includes five residential designations, two mixed use commercial designations, three parks/open space designations, an institutional designation, and a study area designation.

Moraga Center Area

The Moraga Center area consists of 187 acres located at the intersection of Moraga Road and Moraga Way. The Moraga Center area defines a long-term vision for this area as a community focal point and activity center, specifically defining its role within the town and its relationship to the Rheem Park Area. The area supports a mix of uses, including residential, commercial, community facilities and open space.

Housing locations and densities within the Moraga Center area are intended to achieve the Town's fair share of Regional Housing Need, in keeping with the goals and policies of the existing Housing Element. In 2010, the Town adopted a new Residential R-20 Zoning District that applies to a portion of the Moraga Center area and allows for 20 residential dwelling units per acre or 30 Senior Housing residential dwelling units per acre. In January 2015, after outreach and public engagement, the Town adopted the 2015-2023 Housing Element that continues the 2002 General Plan vision of higher density housing in the Moraga Center area to maximize opportunity for the development of housing to accommodate anticipated growth and meet the State's Regional Housing Needs Allocation (Moraga 2022).

The Moraga Center Specific Plan is implemented through a combination of private and public actions (Moraga 2010). To fully implement the Moraga Center Specific Plan, the Town adopted new ordinances to establish the 10 and 20 dwelling unit per acre residential districts and the new mixed

use district. In addition, the Town is in the process of adopting a density bonus ordinance consistent with state law (Moraga 2020).

Rheem Park Area

The Rheem Park Area is located at Moraga Road and Rheem Boulevard. The area is envisioned to be developed and redeveloped as a community focal point and activity center with a mix of uses including community facilities and residential uses. Undeveloped or underutilized parcels are intended to be the focus of development and redevelopment and areas for potential housing development in order to achieve the Town's fair share of Regional Housing Need. Opportunities for flexible office space, small specialty retail stores, and research and development uses are envisioned for this area. The 2002 General Plan called for undertaking a specific planning process for Rheem Park, coordinated as appropriate with the planning for Moraga Center. However, as of 2022, no Specific Plan has been developed for Rheem Park Area. The Rheem Park Area is currently zoned for commercial and office, open space, medium density residential and planned development uses.

Bollinger Canyon Study Area

The Bollinger Canyon Study Area (Study Area) is located at the northeastern edge of the Moraga Town limits, adjacent to the City of Lafayette to the north and unincorporated Contra Costa County to the east. It is approximately 423 acres in size and includes 20 parcels with 13 different owners. The Study Area has a predominantly rural character and is characterized by open space, agricultural uses, and low-density residential development. Many of the parcels adjacent to the Study Area, including those on the Moraga side (west), Lafayette side (north), and Contra Costa County side (east and north) are very large and undeveloped. There are a few multi-acre lots with single family residences and/or small agricultural buildings located immediately to the east of the Study Area. The entire Study Area is currently designated as Study by the Moraga Zoning Code and Moraga 2002 General Plan.

4.10.2 Regulatory Setting

a. Federal Regulations

There are no federal regulations related to land use or planning that apply to the Planning Initiative.

b. State Regulations

Planning and Zoning Law

State law requires each incorporated city/town and county in California to adopt a general plan for the physical development of the land within its planning area (Government Code Sections 65300-65404). The general plan must contain land use, housing, circulation, open space, conservation, noise, and safety elements, as well as any other elements that the city/town or county may wish to adopt. The circulation element of a local general plan must be correlated with the land use element.

Zoning authority originates from city/town and county police power and from the State's Planning and Zoning Law, which sets minimum requirements for local zoning ordinances. The city/town or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, State

law has required the city/town or county zoning code to be consistent with the jurisdiction's general plan.

Sustainable Communities and Climate Protection Act (SB 375)

The Sustainable Communities and Climate Protection Act (SB 375) supports the State's climate goals by helping reduce greenhouse gas emissions through coordinated transportation, housing, and land use planning. Under SB 375, the California Air Resources Board (CARB) set targets for 2020 and 2035 for each of the 18 metropolitan planning organization regions in 2010 and updated them in 2018. Each of the regions must prepare a Sustainable Communities Strategy (SCS), as an integral part of its regional transportation plan, that contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet CARB's targets. SB 375 establishes some incentives to encourage implementation of the development patterns and strategies included in an SCS. Developers can get relief from certain environmental review requirements under the California Environmental Quality Act (CEQA) if their new residential and mixed-use projects are consistent with a regions SCS that meets the targets (see Public Resources Code Sections 21155, 21155.1, 21155.2, and 21159.28).

c. Regional Regulations

Plan Bay Area 2050 and ABAG Regional Housing Needs Allocation

The Association of Bay Area Governments and the Metropolitan Transportation Commission (ABAG/MTC) adopted Plan Bay Area 2050 in October 2021, which is an integrated transportation and land-use plan for the nine-county San Francisco Bay Area, including Contra Costa County. Plan Bay Area 2050 meets all state and federal requirements for a Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). Plan Bay Area 2050 describes where and how the region can accommodate the additional 1.4 million new households and 1.4 million new jobs projected in the Bay Area by 2050 and details the regional transportation investment strategy over this period. Plan Bay Area 2050 identifies 35 strategies focused on improving housing, the economy, transportation, and the environment across the Bay Area over a 30-year period. Four geographic areas are identified in Plan Bay Area 2050 to guide where future growth in housing and jobs would be focused over the next 30 years: Priority Development Areas (PDA), Priority Production Areas, Transit-Rich Areas, and High-Resource Areas. ABAG and MTC developed land use and transportation scenarios in Plan Bay Area 2050 that distributed the total amount of anticipated growth across the region and evaluated how well each scenario measured against the Plan goals. Based upon performance, the preferred scenario provides a regional pattern of household and employment growth and a corresponding transportation investment strategy.

d. Local Regulations

Town of Moraga 2002 General Plan Land Use Element

The Land Use Element describes the community and neighborhood character of the Town as well as commercial and specific plan land use designations (Moraga 2002). The Land Use and Circulation Elements include the following policies to support cohesive community design and enhance the visual quality of neighborhoods in the Town.

Goal LU-1. A high quality residential environment consisting primarily of detached single-family homes.

Policy LU-1.1. Neighborhood Preservation. Protect existing residential neighborhoods from potential adverse impacts of new residential development and additions to existing structures

Policy LU-1.2. Residential Densities. Restrict residential densities to the maximum allowable indicated on the General Plan Diagram and in the table below [see page 3-1 of the Town of Moraga 2002 General Plan]. The densities indicated are not guaranteed and are contingent upon a review of environmental constraints, the availability of public services and acceptable service levels, proper site planning and the provision of suitable open space and recreational areas consistent with the applicable goals and policies of the General Plan.

Policy LU-1.3. Residential Building Height. Restrict residential building heights to limit visual impacts on adjacent properties and protect views. Residential buildings should not have more than one story or portion thereof directly over another story, inclusive of garages. Exceptions to this rule may be allowed in the specific plan areas.

Policy LU-1.4. Housing Types. Allow only conventional detached single family homes in those residential areas designated on the General Plan Diagram as 3 units per acre or less.

Policy LU-1.5. Development Densities in Open Space Lands. Notwithstanding any other provision of the General Plan, any development on lands depicted on the General Plan Diagram or by the Moraga Open Space Ordinance as “Public Open Space-Study” or “Private Open Space” (now designated as MOSO Open Space in the General Plan Diagram) shall be limited to a maximum density of one (1) dwelling unit per twenty (20), ten (10), or five (5) acres, but in no case shall density on such lands exceed one (1) dwelling unit per five (5) acres. Areas identified as “high risk” areas, as defined by the Moraga Open Space Ordinance, shall be limited to a maximum density of one (1) dwelling per twenty (20) acres

Policy LU-1.6. Development Densities in High Risk MOSO Open Space Lands. After the Town makes a final determination in accordance with the MOSO Guidelines that an area in MOSO Open Space is classified as “high risk” as defined in the Moraga Open Space Ordinance, the area may not be changed from that classification as a result of any physical alteration of the area, including but not limited to any remediation of geologic hazards that may occur on the site in connection with a development project. After a final determination that an area in MOSO Open Space is classified as “high risk,” the maximum permitted density in the area shall be 1 unit per 20 acres and may not be reduced for any reason.

Policy LU-1.7. Grading Allowed in High Risk MOSO Open Space Lands. Within areas in MOSO Open Space classified as high risk, provided the grading complies with all applicable Town regulations, the Town may allow grading to: accommodate development at 1 unit per 20 acres; reasonably accommodate development in other areas adjacent to the high risk area; and protect the community from geological hazards. Grading shall comply with all applicable Town regulations, including permit requirements, and may not be considered as a basis to change the “high risk” classification of the area to allow increased density for future development on the site.

Policy LU-1.8. Minimum Lot Sizes and Percentage Mix for Single Family Developments. Use the following table to establish minimum lot sizes for single family developments. The permitted mix of lot sizes may differ from the percentages indicated, provided the aggregate number of lots proposed does not exceed 100 percent of Theoretical Residential Holding Capacity, as

initially calculated. Developments in areas designated Residential – 6 DUA should refer to Policy LU-1.7. [see page 3-3 of the Town of Moraga 2002 General Plan for table and qualifications].

Policy LU-1.9. Residential - 6 DUA Developments. The Residential - 6 DUA designation provides for developments that are primarily single family in character but may include the use of zero lot line, attached, or duplex units. Townhouse projects with recreational and open space amenities are also appropriate in this designation. Planning for these areas should utilize Planned District Zoning to provide for reasonable common open space and/or recreational areas and facilities.

Policy LU-1.11. Cluster Housing to Protect Open Space. Provide for the permanent preservation of open space by allowing clustered housing designs in areas designated MOSO Open Space or Non-MOSO Open Space or Residential on the General Plan Diagram. However, do not place cluster housing in locations that are visually prominent from the scenic corridor or where it would adversely impact existing residential areas.

Policy LU-1.12. Planned District Zoning. Apply Planned District zoning for all new residential development on parcels in excess of ten (10) acres (with the exception of MOSO Open Space areas) and on parcels designated as Residential - 6 DUA. The Planning Commission may, at its option, require any residential development to be processed by Planned District when issues relating to access, visual impact, geologic hazards, environmental sensitivity, community design and other related factors are deemed to be significant.

Policy LU-1.14. Residual Parcels as Open Space. Except in MOSO Open Space, residual parcels characterized by constraints such as geologic hazards, restricted access, an established riparian habitat, an historically significant feature or visibility from a scenic corridor shall be designated Non-MOSO Open Space. Residual parcels within designated MOSO Open Space shall remain designated MOSO Open Space as required by the Moraga Open Space Ordinance.

Policy LU-1.15. Development on Residual Parcels. Permit the development of residual parcels only when it is found that such development will: 1) not have an adverse visual impact and is compatible with existing development; 2) provide properly sited open space; 3) generally provide for lots that are larger than the average lot size of adjacent subdivisions with setbacks from property lines greater than those in adjacent subdivisions; and 4) respect the natural features and development patterns of surrounding areas.

Goal LU-2. A commercial environment that is compatible with Moraga’s predominantly residential character.

Policy LU-2.1. Commercial Building Height. Restrict heights for office and commercial structures to minimize visual impacts on adjacent properties and protect views. Office and commercial structures shall be limited to two stories or 35 feet, whichever is less, unless such height is found to create a significant adverse impact on neighboring residential properties or on scenic corridors, and in such cases, the maximum height shall be lowered. Exceptions to this rule may be allowed in the specific plan areas for mixed-use development.

Policy LU-2.3. Location of New Commercial Development. Locate new commercial developments in the vicinity of existing commercial areas (as designated on the General Plan Diagram and in the Moraga Center Area and Rheem Park Area Specific Plans), with appropriate review and evaluation of potential traffic impacts to ensure adequate street capacity.

Policy LU-2.5. Traffic Access and Impacts. Provide direct access from major arterials to commercial uses so that traffic generated by the use does not traverse existing residential neighborhoods.

Goal LU-3. Vibrant, attractive, and functional community focal points in and around the Moraga Center and Rheem Park shopping centers that enhance community character and livability.

Policy LU-3.1. Moraga Center Area Specific Plan. Implement the Moraga Center Specific Plan and coordinate as appropriate with the planning for the Rheem Park Area Specific Plan.

Policy LU-3.2. Rheem Park Area Specific Plan. Undertake a specific planning process for the area designated on the General Plan Diagram as the ‘Rheem Park Area Specific Plan,’ coordinated as appropriate with the planning for the Moraga Center Area Specific Plan.

Goal LU-6. Consideration of development of this area is subject to completion of a detailed study and preparation of an area plan by the property owner for the Town’s review and approval to guide development and conservation efforts in the Bollinger Canyon area.

Policy LU-6.1. Bollinger Canyon Study Area. Due to the special character of the Bollinger Canyon area, its unique development issues, and its status as one of the few remaining areas of development potential in the Town, the Bollinger Canyon Area will be the subject of a ‘special study’ conducted by area property owners to document the site’s opportunities and constraints and define a conceptual plan of development consistent with the goals and policies of the Town’s General Plan. This study will focus on that area identified on the General Plan Diagram as ‘Study Area.’ The Action Plan may include:

- An ‘Opportunities and Constraints’ Analysis.
- A Conceptual Development and Conservation Plan
- A General Plan Amendment to Implement the Conceptual Development and Conservation Plan in Town Policies

Town of Moraga Municipal Code

The Moraga Municipal Code establishes regulations that implement the Town’s 2002 General Plan. Title 8 of the Moraga Municipal Code describes zoning standards, including design standards within the Town’s zoning districts, as well as development standards for all uses. The Town’s Zoning Code has 19 zoning districts and the Moraga Ranch Overlay District and the Research and Development Overlay District. The Moraga Ranch Overlay District encourages the preservation of the existing Moraga Ranch site and buildings, while also allowing for reuse, restoration, renovation, improvement, and new development such as office, commercial, and retail uses within the Moraga Center area Commercial District. The Research and Development Overlay District allows research and development facilities within the underlying community commercial district when compatible with the surrounding land uses.

Moraga Municipal Code Chapter 8.128 (Ridgeline Protection) governs ridgeline protection and establishes regulations for development on hillsides and near designated ridgelines. Designated ridgelines are subject to horizontal buffer standards listed in Section 8.128.040. Section 8.128.050 applies to development in hillside areas when development is visible from an affected view corridor and may impact the views of affected ridgeline and the hillsides below.

Moraga Open Space Ordinance

The Moraga Open Space Ordinance (MOSO), adopted by Moraga voters in 1986, prohibits or limits development on or near specific protected ridgelines and on slopes greater than 20 percent. It also establishes criteria for determining allowable development densities in the 'developable' portions of lands designated as 'Open Space – MOSO.' Development is allowed based on site-specific review and analysis, with the potential maximum density ranging between one unit per 5 acres to one unit per 20 acres. In 2018, the Town updated hillside and ridgeline regulations as described above and consistent with MOSO.

4.10.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

The following thresholds are based on *CEQA Guidelines* Appendix G. For purposes of this EIR, impacts related to land use and planning from the Planning Initiative would be significant if implementation of the Planning Initiative would:

1. Physically divide an established community; or
2. 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.

Methodology

Methods for analysis of the Planning Initiative, including Bollinger Canyon Study Area, includes conducting a consistency analysis describing existing regional and local plans and policies and is intended to fulfill the requirements of *CEQA Guidelines* Section 15125(d). The analysis emphasizes the Planning Initiative's potential consistency or conflicts between the Planning Initiative and existing applicable land use plans adopted for the purpose of avoiding or mitigating an environmental effect, and whether any inconsistencies would cause significant environmental effects. A project is considered consistent with the provisions of the identified regional and local plans if it meets the general intent of the applicable plans and does not conflict directly with applicable policies. A given project need not be in perfect conformity with each and every policy nor does state law require precise conformity of a project with every policy or land use designation. Courts have also acknowledged that general and specific plans attempt to balance a range of competing interests, and that it is nearly, if not absolutely, impossible for a project to be in perfect conformity with each and every policy set forth in the applicable plan. Additionally, in reaching such consistency conclusions, the Town may also consider the consequences of denial of a project, which can result in other policy inconsistencies. For example, Government Code Section 65589.5 explains that the potential consequences of limiting the approval of housing can include reduced mobility, urban sprawl, excessive commuting, and air quality deterioration.

For an impact to be considered significant, an inconsistency would have to result in a significant adverse change in the environment not already addressed in the other resource chapters of this environmental impact report (EIR). The analysis below provides a discussion of the most relevant policies from the various planning documents. However, the Town's consistency conclusions are based upon the planning documents as a whole.

b. Impact Analysis

Threshold 1: Would the project physically divide an established community?

Housing Element

Impact LU-1 IMPLEMENTATION OF THE HOUSING ELEMENT WOULD CONTINUE ORDERLY DEVELOPMENT IN THE PLAN AREA AND WOULD NOT PHYSICALLY DIVIDE AN ESTABLISHED COMMUNITY. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Housing Element establishes policies and programs that would allow rezoning to facilitate the development of additional housing at higher densities than are currently allowed in the Town. Rezoning would be in the Rheem Park area and Moraga Center area and would include two types of zoning changes. Some sites would be rezoned to allow for higher density residential development, while others would be rezoned from commercial only to mixed-use zoning designations. These rezones would allow for continued orderly development within Moraga. Development facilitated by the Housing Element would not result in the construction of barriers, such as new roads or other linear development or infrastructure, that would divide the existing communities. Short-term construction impacts would be mostly contained within the Housing Opportunity Sites. As discussed in Section 4.16, *Utilities and Service Systems*, off-site improvements for utilities may be required for some of the Housing Opportunity Sites; however, utility improvements would not result in the construction of new roadways or other intervening infrastructure that might physically divide an established community.

Development facilitated by the Housing Element would not divide a community; rather, it would allow higher-density residential development on underdeveloped or underutilized properties. Vehicle and pedestrian access to existing development in the Town would not be impacted by the Housing Element, as development would occur within the Housing Opportunity Sites. The Planning Initiative would not necessitate or create barriers which would divide an existing community. Additionally, development facilitated by the Housing Element would continue establish development patterns by focusing on rezoning of underdeveloped or underutilized properties. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact LU-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD CONTINUE ORDERLY DEVELOPMENT IN THE PLAN AREA AND WOULD NOT PHYSICALLY DIVIDE AN ESTABLISHED COMMUNITY. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Bollinger Canyon Rezoning would include a rezone of three districts. The current land uses on parcels in Bollinger Canyon include single-family residential and open space. Under the proposed rezone, the Planning Initiative would permit a density of 1 dwelling unit per 1 acre (on nine parcels totaling 17 acres) or 5 acres (on seven parcels totaling 270 acres) and would not divide any of the existing low density residential development in Bollinger Canyon. Development facilitated by the Bollinger Canyon rezone would not result in the construction of barriers that would divide the existing residences surrounding the sites. New roads would likely be constructed but would not divide a community. Short-term construction impacts would be mostly contained within the parcels but off-site improvements for utilities may be required for some of the Bollinger Canyon Study Area (refer to Section 4.16, *Utilities and Service Systems*). However, these utility improvements would not result in the construction of new roadways or other intervening infrastructure that might physically divide an established community.

The new zoning designations within the Bollinger Canyon Study Area would ensure orderly development consistent with the existing low density character of the community. Development of the Bollinger Canyon Study Area would not necessitate or create barriers which would divide an existing community. Additionally, future development would maintain the rural character of the Bollinger Canyon Study Area by ensuring a low density land use pattern and conservation of open space. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Housing Element

Impact LU-3 THE HOUSING ELEMENT WOULD NOT RESULT IN A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO A CONFLICT WITH PLAN BAY AREA 2050 OR THE MORAGA 2002 GENERAL PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Several regionally and locally adopted land use plans, policies, and regulations apply to the Housing Element. These include Plan Bay Area 2050 (ABAG/MTC 2021) and Bay Area Air Quality Management District's (BAAQMD) 2017 Clean Air Plan (BAAQMD 2017). Consistency of the Planning Initiative with the 2017 Clean Air Plan are discussed under Impact AQ-1 of Section 4.2, *Air Quality*. Impact GHG-2 of Section 4.5, *Greenhouse Gas Emissions*, which address the 2002 General Plan and

Housing Element’s consistency with greenhouse gas emissions goals in the Plan Bay Area 2050. Consistency with the land use goals listed in Plan Bay Area 2050 is detailed below on Table 4.10-1.

Table 4.10-1 Housing Element Consistency with Plan Bay Area 2050 Goals

Plan Bay Area Goals	Planning Initiative Consistency
Housing Strategies	
<p>H2. Preserve existing affordable housing. Acquire homes currently affordable to low and middle-income residents for preservation as permanently deed-restricted affordable housing.</p>	<p>Consistent. There are no existing deed-restricted affordable housing units in Moraga that are at risk of converting to market rates. However, the Housing Element Update includes several programs intended to preserve affordable housing in Moraga, including Program 11 which seeks to facilitate access to Federal, State, county, and local financial assistance for affordable housing in Moraga. Program 24 would increase awareness of Contra Costa County’s Neighborhood Preservation Program, which provides loans to low- and moderate-income persons to improve their residences by correcting health and safety problems and improving livability. The Town would continue to participate in these programs under the Housing Element.</p>
<p>H3. Allow a greater mix of housing densities and types in Growth Geographies. Allow a variety of housing types at a range of densities to be built in Priority Development Areas, select Transit-Rich Areas and Select High-Resource Areas.</p>	<p>Consistent. In accordance with Goal 2 of the Housing Element Update, the Town would facilitate a variety of housing types and affordability levels to help meet the Town’s RHNA. Furthermore, Policy H3.4 seeks to support the provision of affordable housing in areas that provide access to opportunity, including by encouraging inclusionary housing, Accessory Dwelling Units (ADUs), and room rentals in existing and new single family and multifamily communities. Policy H3.5 fosters the development of affordable housing in areas with services, high-quality schools, and other resources.</p>
<p>H4. Build adequate affordable housing to ensure homes for all. Construct enough deed-restricted affordable homes to fill the existing gap in housing for the unhoused community and to meet the needs of low-income households.</p>	<p>Consistent. The Housing Element would include rezoning of the Moraga Center area and Rheem Park Areas, which includes rezoning to allow for higher density residential development and rezoning from commercial only to mixed-use zoning designations. Proposed zoning changes in the Rheem Park Area would rezone some of the commercial parcels to mixed-use to permit residential development and to satisfy the California Department of Housing and Community Development’s Affirmatively Further Fair Housing requirements. Proposed zoning changes in the Moraga Center would include increasing the maximum allowable densities on sites where multi-family uses are currently permitted, as required by State law, and making multi-family residential a permitted use in areas where it is currently not permitted. Furthermore, the Housing Element includes proposed Policies H6.7, H6.8, and H6.9 which would allow emergency shelters, support transitional and extremely low-income households.</p>
<p>H6. Transform aging malls and office parks into neighborhoods. Permit and promote the reuse of shopping malls and office parks with limited commercial viability as neighborhoods with housing for residents at all income levels.</p>	<p>Consistent. Housing Element Policy H1.4 includes working with property-owners in the Moraga Center and Rheem Park commercial districts to support and proactively encourage the development of housing on vacant and underutilized sites. This includes implementation of the Moraga Center Specific Plan as well as additional plans and programs to rezone existing commercial uses to mixed use, to make housing for residents at all income levels more viable in both the Moraga Center area and Rheem Park area.</p>

Plan Bay Area Goals	Planning Initiative Consistency
<p>H7. Provide targeted mortgage, rental and small business assistance to Equity Priority Communities. Provide assistance to low-income communities and communities of color to address the legacy of exclusion and predatory lending, while helping to grow locally owned businesses.</p>	<p>Consistent. The Town would promote equal housing opportunities within Moraga under Goal 7 of the Housing Element Update. The goal includes Program 42 which would affirmatively further fair housing by addressing disparities in the housing needs for all persons regardless of race, color, religion, sex, gender, sexual orientation, marital status, national origin, ancestry, familial status, source of income, or disability and any other characteristic protected by the California Fair Employment and Housing Act. The Town would encourage and facilitate participation by property owners in federal for-sale and rental housing assistance programs that maintain affordability for very low- and low-income residents under Policy H2.8.</p>
<p>H8. Accelerate reuse of public and community-owned land for mixed-income housing and essential services. Help public agencies, community land trusts and other non-profit landowners accelerate the development of mixed-income affordable housing.</p>	<p>Consistent. Policy H4.1 of the Housing Element Update seeks to “improve clarity and reduce ambiguities in the Zoning Ordinance, and streamline and simplify review procedures, particularly for small lots and infill projects that are served by existing infrastructure.” Additionally, the Town would partner with St. Mary’s College, the School District, affordable housing developers and others to “develop approaches for meeting local housing needs and to identify and facilitate the development of housing affordable to all income levels” under Policy H2.9. The Housing Element does not specifically include programs to reuse public or community owned land for mixed-income housing. However, future development would be streamlined through Policy H4.1 and new approaches for meeting local housing needs under Policy H2.9 are included in the Housing Element, which could help facilitate implementation of this goal.</p>

Source: ABAG/MTC 2021

The 2002 General Plan Land Use Element identifies goals, objectives, and policies for the location and intensity of growth in the town (Moraga 2002). The Growth Management Element also addresses traffic congestion/level of service; however, this applies only at the project level and is not evaluated further in this EIR. Detail regarding the Housing Element’s consistency with specific, relevant General Plan goals, objectives, and policies that avoid or mitigate an environmental effect is provided in Table 4.10-2.

Table 4.10-2 Housing Element Consistency with the 2002 General Plan

Town of Moraga 2002 General Plan Policies	Planning Initiative Consistency
Land Use Element	
<p>LU1.5. Development Densities in Open Space Lands. Notwithstanding any other provision of the General Plan, any development on lands depicted on the General Plan Diagram or by the Moraga Open Space Ordinance as “Public Open Space-Study” or “Private Open Space” (now designated as MOSO Open Space in the General Plan Diagram) shall be limited to a maximum density of one (1) dwelling unit per twenty (20), ten (10), or five (5) acres, but in no case shall density on such lands exceed one (1) dwelling unit per five (5) acres. Areas identified as “high risk” areas, as defined by the Moraga Open Space Ordinance, shall be limited to a maximum density of one (1) dwelling per twenty (20) acres.</p>	<p>Consistent. The Housing Element does not involve zoning or General Plan Land Use Map amendments that would change an open space designation to a development designation. Consistent with Moraga’s General Plan, the Housing Element would direct most residential growth to infill sites and sites in commercial areas that are already urbanized.</p>

Town of Moraga 2002 General Plan Policies	Planning Initiative Consistency
<p>LU3.1. Moraga Center Area Specific Plan. Implement the Moraga Center Area Specific Plan and coordinate as appropriate with the planning for the Rheem Park Area Specific Plan.</p>	<p>Consistent. One of the main goals of the Moraga Center Specific Plan is to achieve the Town’s fair share of Regional Housing Need through housing locations and densities within the Moraga Center area. The Housing Element would consider several of the Moraga Center mixed-use sites as Housing Opportunity Sites. The Moraga Center Specific Plan used a buildout range of 510-630 units for CEQA analysis and planning purposes. The Housing Element would include increasing the maximum allowable densities on sites where multi-family uses are currently permitted.</p>
<p>LU5.2. Preservation of Agricultural Resources. Strive to preserve the Town’s remaining agricultural resources, such as pear and walnut orchards.</p>	<p>Consistent. Although several of the Town’s development sites are on former orchards, no active agricultural lands would be rezoned. In addition, tree removal requirements are not expected to be a constraint. Preservation of individual trees could be incorporated in future development plans, but the orchards are generally inactive and not in active agricultural use.</p>
Conservation Element	
<p>CD1.1. Location of New Development. To the extent possible, concentrate new development in areas that are least sensitive in terms of environmental and visual resources, including: a) Areas of flat or gently sloping topography outside of flood plain or natural drainage areas. b) The Moraga Center area and Rheem Park area. c) Infill parcels in areas of existing development.</p>	<p>Consistent. Most of the Housing Opportunity Sites are located on underutilized and underdeveloped sites in the more urbanized areas of Moraga and therefore would largely avoid development in wooded and open ridges and hillsides. Additionally, the Housing Element’s goals and objectives aim to maintain the dominance of wooded and open ridges and hillsides.</p>
<p>CD1.2. Site Planning, Building Design and Landscaping. Retain natural topographic features and scenic qualities through sensitive site planning, architectural design and landscaping. Design buildings and other improvements to retain a low visual profile and provide dense landscaping to blend structures with the natural setting.</p>	<p>Consistent. The Housing Element would preserve natural topographic features and scenic areas within the town by protecting open space within the area, such as Harvey Ranch, and directing development to more urbanized areas. Development under the project would be required to comply with Town policies and regulations that ensure sensitive site planning, design and landscaping, as discussed in Section 4.1, <i>Aesthetics</i>.</p>
<p>CD1.3. View Protection. Protect important elements of the natural setting to maintain the Town’s semi-rural character. Give particular attention to viewsheds along the Town’s scenic corridors, protecting ridgelines, hillside areas, mature native tree groupings, and other significant natural features. Consideration should be given to views both from within the Town and from adjacent jurisdictions. Likewise, the Town should work with adjacent jurisdictions to protect views from Moraga to adjacent areas.</p>	<p>Consistent. The Housing Element would preserve natural topographic features and scenic areas within the town by protecting open space within the area, such as Harvey Ranch. Development under the project would be required to comply with Town policies and regulations that ensure sensitive site planning, design and landscaping, as discussed in Section 4.1, <i>Aesthetics</i>.</p>

Town of Moraga 2002 General Plan Policies	Planning Initiative Consistency
<p>CD1.5. Ridgelines and Hillside Areas. Protect ridgelines from development. In hillside areas, require new developments to conform to the site’s natural setting, retaining the character of existing landforms preserving significant native vegetation and with respect to ridgelines, encourage location of building sites so that visual impacts are minimized. When grading land with an average slope of 20% or more, require ‘natural contour’ grading to minimize soil displacement and use of retainer walls. Design buildings and other improvements in accordance with the natural setting, maintaining a low profile and providing dense native landscaping to blend hillside structures with the natural setting.</p>	<p>Consistent. The Town of Moraga Hillside Development regulations include requirements for hillside development permits, as discussed in Section 4.1, <i>Aesthetics</i>. Some of the lower density housing sites are located on hillsides; however, these would be subject to special requirements for roads, building sites, landslide mitigation, and grading pursuant to the Moraga Municipal Code. New development facilitated by the project would be subject to these special requirements.</p>
<p>CD6.3. Pedestrian Orientation. Create a safe, inviting and functional pedestrian environment in commercial areas, with interconnected walkways; pedestrian amenities (e.g., seating, lighting, signage, landscaping); plaza areas; and outdoor café spaces. Where pedestrian paths cross parking areas or vehicle lanes, give clear priority to pedestrians through pavement markings, differentiation in the pavement surface, and signage.</p>	<p>Consistent. The Housing Element would encourage pedestrian-friendly areas with a mix of retail, office, and housing uses. For example, the Moraga Center would include increased residential densities and would allow for mixed-use development along Moraga Road and Moraga Way.</p>
<p>CD6.5. Moraga Center Area. Allow Development within the Moraga Center Area consistent with the Moraga Center Specific Plan.</p>	<p>Consistent. The Housing Element would designate several of the Moraga Center Specific Plan mixed-use sites as Housing Opportunity Sites.</p>
<p>CD7.2. Historic Preservation. Promote the preservation and conservation of historic buildings and sites, providing incentives as appropriate for their retention and rehabilitation.</p>	<p>Consistent. No known historic buildings would be affected by the Housing Element, as discussed in Section 4.4, <i>Cultural Resources</i>.</p>
<p>Open Space Element</p>	
<p>OS2.2. Preservation of Riparian Environments. Preserve creeks, streams and other waterways in their natural state whenever possible.</p>	<p>Consistent. Sites with potential biological resources may be subject to requirements for site-specific surveys, and mitigation measures relating to timing and method of construction and grading activities. The Housing Element would not direct development towards creek corridors.</p>
<p>OS2.8. Tree Preservation. Preserve and protect trees wherever they are located in the community as they contribute to the beauty and environmental quality of the Town</p>	<p>Consistent. As described in Section 4.3, <i>Biological Resources</i>, the Town has adopted tree preservation requirements (Moraga Municipal Code Chapter 12.12). These requirements apply to private property as well as public rights of way. Special requirements have been developed for native trees, orchards, and trees of historic significance, with the latter group individually recognized through designation by the Town Council. A permit is required to remove native trees above a certain size, orchard trees, and trees of historic significance. For subdivisions and larger-scale developments, applicants are required to include provisions to protect trees, particularly where construction may encroach into the dripline. Arborist reports may be requested to develop tree protection measures or justify tree removal. Any trees to be removed must be identified on applications and are subject to review by the Planning Director.</p>

As shown in Table 4.10-2, the goals, policies, and standards of the Housing Element would be generally consistent with the 2002 General Plan. In addition, the Housing Element would not cause a significant environmental impact due to a conflict with an applicable land use plan, policy or regulation. Furthermore, the Housing Element would not result in inconsistencies with Plan Bay Area 2050 or the 2017 Clean Air Plan, and therefore would not result in 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. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact LU-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO A CONFLICT WITH PLAN BAY AREA 2050 OR THE MORAGA 2002 GENERAL PLAN. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The Bollinger Canyon Study Area’s consistency with regionally and locally adopted land use plans, policies, and regulations would generally be similar to those discussed under Impact LU-3 and shown in Table 4.10-1. These include Plan Bay Area 2050 (ABAG/MTC 2021) and BAAQMD’s 2017 Clean Air Plan (BAAQMD 2017). The Bollinger Canyon Study Area rezone’s consistency with the 2017 Clean Air Plan is discussed under Impact AQ-1 of Section 4.2, *Air Quality*. Impact GHG-2 of Section 4.5, *Greenhouse Gas Emissions*, which address the Planning Initiative’s consistency with greenhouse gas emissions goals in Plan Bay Area 2050. The Bollinger Canyon Study Area rezone’s consistency with land use goals in the Moraga 2002 General Plan is detailed below in Table 4.10-3. There are several policies from the 2002 General Plan that would not apply to the Bollinger Canyon Study Area and are not discussed in Impact LU-3. Detail regarding the Bollinger Canyon Study Area rezone’s consistency with specific, relevant General Plan goals, objectives, and policies that avoid or mitigate an environmental effect is provided in Table 4.10-3.

Table 4.10-3 Bollinger Canyon Rezoning Consistency with the 2002 General Plan

Town of Moraga 2002 General Plan Policies	Planning Initiative Consistency
Land Use Element	
<p>LU1.5. Development Densities in Open Space Lands. Notwithstanding any other provision of the General Plan, any development on lands depicted on the General Plan Diagram or by the Moraga Open Space Ordinance as “Public Open Space-Study” or “Private Open Space” (now designated as MOSO Open Space in the General Plan Diagram) shall be limited to a maximum density of one (1) dwelling unit per twenty (20), ten (10), or five (5) acres, but in no case shall density on such lands exceed one (1) dwelling unit per five (5) acres. Areas identified as “high risk” areas, as defined by the Moraga Open Space Ordinance, shall be limited to a maximum density of one (1) dwelling per twenty (20) acres.</p>	<p>Consistent.</p>

Town of Moraga 2002 General Plan Policies	Planning Initiative Consistency
<p>LU1.10. Slope Restrictions. The soil characteristics in Moraga are prone to landslide conditions which can cause damage to property, injury to persons, public cost and inconvenience; therefore, development shall be avoided on slopes of 20 percent or steeper, but may be permitted if supported by site-specific analysis. No new residential structures may be placed on after-graded average slopes of 25 percent or steeper within the development area, except that this provision shall not apply to new residential structures on existing lots that were either legally created after March 1, 1951 or specifically approved by the Town Council after April 15, 2002. All new non-MOSO lots shall contain an appropriate development area with an average after-graded slope of less than 25%. Grading on any non-MOSO land with an average predevelopment slope of 25% or more within the proposed development area shall be prohibited unless formally approved by the Town Council where it can be supported by site-specific analysis and shown that a minimum amount of grading is proposed in the spirit of and not incompatible with all other policies of the General Plan. Under the terms of the Moraga Open Space Ordinance, development is prohibited on slopes greater than 20 percent in areas designated MOSO Open Space. The Zoning Ordinance, Chapter 8.52 (Open Space District) of the Moraga Municipal Code, defines the methodology for MOSO Open Space designation.</p>	<p>Consistent. The existing average slope in the Bollinger Canyon Study Area is less than 20 percent, however, some slopes in the area are over 25 percent. No residential structures would be placed on after-graded slopes steeper than 20 percent. In addition, future development within Bollinger Canyon that is located on slopes of 20 percent or more would be subject to Moraga Municipal Code Section 14.48.011 which states that where excavations on steeper slopes are unavoidable, a geotechnical study or engineering geology report shall be required.</p>
<p>LU1.11. Cluster Housing to Protect Open Space. Provide for the permanent preservation of open space by allowing clustered housing designs in areas designated MOSO Open Space or Non-MOSO Open Space or Residential on the General Plan Diagram. However, do not place cluster housing in locations that are visually prominent from the scenic corridor or where it would adversely impact existing residential areas.</p>	<p>Consistent. The Rural Residential zoning districts would allow for density to be clustered or transferred, achieving a higher density in a defined area but with the same total number of units. In addition, new structures would not be visually prominent from Scenic Corridors, or from existing residential areas, as discussed in Section 4.1, <i>Aesthetics</i>.</p>
<p>LU1.14. Residual Parcels as Open Space. Except in MOSO Open Space, residual parcels characterized by constraints such as geologic hazards, restricted access, an established riparian habitat, an historically significant feature or visibility from a scenic corridor shall be designated Non-MOSO Open Space. Residual parcels within designated MOSO Open Space shall remain designated MOSO Open Space as required by the Moraga Open Space Ordinance.</p>	<p>Consistent. In the Bollinger Canyon Study Area, residual parcels would be designated as N-OS. The N-OS zoning designation allows for residential uses as a conditionally permitted use; however, no development potential is presumed on these parcels since they are being acquired by the John Muir Land Trust for conservation purposes.</p>
<p>LU5.2. Preservation of Agricultural Resources. Strive to preserve the Town's remaining agricultural resources, such as pear and walnut orchards.</p>	<p>Consistent. There are no orchards in the Bollinger Canyon Study Area. Agricultural resources in the Study Area are limited to seasonal grazing and vineyards, which would be permitted under the proposed designations.</p>

Town of Moraga 2002 General Plan Policies	Planning Initiative Consistency
<p>LU6.1. Bollinger Canyon Study Area. Due to the special character of the Bollinger Canyon area, its unique development issues, and its status as one of the few remaining areas of development potential in the Town, the Bollinger Canyon Area will be the subject of a ‘special study’ conducted by area property owners to document the site’s opportunities and constraints and define a conceptual plan of development consistent with the goals and policies of the Town’s General Plan. This study will focus on that area identified on the General Plan Diagram as ‘Study Area.’ The Action Plan may include:</p> <ul style="list-style-type: none"> ▪ An ‘Opportunities and Constraints’ Analysis. ▪ A Conceptual Development and Conservation Plan ▪ A General Plan Amendment to Implement the Conceptual Development and Conservation Plan in Town Policies 	<p>Consistent. The Bollinger Canyon Rezoning includes a study of the Bollinger Canyon Study Area and would provide land use and zoning designations for the area, consistent with this policy.</p>
Conservation Element	
<p>CD1.1. Location of New Development. To the extent possible, concentrate new development in areas that are least sensitive in terms of environmental and visual resources, including: a) Areas of flat or gently sloping topography outside of flood plain or natural drainage areas. b) The Moraga Center area and Rheem Park area. c) Infill parcels in areas of existing development.</p>	<p>Consistent. As discussed in Section 4.1, <i>Aesthetics</i>, development facilitated by the Bollinger Canyon Rezoning would not alter the existing visual resources of the Town. However, the Study Area has potential for sensitive habitats and species which would be affected by the proposed rezone and increased density, as discussed further in Section 4.3, <i>Biological Resources</i>. Impacts to biological resources are avoided to the extent feasible with mitigation. All other potential impacts associated with development in the Bollinger Canyon Study Area have been considered in this EIR and would require mitigation when necessary.</p>

As shown in Table 4.10-3, the goals, policies, and standards of the Bollinger Canyon Study Area would be consistent with the 2002 General Plan and where new development is proposed by the Bollinger Canyon Rezoning. Therefore, impacts would be less than significant related to inconsistencies with the 2002 General Plan and therefore would not result in 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. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.11 Noise

This section analyzes noise-related impacts associated with development facilitated by the Planning Initiative, including temporary noise impacts from construction activity and long-term noise impacts from operation.

4.11.1 Setting

a. Overview of Noise and Vibration

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Human Perception of Sound

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Caltrans 2013).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (10.5 times the sound energy) (Caltrans 2013).

Sound Propagation and Shielding

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in the noise level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line), the path the sound will travel, site conditions, and obstructions.

Sound levels are described as either a “sound power level” or a “sound pressure level,” which are two distinct characteristics of sound. Both share the same unit of measurement, the dB. However, sound power (expressed as L_{pw}) is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers, such as an eardrum or microphone, which is the sound pressure level. Sound measurement instruments only measure sound pressure, and noise level limits are typically expressed as sound pressure levels.

Noise levels from a point source (e.g., construction, industrial machinery, air conditioning units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, and man-made features, such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA’s guidance indicates that modern building construction generally provides an exterior-to-interior noise level reduction of 10 dBA with open windows and an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011).

Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}), and the Day-Night Average Level (DNL; may also be symbolized as L_{dn}).

L_{eq} is one of the most frequently used noise metrics; it considers both duration and sound power level. The L_{eq} is defined as the single steady-state A-weighted sound level equal to the average sound energy over a period. When no period is specified, a 1-hour period is assumed. The L_{max} is the highest noise level within the sampling period, and the L_{min} is the lowest noise level within the measuring period. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (DNL or L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).¹ The relationship between the peak-hour L_{eq} value and the L_{dn} depends on the distribution of noise during the day, evening, and night. Quiet suburban areas typically have L_{dn} noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60+ dBA L_{dn} range (FTA 2018).

Groundborne Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as groundborne noise), and may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants at vibration-sensitive land uses and may cause structural damage.

¹ Because DNL is typically used to assess human exposure to noise, the use of A-weighted sound pressure level (dBA) is implicit. Therefore, when expressing noise levels in terms of DNL, the dBA unit is not included.

Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV). The PPV is normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used as it corresponds to the stresses that are experienced by buildings (Caltrans 2020).

High levels of groundborne vibration may cause damage to nearby building or structures; at lower levels, groundborne vibration may cause minor cosmetic (i.e., non-structural damage) such as cracks. These vibration levels are nearly exclusively associated with high impact activities such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation. The Federal Transit Administration (FTA) has determined vibration levels with potential to damage nearby buildings and structures; these levels are identified in Table 4.11-1.

Table 4.11-1 Criteria for Vibration Damage Potential

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Nonengineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

in/sec = inches per second; PPV = peak particle velocity
 Source: FTA 2018

4.11.2 Noise Setting

Existing Noise Conditions and Sources

Traffic is the primary source of continuous noise in the Town. Rheem Boulevard, Moraga Way, Moraga Road, and St. Mary’s Road are the primary roadways that contribute to ambient noise in Moraga. Stationary sources of noise within Moraga include noise generated by residential activity and machinery or processes at commercial uses. A primary source of stationary noise at these uses is the use of heating, ventilation, and air conditioning (HVAC) units.

There are no railroads within Moraga. The nearest railroads are Bay Area Rapid Transit (BART) stations in the cities of Lafayette and Orinda, approximately 2 and 3 miles from the Town, respectively. Therefore, the railroad does not contribute to ambient noise in Moraga.

There are no airports within Moraga. The closest airports to the town are Oakland International Airport, approximately 10 miles southwest of the Town, and Buchanan Field Airport in Concord, approximately 11 miles northeast of the Town. Noise contours included in the Oakland International Airport Master Plan or Contra Costa Airport Land Use Compatibility Plan do not extend into Moraga (Port of Oakland 2006; Contra Costa County 2000). Therefore, airport noise does not contribute to ambient noise in Moraga.

Sources of vibration in the Town include heavy truck traffic. Like vehicle noise, vehicular vibration can affect receivers along roadways depending on pavement and type and weight of the vehicle. In addition, commercial activities may generate vibration from the use of heavy equipment. Construction equipment, such as pile drivers and bulldozers can create temporary vibration.

Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise-sensitive land uses are those that may be subject to stress and/or interference from excessive noise. Noise-sensitive land uses include residential uses, public schools, hospitals, and institutional uses such as churches, museums, and private schools. Vibration sensitive receivers are similar to noise-sensitive receivers and also include historical and fragile buildings.

Potential sensitive receivers that may be impacted by development facilitated by the Planning Initiative would primarily be residential uses, schools, and churches located near the Moraga Center area or Rheem Park area. In particular, development facilitated by the Planning Initiative would be on underutilized and vacant parcels in already developed areas, such as the Moraga Center area and Rheem Park area, which may include sensitive receivers. Potential sensitive receivers include schools such as Lamorinda Montessori, Saklan School, Creative Montessori Preschool, and The Child Day Schools and Willow Spring Church. The Planning Initiative would add vehicle trips to area roadways adjacent to residential districts. Sensitive receivers in the Bollinger Canyon Study Area would be limited to existing residences in the northwestern portion of the Bollinger Canyon Study Area and the adjacent Bluffs neighborhood.

4.11.3 Regulatory Setting

a. Federal Regulations

There are no federal noise requirements or regulations that apply directly to development facilitated by the Planning Initiative. However, there are federal regulations that influence the audible landscape, especially for projects where federal funding is involved. For example, the Federal Highway Administration requires abatement of highway traffic noise for highway projects through rules in the Code of Federal Regulations (23 CFR Part 772). Each agency recommends thorough noise and vibration assessments through comprehensive guidelines for highway, mass transit, or high-speed railroad projects that would pass by residential areas.

b. State Regulations

California Building Code

California Code of Regulations Title 24, Building Standards Administrative Code, Part 2, Chapter 12, and the California Building Code codify the State noise insulation standards. These noise standards apply to new construction in California to control interior noise levels as they are affected by exterior noise sources and interior noise sources from separate areas. The regulations specify that interior noise levels shall not exceed 45 dB L_{dn} in any habitable room, as well as specifying sound transmission class requirements for walls, floors, and ceilings around bedrooms.

California Green Building Code

California Green Building Standards Code 2019 (CalGreen) Section 5.507.4, Acoustical Control, regulates construction within the 65 dBA L_{dn} contour of an airport, freeway, expressway, railroad, industrial noise source, or other fixed source. According to Section 5.507.4.1.1 “buildings exposed to a noise level of 65 dB $L_{eq}(1-hr)$ during any hour of operation shall employ sound-resistant assemblies as determined by a prescriptive method (CalGreen Section 5.507.4.1) or performance method (CalGreen Section 5.507.4.2).

- Projects may demonstrate compliance through the prescriptive method if wall and roof-ceiling assemblies exposed to the noise source shall meet a composite Sound Transmission Class rating of at least 50 or a composite Outdoor-Indoor Transmission Class rating of no less than 40, with exterior windows of a minimum Sound Transmission Class of 40 or Outdoor-Indoor Transmission Class of 30.
- Projects may demonstrate compliance through the performance method if wall and roof-ceiling assemblies exposed to the noise source shall be constructed to provide an interior noise environment that does not exceed 50 dB L_{eq} -1-hour in occupied areas during hours of operations.

California General Plan Guidelines

State law requires general plans to include a Noise Element under Government Code Section 65302(f). The California General Plan Guidelines, published by the Governor's Office of Planning and Research, indicate acceptable, specific land use types in areas with specific noise exposure. The guidelines also offer adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. These guidelines are advisory, and local jurisdictions have the authority to set specific noise standards based on local conditions.

c. Local Regulations

Town of Moraga General Plan

The Town of Moraga 2002 General Plan Open Space Element includes policies to support the Goal of "a peaceful and tranquil community (Town of Moraga 2002)." Policies relevant to the project include the following:

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

Policy 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 safety

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

Policy 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.

Policy 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.

Policy 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 adverse effect.

Policy 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

Policy 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.

Implementing Program IP-C1, Development Review, encourages development proposals to consider acceptable noise levels and “discourage the siting of residences adjacent to major arterials unless noise can be reduced to acceptable levels, consistent with State law. Encourage designs that orient sensitive portions of buildings away from noise sources, utilize the natural terrain to screen structures from major arterials or other noise sources, and use appropriate design techniques to reduce adverse noise impacts (Town of Moraga 2022).”

Implementing Program IP-K7, Bollinger Canyon Special Study, encourages the study to analyze environmental quality, including noise.

The 2002 General Plan EIR recommends the suggested criteria for evaluating land use compatibility provided in the State of California's *Guidelines for the Preparation and Content of the Noise Element of the General Plan* should be used in determining compatibility of new proposed projects with existing or planned uses on surrounding sites. The State's Guidelines also establish an interior noise level criterion of 45 dB L_{dn} /CNEL. The intent of this standard is to provide a suitable environment for communication and sleep. The maximum normally acceptable community noise exposure for low density residential is 60 dBA (Town of Moraga 2008).

Town of Moraga Municipal Code

Chapter 7.12, Noise Control, of Moraga's Municipal Code governs noise in the Town. Chapter 7.12.010 declares that it is the Town's policy to prohibit unnecessary, excessive and annoying noises from all sources since certain noise levels are detrimental to the health and welfare of the Town's citizens. Moraga Municipal Code Chapter 7.12.060 dictates that it is unlawful for a person to create noise that unreasonably interferes with the workings of or disturbs or unduly annoys a person within a school, hospital, or church. Chapter 7.12.080 states that it is unlawful for a person to operate machinery that disturbs the peace, quiet, and comfort of neighboring residents. Article 3, Chapter 7.12.090 mandates construction shall not occur within 500 feet of a residential zone during the hours of 5:00 p.m. and 8:00 a.m. in such a manner that a reasonable person residing in the area is discomforted or annoyed.

Chapter 7.12.130 establishes standards for determining a noise violation. Those standards include:

- The level of the noise;
- The intensity of the noise;
- Whether the nature of the noise is usual or unusual;
- Whether the origin of the noise is natural or unnatural;
- The level and intensity of the background noise, if any;
- The proximity of the noise to residential sleeping facilities;
- The nature and zoning of the area within which the noise emanates;
- The density of the inhabitation of the area within which the noise emanates;
- The time of the day or night the noise occurs;
- The duration of the noise;
- Whether the noise is recurrent, intermittent or constant; and

- Whether the noise is produced by a commercial or noncommercial activity.

4.11.4 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, noise and vibration impacts from development facilitated by the Planning Initiative would be significant if the development would:

1. Generate 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;
2. Generate excessive groundborne vibration or groundborne noise levels; or
3. 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, expose people residing or working in the project area to excessive noise levels.

Threshold 3 is addressed in Section 4.18, *Effects Found Not to Be Significant*. As described therein, there are no airports or private airstrips within Moraga.

Construction Noise

This section estimates construction noise from development facilitated by the Planning Initiative based on reference noise levels for various pieces of construction equipment reported by the FTA's *Noise and Vibration Impact Assessment* (2018). It is conservatively assumed that construction equipment typically operates as close as 25 feet from the nearest noise-sensitive receivers. Construction noise level estimates do not account for the presence of intervening structures or topography, which could reduce noise levels at receiver locations. New development facilitated by the Planning Initiative would have a significant impact if temporary construction noise during permitted daytime hours could expose noise-sensitive receptors to significantly adverse noise levels, or if construction noise occurs outside the hours detailed in Moraga Municipal Code Chapter 7.12.

As the Town does not define a quantitative construction noise threshold, for purposes of analyzing impacts from the Planning Initiative, the Town has determined that the FTA construction criteria are applicable to development facilitated by the Planning Initiative. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction in their *Transit and Noise Vibration Impact Assessment Manual* (FTA 2018). For residential uses, the daytime noise threshold for an 8-hour period is 80 dBA L_{eq} . Construction noise would be significant if it exceeds this threshold.

Operational Traffic Noise

For traffic-related noise, impacts would be significant if the Planning Initiative would result in exposure of sensitive receptors to an unacceptable increase in noise levels. As described under *Overview of Noise and Vibration* above, a doubling of sound power (increase of 3 dBA) is considered 'barely perceptible' to the human ear, while an increase of 5 dBA is considered 'readily perceptible.' For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by the stricter limit of 3 dBA CNEL or more

(barely perceptible), since the existing noise levels surrounding the Moraga Center area, Rheem Park area, or Bollinger Canyon Study Area are near sensitive receivers (residential areas).

Operational Stationary Source Noise

The Town does not have quantified limits in the Municipal Code for stationary noise sources such as HVAC and other mechanical equipment. For the purpose of this analysis, criteria from the U.S. Environmental Protection Agency (USEPA) are used to determine the significance of operational stationary source impacts (USEPA 1974). At residential and other noise-sensitive land uses, a daytime limit of 60 dBA L_{eq} to prevent potential speech interference is used. For nighttime noise at residential properties, an exterior limit of 50 dBA L_{eq} is used. Based on available sleep criteria data, an interior nighttime level of 35 dBA is considered acceptable (USEPA 1974). Assuming a 15 dBA reduction with windows open, an exterior noise level of 50 dBA L_{eq} would be required to maintain an acceptable interior noise environment of 35 dBA L_{eq} .

Vibration

The Town has not adopted a significance threshold to assess vibration impacts during construction and operation. Therefore, the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) was used to evaluate potential construction vibration impacts related to potential building damage. Construction vibration impacts from housing development would be significant if vibration levels exceed the FTA criteria shown in Table 4.11-1. For example, impacts would normally be significant if vibration levels exceed 0.2 in./sec. PPV for residential structures and 0.3 in./sec. PPV for commercial structures. This is the limit where minor cosmetic (i.e., non-structural) damage may occur to these buildings. However, groundborne vibration would also have the potential to impact structures near a site with historic significance at much lower levels. Therefore, for a conservative analysis to these buildings, construction vibration impacts would be significant if vibration levels exceed 0.12 in./sec. PPV for extremely fragile historic buildings, as shown in Table 4.11-1.

Methodology

Construction Noise

Construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors) or variable-power operation (e.g., pile drivers, rock drills, and pavement breakers). Mobile equipment moves around a construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). Each phase of construction has its own noise characteristics due to specific equipment mixes; some will have higher continuous noise levels than others and some may have high-impact intermittent noise levels (FTA 2018). Therefore, construction noise levels may fluctuate depending on the type of equipment being used, construction phase, or equipment location. In typical construction projects on vacant sites, grading activities typically generate the highest noise levels because grading involves the largest equipment and covers the greatest area.

Variation in power imposes difficulty in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FHWA 2018). A conservative standard reference for construction equipment is a distance of 50 feet for development occurring in urban areas.

Heavy construction equipment during grading and site preparation for development facilitated by the Planning Initiative would typically include bulldozers, excavators, front-end loaders, dump trucks, and graders. It is assumed that diesel engines would power all construction equipment. Construction equipment would not all operate at the same time or location due to the different tasks performed by each piece of equipment. In addition, construction equipment would not be in constant use during the 8-hour operating day.

Impact devices such as pile drivers may be used for construction of development facilitated by the Planning Initiative that would occur in the Moraga Center area and Rheem Park area. A pile driver is used to drive foundation piles into the ground. Although use of pile drivers is uncommon during construction for the type of development facilitated by the Planning Initiative, this analysis considers the potential for use of this equipment as a conservative analysis as some terrain features or building height may require their use. These devices would typically operate separately from other equipment.

Stationary Operational Noise

The primary stationary noise sources associated with operation of residential, commercial, and office uses, as proposed under the Planning Initiative, would include noise from stationary HVAC equipment, on-site vehicle movement (e.g., trash hauling and loading/unloading), and outdoor activities. To analyze potential HVAC noise impacts, a typical to larger-sized residential condenser such as a Carrier 38HDR060 split system condenser was used. The manufacturer's noise data lists the unit as having an A-weighted sound power level of 72 dBA and a sound pressure level of 57 dBA at a distance of 5 feet (Carrier 2020).

Operational Traffic Noise Increases

Development facilitated by the Planning Initiative would be expected to generate vehicle trips, thereby increasing traffic noise on area roadways. The Planning Initiative's traffic noise impacts are analyzed based on data collected by Fehr & Peers. The overall increase in traffic noise was estimated using roadway segment traffic volume for existing conditions (based on 2020) and future conditions with the project (i.e., Year 2040 with the Planning Initiative).

Groundborne Vibration

Development facilitated by the Planning Initiative would not include substantial sources of vibration associated with operation. Therefore, construction activities have the greatest potential to generate groundborne vibration affecting nearby receivers, especially during grading and excavation.

Because groundborne vibration could cause physical damage to structures and is measured in an instantaneous period, vibration impacts are typically modeled based on the distance from the location of vibration-intensive construction activities, which is conservatively assumed to be edge of a project site, to the edge of the nearest off-site structures. For assessment purposes, potential vibration impacts from construction activities were modeled at a reference distance of 25 feet to analyze potential vibration levels due to setback distances between equipment and off-site structures.

b. Impact Analysis

Threshold 1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Housing Element

Impact NOI-1 CONSTRUCTION OF INDIVIDUAL PROJECTS FACILITATED BY THE HOUSING ELEMENT WOULD TEMPORARILY INCREASE NOISE LEVELS, POTENTIALLY AFFECTING NEARBY NOISE-SENSITIVE LAND USES. PROVISIONS IN THE MORAGA MUNICIPAL CODE WOULD LIMIT CONSTRUCTION NOISE DISTURBANCE TO THE EXTENT FEASIBLE. HOWEVER, CONSTRUCTION NOISE MAY STILL EXCEED NOISE STANDARDS AND IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Noise from individual construction projects facilitated by the Housing Element would temporarily increase ambient noise levels at adjacent property lines. Since there are no specific plans or time scales for individual development projects that would be facilitated by the Planning Initiative, it is not possible to determine exact noise levels or time periods for construction of such projects, or construction noise at adjacent properties. Sensitive noise receivers near rezone sites would be exposed to the highest levels of construction noise for the longest duration. Rezoned sites within the Moraga Center area and Rheem Park area are adjacent to schools, a church, and other residential uses. Development in these areas could include construction of residential mixed-use development of up to 24 dwelling units per acre. Density bonuses for affordable housing could result in even higher densities.

Construction activities, including demolition and grading, would generate noise around the MSCP area and Rheem Park area. Because the Housing Element is not proposing a specific development project, it cannot be known whether pile driving would be necessary. For the purposes of this analysis, the Town assumes that future construction in Moraga due to the Housing Element may require pile drivers as a conservative assumption. Pile foundations are generally used under two situations: 1) when there is a layer of weak soil at the ground surface that cannot support the weight of a building; or 2) when a building has very heavy, concentrated loads, such as in a high-rise structure, bridge, or water tank (Understand Building Construction n.d.). Table 4.11-2 illustrates typical noise levels associated with construction equipment at 50 feet.

Table 4.11-2 Construction Equipment Noise Levels

Equipment	Estimated Noise Levels at Nearest Sensitive Receivers (dBA L _{max})			
	25 feet	50 feet	100 feet	200 feet
Air Compressor	86	80	74	68
Backhoe	86	80	74	68
Concrete Mixer	91	85	79	73
Dozer	91	85	79	73
Grader	91	85	79	73
Jack Hammer	94	88	82	76
Loader	86	80	74	68
Paver	91	85	79	73
Pile-drive (Impact)	107	101	95	89
Pile-driver (Sonic)	101	95	89	83
Roller	91	85	79	73
Saw	82	76	70	64
Scarified	89	83	77	71
Scraper	91	85	79	73
Truck	90	84	78	72

Source: FTA 2018

As shown in Table 4.11-2, noise levels at 50 feet from construction associated with development facilitated by the Housing Element could approach 88 dBA L_{max} with typical heavy-duty construction equipment such as a jackhammer, and up to 101 dBA L_{max} with more intensive equipment such as an impact pile driver. Noise would typically drop off at a rate of about 6 dBA per doubling of distance. Therefore, noise levels would be about 6 dBA lower than shown in Table 4.11-2 at 100 feet from the noise source and 12 dBA lower at a distance of 200 feet from the noise source.

Noise levels shown in Table 4.11-2 would exceed the daytime FTA construction noise threshold of 80 dBA L_{eq} for an 8-hour period at residential uses. Therefore, construction noise would exceed ambient noise levels and may temporarily disturb people at neighboring properties. Compliance with Moraga Municipal Code Section 7.12.090 would limit construction within 500 feet of a residential zone from the hours of 8:00 a.m. and 5:00 p.m., which would minimize construction noise impacts. However, it cannot be assumed that construction noise from future development due to the Housing Element would not result in a substantial increase over ambient noise levels or the FTA noise limit. Therefore, impacts would be potentially significant and Mitigation Measure NOI-1 would be required.

Mitigation Measure

NOI-1 Construction Noise Reduction Measures

The Town shall include the following measures to minimize exposure to construction noise as standard conditions of approval:

1. **Mufflers.** During excavation and grading construction phases, construction equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers consistent with manufacturers' standards.
2. **Stationary Equipment.** Stationary construction equipment shall be placed so that emitted noise is directed away from the nearest sensitive receivers.
3. **Equipment Staging Areas.** Equipment staging shall be located in areas that will create the greatest distance feasible between construction-related noise sources and noise-sensitive receivers.
4. **Smart Back-up Alarms.** Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction.
5. **Signage.** For the duration of construction, the applicant or contractor shall post a sign in a construction zone that includes contact information for individuals who desire to file a noise complaint.
6. **Temporary Noise Barriers.** Where necessary to meet the FTA criterion of 80 dBA $L_{eq(8 Hr)}$ for daytime construction affecting residential uses, erect temporary noise barriers at a height of 12 feet minimum to block the line-of-sight between construction equipment and receptors. Barriers shall be constructed with a solid material that has a density of at least 1.5 pounds per square foot with no gaps from the ground to the top of the barrier.

The Town shall confirm that these measures are implemented during construction by monitoring the project at least once per month.

Significance After Mitigation

Implementation of Mitigation Measure NOI-1 would reduce construction noise to the extent feasible. However, implementation of Mitigation Measure NOI-1 would not ensure that all construction noise impacts would be reduced sufficiently, to not be considered a substantial increase in ambient noise levels. Therefore, construction impacts would be significant and unavoidable.

Bollinger Canyon Rezoning

Impact NOI-2 CONSTRUCTION OF DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD TEMPORARILY INCREASE NOISE LEVELS BUT WOULD NOT AFFECT NOISE-SENSITIVE LAND USES. FURTHER, PROVISIONS IN THE MORAGA MUNICIPAL CODE WOULD LIMIT CONSTRUCTION NOISE DISTURBANCE TO THE EXTENT FEASIBLE. CONSTRUCTION WOULD NOT EXCEED NOISE STANDARDS AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Noise from individual construction projects facilitated by the Bollinger Canyon Rezoning would temporarily increase ambient noise levels at adjacent property lines. Since there are no specific plans or time scales for individual development projects that would be facilitated by the Bollinger Canyon Rezoning, it is not possible to determine exact noise levels or time periods for construction of such projects, or construction noise at adjacent properties. Most sensitive noise receivers in the Bollinger Canyon Area are residential, but most of the area would remain open space. Only existing residential development along the northwestern border would be subject to a temporary increase in ambient noise levels. Development in these areas would include construction of low-density residential development of one dwelling unit per acre or one dwelling unit per five acres.

Construction activities, including grading, would generate noise around the Bollinger Canyon Area in a similar manner as discussed above for the Housing Element. However, given that only low-density residences would be constructed, pile drivers are not likely to be used for construction. Therefore, as shown in Table 4.11-2, noise levels at 200 feet from construction activity associated with development facilitated by the Bollinger Canyon Rezoning could approach 76 dBA with typical heavy-duty construction equipment such as a jackhammer. This would be below the daytime FTA construction noise thresholds of 80 dBA L_{eq} for an 8-hour period for residential uses. Construction noise would not exceed ambient noise levels nor disturb people at neighboring properties.

Compliance with Moraga Municipal Code Section 7.12.090 would limit construction within 500 feet of a residential zone from the hours of 8:00 a.m. and 5:00 p.m., which would minimize construction noise impacts. Given the distance between the low-density residential development in the Bollinger Canyon Study Area, which would be one dwelling unit per acre or one dwelling unit per five acres, construction noise from future development due to the Bollinger Canyon Rezoning would not result in a substantial increase over ambient noise levels or FTA noise limits. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Housing Element

Impact NOI-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INTRODUCE NEW OPERATIONAL NOISE SOURCES. STATIONARY OPERATIONAL NOISE LEVELS WOULD BE REDUCED WITH MITIGATION AND IMPACTS WOULD BE LESS THAN SIGNIFICANT. IMPACTS FROM OPERATIONAL TRAFFIC NOISE LEVELS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Stationary Operational Noise

As discussed under *Methodology* above, HVAC units are anticipated to be the loudest operational noise source from development in the Moraga Center area and Rheem Park area. As described above, a common HVAC unit is expected to generate up to approximately 72 dBA at five feet (at some property boundaries). For large buildings, such units are typically located on the roof, where operational noise is greatly reduced by distance and the intervening building itself. However, for smaller buildings including smaller multi-family residential units, large HVAC units are often placed at ground level on a concrete pad adjacent to the building. Existing noise sensitive receivers could be affected by operational noise from properties developed under the Housing Element.

The Moraga Municipal Code does not establish quantitative operational noise thresholds, but Moraga Municipal Code Section 7.12.010 prohibits unnecessary, excessive and annoying noises if noise levels are detrimental to the health and welfare of the citizenry. Development under the Housing Element would adhere to 2002 General Plan Policy OS6.2, which encourages maintenance of noise at levels that will not adversely affect adjacent properties in the community. A noise level of 72 dBA is in excess of the both the daytime significance threshold of 60 dBA L_{eq} and nighttime significance threshold of 50 dBA L_{eq} for residential and other noise-sensitive receptors. Therefore, the increase in ambient noise levels from operational use of residential-scale HVAC units would be potentially significant.

The Town currently has provisions within its 2002 General Plan that address noise resources (see Policies OS6.1 through OS6.8 in Section 4.11.2, *Regulatory Setting*). The following proposed Implementation Program pertaining to noise is intended to supplement the 2002 General Plan's existing policies and would be included as part of the General Plan Update:

Implementation Program NOI-A: Development projects shall conduct site-specific noise analysis to ensure that stationary source (e.g., mechanical equipment) noise levels remain below the daytime limit of 60 dBA L_{eq} and nighttime limit of 50 dBA L_{eq} at residential uses and other sensitive receptor property lines. The nighttime limit shall only apply to sensitive receptors which are in use at night.

Implementation Program NOI-A would reduce noise levels from operational stationary source noise levels to less than significant.

Traffic Noise

The Housing Element allows for higher density land uses in some areas of the Town than currently permitted, leading to additional vehicle trips on area roadways. Under existing zoning, 1,365

dwelling units could be built in the Town. In addition, 405 additional dwelling units could be built in the Moraga Center and Rheem Park areas due to changes in zoning in the Housing Element. A total of an estimated 1,770 new dwelling units (excluding Bollinger Canyon and Accessory Dwelling Units) could be added to Moraga. By generating new vehicle trips, new development would incrementally increase the exposure of land uses along roadways to traffic noise. The following analysis considers both the cumulative noise impacts due to traffic noise associated with the buildout of dwelling units from both existing zoning and the Housing Element, as well as the project’s contribution to the cumulative impact.

Cumulative development would result in new vehicle trips on area roadways in 2040, as well as increased average daily traffic (ADT) trips (refer to Section 4.14, *Transportation*), as shown in Table 4.11-3. Most roadway segments would have a less than 3 dBA CNEL increase in traffic noise. For reference, a 40 percent increase in trips equates to a noise increase of less than 1.5 decibels. As discussed in Section 4.11.1, *Setting*, a 3-dBA increase is considered noticeable. Therefore, 1.5 dBA increase in noise would not be perceptible, and the increase would be far below 1.5 dBA. A doubling of traffic volumes would be required to reach the threshold of noticeability (a 3-dBA increase in noise levels).

Table 4.11-3 Traffic Noise Increase

Roadway Segment	ADT 2020 (No Project)	ADT 2040 (No Project)	ADT 2040 (Plus Project)	Traffic Noise Increase (dBA CNEL/Ldn)	Housing Element Contribution (dBA CNEL/Ldn)
Moraga Road north of Sky-Hy/Via Granada (two-lane section)	14,749	16,000	16,200	0.4	0.1
Rheem between Redwood Lane and Zander Drive	5,461	5,900	6,300	0.6	0.3
Rheem east of Moraga Road	4,400	4,600	4,900	0.5	0.3
St. Mary's north of Bollinger Canyon	8,009	9,600	10,400	1.1	0.3
Moraga Road south of Corliss (two-lane section)	13,327	14,500	16,200	0.8	0.5
Bollinger Canyon Road east of St. Marys Road	1,324	1,600	2,200	2.2	1.4
Moraga Way between Hardie and Moraga Valley Lane (two-lane section)	11,088	13,800	14,800	1.3	0.3
Moraga Road south of St. Mary's	12,463	15,400	18,000	1.6	0.7
Canyon south of Constance Place	1,999	4,600	5,700	4.6	0.9
Camino Pablo and Canyon	7,122	7,300	7,300	0.1	0.0

ADT: Average Daily Traffic.

Bold = Significant Increase

Source: Fehr & Peers, August 2022. Contra Costa Countywide Travel Demand Model

Canyon Road (south of Constance Place), which is the southern roadway by which the Moraga Center area is accessed, is estimated to have a traffic noise increase of 4.6 dBA CNEL. While cumulative traffic noise on most streets would not increase by 3 dBA or more, increases in traffic noise due to cumulative buildout on Canyon Road may be perceptible to sensitive receivers along the roadway. The increase in noise from the traffic on this roadway would be a potentially cumulative significant impact. Even without the project, the cumulative noise would be 3.7 dBA CNEL and the impact would be significant. Because development from the Housing Element would add traffic noise to Canyon Road (south of Constance Place) where there would already be a cumulative significant impact, the projects contribution to this impact would be considerable.

The Town would implement Mitigation Measure TRA-1, which would include requirements for future development to reduce vehicle miles traveled (VMT) (see Section 4.14, *Transportation*). Reductions in VMT would also result in reductions in the number of vehicle trips, which would reduce the noise associated from traffic. Nonetheless, implementation of this mitigation would not guarantee that traffic noise is below the threshold of 3 dBA CNEL increase. There are no additional feasible mitigation measures that could be implemented to reduce this traffic noise. As such, traffic noise impacts would be significant and unavoidable.

Mitigation Measure

Mitigation Measure TRA-1 (see Section 4.14, *Transportation*).

Significance After Mitigation

Impacts from stationary operational noise would be less than significant with Implementation Program NOI-A. Additionally, Mitigation Measure TRA-1, included in Section 4.14, *Transportation*, would reduce impacts to traffic noise through implementation of VMT reduction measures. Nonetheless, impacts from traffic noise would remain significant and unavoidable.

Bollinger Canyon Rezoning

Impact NOI-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INTRODUCE NEW OPERATIONAL NOISE SOURCES BUT INCREASED NOISE LEVELS WOULD BE LESS THAN SIGNIFICANT.

Stationary Operational Noise

As discussed under Impact NOI-3, HVAC units are anticipated to be the loudest noise source at future development sites, generating approximately 72 dBA at five feet. Development within the Bollinger Canyon Study Area would occur at a density of one unit per one acre or one unit per five acres, and residences would not be constructed within five feet of one another. Assuming a distance of at least 100 feet between residential HVAC units and neighboring property lines, HVAC noise is expected to generate up to approximately 46 dBA at 100 feet, which would not exceed the nighttime limit of 50 dBA L_{eq} at residential receptors. Therefore, impacts would be less than significant.

Traffic Noise

The conditions of operational traffic noise in the Bollinger Canyon Area would be the like those discussed in Impact NOI-3. Traffic volumes on streets would not increase by 3 dBA CNEL or more, and, therefore, increases in traffic noise would be less than perceptible. Canyon Road would not be utilized to access the Bollinger Canyon Study Area; therefore, development within the Bollinger

Canyon Area would not substantially add traffic volumes and associated traffic noise to Canyon Road. Impacts related to increases in roadway noise would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Housing Element

Impact NOI-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD TEMPORARILY GENERATE GROUNDBORNE VIBRATION DURING CONSTRUCTION, POTENTIALLY AFFECTING NEARBY LAND USES. CONSTRUCTION VIBRATION FROM PILE DRIVERS MAY DISTURB PEOPLE OR DAMAGE BUILDINGS. HOWEVER, IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

The greatest vibratory source during construction activities would be anticipated to be a bulldozer. However, an impact pile driver may be used during specific construction phases and if required would generate higher vibration than a large bulldozer. This is a conservative assumption for purposes of the environmental analysis. Construction vibration estimates are based on vibration levels reported by Caltrans and the FTA (Caltrans 2020; FTA 2018). Table 4.11-4 shows typical vibration levels for various pieces of construction equipment (FTA 2018).

Table 4.11-4 Typical Vibration Levels for Construction Equipment

Equipment	PPV (in./sec.) at 25 Feet
Pile Driver (Impact)	1.518
Pile Driver (Sonic)	0.734
Vibratory Roller	0.210
Large Bulldozer	0.089
Loaded Truck	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Sources: FTA 2018; Caltrans 2020

Construction activities associated with development facilitated by the Housing Element would result in varying degrees of groundborne vibration depending on the equipment and methods employed. As depicted in Table 4.11-4 above, the greatest likely source of vibration during general construction activities at development facilitated by the Housing Element would be caused by use of vibratory rollers, which would generate vibration levels of up to 0.21 in/sec PPV at 25 feet or by large bulldozers, which would generate vibration levels of up to 0.089 in/sec PPV at 25 feet. However, as discussed under Impact NOI-1, it is possible that pile drivers would be used for construction, which would generate up to 1.518 in/sec PPV at a distance of 25 feet (FTA 2018). As discussed under *Thresholds of Significance* above, the most conservative level for structures is 0.12 in/sec for

historical structures, and the level is higher for residential units at 0.2 in/sec, and at 0.3 in/sec for commercial uses.

Pile driving may be necessary to facilitate development in the MSCP area and Rheem Park area. The use of pile driving equipment is dictated by site soils and the need for secure or deep foundational pilings based on building height or design, and thus cannot be predicted with reasonable certainty at a program-level analysis. Given typical setbacks and equipment size, a pile driver may be used within 25 feet of the nearest existing buildings. This analysis conservatively assumes the use of an impact pile driver. This would exceed the architectural damage threshold of between 0.12 and 0.3 in/sec PPV depending on the type of building impacted. In addition, as detailed in Section 4.4, *Cultural Resources*, and listed in Table 4.4-1 in that section, numerous Housing Opportunity Sites in the Moraga Center area and Rheem Park area are located on or near identified historic or cultural resources. As shown in Table 4.4-1, numerous Housing Opportunity Sites in the Moraga Center area and Rheem Park area are near identified buildings older than 45 years. These resources would be susceptible to vibration impacts during construction activities that involved pile driving. In addition, the architectural damage thresholds could be exceeded if a vibratory roller or heavy-duty earthmoving equipment, such as a dozer is used within close distance to buildings or structures. Therefore, construction vibration impacts would be potentially significant and Mitigation Measure NOI-2 would be required

Development facilitated by the Housing Element would not involve substantial vibration sources associated with operation because residential and mixed-use development are not significant sources of vibration. Therefore, operational vibration impacts of development facilitated by the Housing Element would be less than significant.

Mitigation Measure

NOI-2 Vibration Control Plan

Prior to issuance of a building permit for a project requiring pile driving during construction within 135 feet of fragile structures such as historical resources, 100 feet of non-engineered timber and masonry buildings (e.g., most residential buildings), or within 75 feet of engineered concrete and masonry (no plaster); a vibratory roller within 25 feet of any structure; or a dozer or other heavy earthmoving equipment within 15 feet of any structure, the project applicant shall prepare a vibration analysis to assess and mitigate potential vibration impacts related to these activities. This vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer. The vibration levels shall not exceed FTA architectural damage thresholds (e.g., 0.12 in/sec PPV for fragile or historical resources, 0.2 in/sec PPV for non-engineered timber and masonry buildings, and 0.3 in/sec PPV for engineered concrete and masonry). If vibration levels would exceed this threshold, alternative uses such as drilling piles as opposed to pile driving, static rollers as opposed to vibratory rollers, and lower horsepower dozers shall be used. If necessary, construction vibration monitoring shall be conducted to ensure vibration thresholds are not exceeded.

Where vibration monitoring is determined to be necessary, a pre-construction baseline survey shall be conducted at buildings and structures within the screening distances by a licensed structural engineer. The condition of existing potentially affected properties shall be documented by photos and description of existing condition of building facades, noting existing cracks. A vibration monitoring and construction contingency plan shall be developed to identify where monitoring would be conducted, set up a vibration monitoring schedule, and define structure-specific vibration limits. Construction contingencies would be identified for when vibration levels approach the limits.

If vibration levels approach limits, the contractor shall suspend construction and implement contingencies to either lower vibration levels or secure the affected structure.

Where historic structures are involved, the engineer shall provide a shoring design or other methods to protect such buildings and structures from potential damage. At the conclusion of vibration causing activities, the qualified structural engineer hired by the applicant shall issue a follow-up letter describing damage, if any, to impacted buildings. The letter shall include recommendations for repair, as may be necessary, in conformance with the Secretary of the Interior Standards. Repairs shall be undertaken and completed by the contractor and monitored by a qualified structural engineer in conformance with all applicable codes including the California Historical Building Code (Part 8 of Title 24).

A Statement of Compliance signed by the applicant and owner is required to be submitted to the Contra Costa County Building Department at plan check and prior to the issuance of any permit. The Vibration Control Plan, prepared as outlined above, shall be documented by a qualified structural engineer, and shall be provided to the Town upon request. A Preservation Director shall be designated, and this person's contact information shall be posted in a location near the project site that it is clearly visible to the nearby receptors most likely to be disturbed. The Director would manage complaints and concerns resulting from activities that cause vibrations. The severity of the vibration concern should be assessed by the Director, and if necessary, evaluated by a qualified noise and vibration control consultant.

Significance After Mitigation

Impacts associated with construction vibration, including avoidance of damaging historic or cultural resources, would be reduced to a level of less than significance through implementation of Mitigation Measure NOI-2. Therefore, impacts related to construction vibration would be reduced to less than significant levels with mitigation.

Bollinger Canyon Rezoning

Impact NOI-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD TEMPORARILY GENERATE GROUNDBORNE VIBRATION DURING CONSTRUCTION, BUT VIBRATION WOULD BE BELOW DISTINCTLY PERCEPTIBLE VIBRATION LEVELS FOR HUMANS AND STRUCTURES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction activities associated with development facilitated by the Bollinger Canyon Rezoning would result in varying degrees of groundborne vibration depending on the equipment and methods employed. The greatest likely source of vibration during general construction activities within the Bollinger Canyon Area would be caused by use of vibratory rollers, which would generate vibration levels of up to 0.21 in/sec PPV at 25 feet or by large bulldozers, which would generate vibration levels of up to 0.089 in/sec PPV at 25 feet (as shown in Table 4.11-4 above). As discussed under *Thresholds of Significance*, the most conservative level for structures is 0.12 in/sec PPV for historic structures. The level is higher for residential units at 0.2 in/sec PPV, and at 0.3 in/sec PPV for commercial uses. Vibration levels from a vibratory roller would not exceed 0.12 in/sec PPV beyond approximately 35 feet. Development within the Bollinger Canyon Study Area would occur at a density of one unit per one acre or one unit per five acres, and it is not anticipated that use of a vibratory roller would occur within 35 feet of an historic structure. Therefore, construction vibration would not exceed thresholds for potential damage to historic or other structures and impacts would be less than significant.

Comprehensive Advanced Planning Initiative

Development facilitated by the Bollinger Canyon Rezoning would not involve substantial vibration sources associated with operation because residential development is not a significant source of vibration. Therefore, operational vibration impacts of development facilitated by the Bollinger Canyon Rezoning would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.12 Population and Housing

This section analyzes impacts related to population and housing growth associated with implementation of the Planning Initiative.

4.12.1 Setting

a. Town of Moraga

Table 4.12-1 shows the 2020 estimates of population and housing units for the Town of Moraga and Contra Costa County (County). Moraga’s current (2020) estimated population is 18,048 persons (Contra Costa Countywide Travel Demand Model 2022). Based on 2020 estimates, Moraga’s population constitutes approximately 1.6 percent of the countywide population of 1,165,927, and Moraga’s 5,932 housing units constitute approximately 1.4 percent of the County’s 423,342 total housing units. The average number of persons per household in Moraga in 2020 was estimated at 2.7, which is approximately 5.2 percent lower than the countywide average of 2.84 persons per household (California Department of Finance [DOF] 2022).

Table 4.12-1 2020 Population, Housing Units, and Person Per Household Estimates

	Town of Moraga	Contra Costa County
Population	18,048	1,165,927
Housing Units (Total)	5,932	423,342
Housing Units (Occupied)	5,698	407,029
Persons/Household Ratio ¹	2.7	2.84

¹ This is a ratio of persons (household) to an occupied housing unit.

Sources: Contra Costa Countywide Travel Demand Model 2022, DOF 2022

Table 4.12-2 shows Moraga and County employment, housing, and population estimates and forecasts from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) Plan Bay Area 2040. ABAG projections indicated an increase of 1,520 persons (approximately 9.2 percent) in Moraga’s population between 2020 and 2040, for an estimated 2040 population of 18,080 residents from 16,560 in 2020¹. This forecasted growth represents 76 new residents per year. Additionally, ABAG projections indicate an increase in the Town’s number of households by 230 (approximately 3.9 percent) between 2020 and 2040 for an estimated 5,920 households in 2040. This forecasted growth represents between 11 and 12 new households per year (ABAG 2017). There was approximately 1 job per household in Moraga in 2020, which is similar to the ABAG estimate for Contra Costa County in the same year. This suggests that Moraga’s employment and housing are steady, which is expected to continue through 2040 based on ABAG forecasts.

¹ Although Plan Bay Area 2050 was adopted in October 2021, the growth projections do not include data at the city or town level. Therefore, this analysis relies on growth projections from Plan Bay Area 2040, which was adopted in July 2017. As a result, there is a discrepancy between the 2020 base year estimate between the two sources, with Plan Bay Area 2040 showing 16,560 residents in 2020 and the Contra Costa Countywide Travel Demand Model showing 18,048 residents in 2020.

Table 4.12-2 ABAG Population, Housing, and Employment Forecasts

	2020	2025	2030	2035	2040
Town of Moraga					
Population	16,560	16,810	17,130	17,680	18,080
Households	5,690	5,740	5,800	5,905	5,920
Housing Units	5,815	5,815	5,830	5,955	6,020
Employment (# Jobs)	5,630	5,665	5,695	5,710	5,725
Employment/Housing Ratio	0.99	0.99	0.98	0.97	0.97
Contra Costa County					
Population	1,128,660	1,198,715	1,257,790	1,329,330	1,387,295
Households	399,615	422,435	440,765	461,065	475,390
Housing Units	416,845	433,335	446,925	471,285	489,965
Employment (# Jobs)	414,290	423,845	458,255	483,810	498,115
Employment/Housing Ratio	1.03	1.0	1.04	1.05	1.05

Source: ABAG 2017

4.12.2 Regulatory Setting

a. State Regulations

Housing Element Law: California Government Code Section 65584(a)(1)

Pursuant to California Government Code Section 65584(a)(1), the California Department of Housing and Community Development (HCD) is responsible for determining the regional housing needs assessment (segmented by income levels) for each region’s planning body known as a “council of governments” (COG), ABAG being the COG serving the San Francisco Bay Area. HCD prepares an initial housing needs assessment and then coordinates with each COG to arrive at the final regional housing needs assessment. To date, there have been five previous housing element update “cycles.” California is now in its sixth “housing-element update cycle.” The ABAG RHNA and Moraga’s General Plan Housing Element Update are discussed further below.

The Sustainable Communities and Climate Protection Act of 2008 (SB 375)

Senate Bill (SB) 375 focuses on aligning transportation, housing, and land use planning to achieve regional greenhouse gas (GHG) emission reduction targets established under the California Global Warming Solutions Act, also known as Assembly Bill (AB) 32. SB 375 requires Metropolitan Planning Organizations (MPO) to develop a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan (RTP), with the purpose of identifying policies and strategies to reduce per capita passenger vehicle-generated GHG emissions. As set forth in SB 375, the SCS must: (1) identify the general location of land uses, residential densities, and building intensities within the region; (2) identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period; (3) identify areas within the region sufficient to house an eight-year projection of the regional housing need; (4) identify a transportation network to service the regional transportation needs; (5) gather and consider the best practically available scientific information regarding resource areas and farmland in the region; (6) consider the state housing goals; (7) establish the land use development pattern

for the region that, when integrated with the transportation network and other transportation measures and policies, will reduce GHG emissions from automobiles and light-duty trucks to achieve GHG emission reduction targets set by the California Air Resources Board (CARB), if there is a feasible way to do so; and (8) comply with air quality requirements established under the Clean Air Act.

Moraga is located in the jurisdiction of ABAG, a Joint Powers Agency established under California Government Code Section 6502 et seq. Pursuant to federal and State law, ABAG serves as a COG, a Regional Transportation Planning Agency, and the MPO for Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties and the towns and cities in those counties. ABAG is responsible for preparing the RTP/SCS and RHNA allocations in coordination with other State and local agencies. These documents include population, employment, and housing projections for the region and its subregions.

Existing State law requires local governments to adopt a housing element as part of their general plan and update the housing element every four to eight years. SB 375 requires the RHNA to allocate housing units within the region in a manner consistent with the development pattern adopted by the SCS.

On October 21, 2021, ABAG/MTC adopted Plan Bay Area 2050, a long range RTP/SCS for the nine-county San Francisco Bay Area. Using growth forecasts and economic trends, Plan Bay Area 2050 provides a vision for transportation throughout the region until 2050 that achieves the statewide reduction targets and in so doing identifies the amount and location of growth expected to occur within the region.

Housing Crisis Act of 2019 (SB 330)

The Housing Crisis Act of 2019 (SB 330) seeks to speed up housing production in the next half decade by eliminating some of the most common entitlement impediments to the creation of new housing, including delays in the local permitting process and cities enacting new requirements after an application is complete and undergoing local review—both of which can exacerbate the cost and uncertainty that sponsors of housing projects face. In addition to speeding up the timeline to obtain building permits, the bill prohibits local governments from reducing the number of homes that can be built through down-zoning or the introduction of new discretionary design guidelines. The bill is in effect as of January 1, 2020, and expires on January 1, 2030.

Fair Employment and Housing Act (FEHA)

The FEHA of 1959 (Government Code Section 12900 et seq.) prohibits housing discrimination on the basis of race, color, religion, sexual orientation, marital status, national origin, ancestry, familial status, disability, or source of income.

Housing Element Law: California Government Code Section 65583(c)(7)

California Government Code Section 65583 requires cities and counties to prepare a housing element, as one of the state-mandated elements of the General Plan, with specific direction on its content. Pursuant to Section 65583(c)(7), the Housing Element must develop a plan that incentivizes and promotes the creation of accessory dwelling units that can be offered at affordable rent, as defined in Section 50053 of the Health and Safety Code, for very low, low-, or moderate-income households.

Housing Element Law: California Government Code Section 65583.2(g)(3)

Pursuant to California Government Code Section 65583.2(g)(3), the Housing Element is required to include a program to impose housing replacement requirements on certain sites identified in the inventory of sites. Under these requirements, the replacement of units affordable to the same or lower income level, consistent with those requirements set forth in State Density Bonus Law (Government Code Section 65915(c)(3)), would be required.

Relocation Assistance: California Government Code Section 7261(a)

Section 7261(a) of the California Government Code requires that programs or projects undertaken by a public entity must be planned in a manner that (1) recognizes, at an early stage in the planning of the programs or projects and before the commencement of any actions which will cause displacements, the problems associated with the displacement of individuals, families, businesses, and farm operations, and (2) provides for the resolution of these problems in order to minimize adverse impacts on displaced persons and to expedite program or project advancement and completion. The displacing agency must ensure that relocation assistance advisory services are made available to all persons displaced by the public entity. If the agency determines that any person occupying property immediately adjacent to the property where the displacing activity occurs is caused substantial economic injury as a result of the displacement, the agency may also make the advisory services available to that person.

b. Regional Regulations

Regional Housing Needs Assessment (RHNA)

California's Housing Element law requires that each county and city/town develop local housing programs to meet their "fair share" of future housing growth needs for all income groups, as determined by the HCD. The regional COGs, including ABAG, are then tasked with distributing the State-projected housing growth need for their region among their city/town and county jurisdictions by income category. This fair share allocation is referred to as the RHNA process. The RHNA determines the minimum number of housing units each community is required to plan for through a combination of 1) zoning "adequate sites" at suitable densities to provide affordability; and 2) housing programs to support production of below-market rate units; and 3) programs to affirmatively further fair housing, including the equitable distribution of lower income sites. The Final RHNA Plan was adopted on December 16, 2021, and local jurisdictions' Housing Element Updates, covering the planning period from 2023-2031, will be due to HCD by January 31, 2023 (ABAG 2022). As shown in Table 2-1, in Section 2, *Project Description*, Moraga's RHNA allocation is 1,118 units for the 2023-2031 planning period, distributed among four income categories. For the previous RHNA cycle, Moraga was allocated a total of 229 units to be accommodated in its Housing Element inventory of adequate sites (ABAG 2013).

c. Regional and Local Regulations

Town of Moraga Housing Element

The Housing Element is one of the required elements of the 2002 Moraga General Plan, and the most recent version was adopted in 2015 for a span of 8 years until January 2023. As described in Section 2, *Project Description*, the Planning Initiative includes an update to the Town's Housing Element for the years 2023 to 2031.

4.12.3 Impact Analysis

a. Methodology and Thresholds of Significance

Population and housing trends in Moraga and the County were evaluated by reviewing the most current data available from the DOF and Plan Bay Area 2040². Impacts related to population are generally social or economic in nature. Under CEQA, a social or economic change generally is not considered a significant effect on the environment unless the changes are directly linked to a physical change.

The following thresholds are based on CEQA Guidelines Appendix G. For purposes of this EIR, impacts related to population and housing are considered significant if implementation of the proposed project would:

1. 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); or
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

For purposes of this analysis, “substantial” population growth is defined as growth exceeding Plan Bay Area 2040 population forecasts for Moraga. “Substantial” displacement would occur if implementation of the Planning Initiative would displace more residents than would be accommodated through growth provided by project implementation.

b. Impact Analysis

Threshold 1: Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Housing Element

Impact POP-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT COULD ACCOMMODATE AN ADDITIONAL 5,067 NEW RESIDENTS AND 1,770 NEW HOUSING UNITS IN THE TOWN. THIS WOULD EXCEED PLAN BAY AREA 2040 POPULATION AND HOUSING FORECASTS BUT WOULD BE CONSISTENT WITH THE TOWN’S RHNA ALLOCATION. ABAG’S NEXT PLAN BAY AREA WOULD INCORPORATE THE HOUSING ELEMENT UPDATE, AND THEREFORE, RESULTING GROWTH WOULD BE ANTICIPATED AND WOULD NOT RESULT IN UNPLANNED POPULATION GROWTH. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Housing Element would include up to 1,770 new housing units, which would be comprised of pipeline projects, projects allowed by existing zoning, and additional units on newly rezoned sites (see Table 2-2, Summary of Housing Opportunity Sites, in Section 2, *Project Description*). Pipeline projects include 225 dwelling units approved, pending approval, or under construction, as considered in the Housing Element Update. As part of the Housing Element, sites in the Rheem Park area and Moraga Center area would be rezoned in two types of zoning changes: some sites would be rezoned to allow for more residential units, while others would be

² Plan Bay Area 2040 growth projections include city- and town-level data, while Plan Bay Area 2050 growth projections include only regional data. Therefore, for the purposes of this analysis Plan Bay Area 2040 data were utilized.

rezoned from commercial only to mixed use residential zoning designations. This would increase the maximum allowable units, dwelling units per acre on these sites to encourage housing production to meet the Town’s RHNA allocation for the 2023-2031 planning period.

Development under the Housing Element would increase available housing capacity by 1,770 units and would result in an estimated population increase of 5,067 persons by 2040 (Contra Costa Countywide Travel Demand Model 2022). As such, the Town’s 2040 estimated population as a result of development would be 23,115 persons.

Table 4.12-3 shows the difference between growth forecasts for Plan Bay Area 2040 and development facilitated by the Housing Element. As shown in Table 4.12-3, the Town is projected by ABAG to have a 2040 population of 18,080 persons and a 2040 housing stock of 6,020 units. The population growth resulting from development facilitated by the Housing Element would exceed ABAG’s population and housing growth forecast by approximately 21.8 percent. Projections represent an aggressive level of buildout, whereby identified sites are developed to the realistic capacity. Actual housing units and subsequent population growth is anticipated to be lower than project projections.

Table 4.12-3 Comparison of Plan Bay Area 2040 & Housing Element Update Projections

	Existing Conditions (2020)	Project Growth Accommodation	2040 Housing Element Conditions	ABAG 2040 Forecast	Difference	Percent Difference Over ABAG 2040 Forecast
Population	18,048	5,067	23,115	18,080	+5,035	+21.8
Housing Units	5,932	1,770	7,702	6,020	+1,682	+21.8

Sources: Contra Costa Countywide Travel Demand Model 2022, DOF 2022, ABAG/MTC 2017

Development facilitated by the Housing Element would be consistent with State requirements for the Town’s RHNA allocation. Although the Housing Element would facilitate development beyond what is forecasted in ABAG’s Plan Bay Area 2040, it would bring future forecasts into consistency with the RHNA, which is required by State law.

The State requires that all local governments adequately plan to meet the housing needs of their communities (HCD 2022). Given that the State is currently in an ongoing housing crisis due to an insufficient housing supply, the additional units under the Housing Element Update would further assist in addressing the existing crisis and in meeting the housing needs of the Town’s residents. Furthermore, the Housing Element Update would first be submitted to the HCD for review and approval to ensure that it would adequately address the housing needs and demands of the Town and the region. Approval by HCD would ensure that population and housing growth under the project would not be substantial or unplanned.

The increase in housing units would provide housing opportunities in proximity to jobs at St. Mary’s College, in Rheem Park. and in the Moraga Center area, which would in turn reduce vehicle miles traveled (VMT) and associated impacts related to transportation, air quality, and greenhouse gas emissions.

Under the Housing Element Update, the Town would direct most of its residential growth to infill sites and sites in commercial areas that are already urbanized, including the Rheem Park area and Moraga Center. As discussed in Section 4.16, *Utilities and Service Systems*, the Rheem Park area and Moraga Center are developed and supported by existing infrastructure sufficient to serve the

additional housing units. The Housing Element Update would not create or require the construction of new roads or major infrastructure, or directly or indirectly induce unplanned population growth. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact POP-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING COULD ACCOMMODATE AN ADDITIONAL 135 NEW RESIDENTS AND 51 NEW HOUSING UNITS IN THE TOWN. WHEN CONSIDERED IN CONJUNCTION WITH THE INCREASE IN POPULATION AND HOUSING UNITS FACILITATED BY THE HOUSING ELEMENT UPDATE, THIS WOULD EXCEED PLAN BAY AREA 2040 POPULATION AND HOUSING FORECASTS. ABAG'S NEXT PLAN BAY AREA WOULD INCORPORATE GROWTH PROJECTED BY THE HOUSING ELEMENT AND DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING, AND THEREFORE, RESULTING GROWTH WOULD BE ANTICIPATED AND WOULD NOT RESULT IN UNPLANNED POPULATION GROWTH. THEREFORE, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Subsection 2.3.5 of Section 2, *Project Description*, the Bollinger Canyon Study Area does not currently have an associated density range. Under the Bollinger Canyon Rezoning the approximately 423-acre Bollinger Canyon Study Area would be rezoned to three districts. A total of 136 acres, including four parcels, would be rezoned to Non-MOSO Open Space³; however, no future development potential is presumed on these parcels since they are being acquired by the John Muir Land Trust for conservation purposes. A total of 17 acres, including nine parcels, would be rezoned to permit one dwelling unit per acre. There is one vacant lot in this area, with the capacity for two units. The remaining 270 acres would be rezoned for a density of one unit per five acres. Given existing land uses (including several existing residential units) and parcelization patterns, the Town has estimated that buildout of the Bollinger Canyon Study Area would result in an increase of 51 housing units, including 49 in the RR area.

As a result of the rural densities being proposed in the Bollinger Canyon Study Area, the area is not considered a Housing Opportunity Site under the Housing Element Update. As shown in Table 4.12-1, the average number of persons per household in Moraga in 2020 was estimated at 2.7. An increase available housing capacity of 51 units would result in an estimated population increase of 138 persons.⁴ When combined with the existing conditions as shown in Table 4.12-3, this increase in population and housing units would be within ABAG's 2040 forecasts. However, when considered in conjunction with projected growth resulting from development facilitated by the Bollinger Canyon Rezoning, including the Housing Element Update (as discussed under Impact POP-1, above), the growth projected in the Bollinger Canyon Study area would exceed ABAG's population growth forecast. Given that the State is currently in an ongoing housing crisis due to an insufficient housing supply, the additional units that could be developed in the Bollinger Canyon Study Area would further assist in addressing the existing crisis and in meeting the housing needs of the Town's

³ MOSO is the Moraga Open Space Ordinance. Open Space in the Town includes "MOSO" Open Space, which was covered by the Ordinance, and non-MOSO Open Space, which includes parcels not expressly covered by the Ordinance.

⁴ Calculation: 51 housing units x 2.7 persons per household = 138 persons

residents. Further, ABAG’s next Plan Bay Area update would incorporate growth projected by the development facilitated by the Bollinger Canyon Rezoning, and therefore, the resulting growth would be anticipated and would not constitute unplanned population growth.

As discussed in Section 4.16, *Utilities and Service Systems*, existing facilities would not have the capacity to serve future development in the Bollinger Canyon Study Area, and construction of new water, wastewater, stormwater, electricity and natural gas, and telecommunications infrastructure would be required. Although mitigation measures would be implemented to reduce project-related impacts, impacts related to water, wastewater, stormwater, electricity and natural gas, and telecommunications infrastructure would be significant and unavoidable. Although the construction of infrastructure resulting from development of the Bollinger Canyon Study Area could directly or indirectly induce population growth, planned development in this area is limited to approximately 51 new units. As described in Section 2, *Project Description*, the development facilitated by the Bollinger Canyon Rezoning would encourage clustering and transfer of development rights. This increase in housing units would result in an estimated population increase of 138 persons, which is within ABAG’s 2040 forecasts; the resulting growth would be anticipated and would not constitute unplanned population growth. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Housing Element

Impact POP-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT RESULT IN THE DISPLACEMENT OF A SUBSTANTIAL NUMBER OF EXISTING PEOPLE OR HOUSING UNITS TO ACCOMMODATE THE PLANNED INCREASE IN DEVELOPMENT INTENSITY SINCE THE PROPOSED REZONING OF PROPERTIES WOULD ALLOW FOR AN OVERALL INCREASE IN HOUSING UNITS AS COMPARED TO EXISTING CONDITIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development in the Plan Area would not result in the displacement of a substantial number of existing housing units to accommodate the planned increase in development intensity since the properties are not currently developed with residential uses. Further, Government Code Section 65583.2(g)(3) requires housing elements to include a program requiring replacement of units affordable to the same or lower income level as a condition of development on a nonvacant site. Although no projects have been identified that would displace existing units, if displacement did occur, new residential units would be constructed to more than replace existing displaced residences. Impacts related to displacement of existing people or housing units would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact POP-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN THE DISPLACEMENT OF A SUBSTANTIAL NUMBER OF EXISTING HOUSING UNITS TO ACCOMMODATE THE PLANNED INCREASE IN DEVELOPMENT INTENSITY SINCE THE PROPOSED REZONING OF THE AREA WOULD ALLOW FOR AN OVERALL INCREASE IN HOUSING UNITS AS COMPARED TO EXISTING CONDITIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Bollinger Canyon Rezoning would not result in the displacement of a substantial number of existing housing units or people to accommodate the planned increase in development intensity since the proposed rezoning of properties in this area would allow for an overall increase in housing units as compared to existing conditions. Impacts related to displacement of existing people or housing units would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.13 Public Services and Recreation

This section analyzes impacts related to the provision of facilities for public services, including fire protection services, police protection services, schools, parks, recreational facilities, and library facilities, associated with implementation of the Planning Initiative.

4.13.1 Setting

a. Fire Protection

The Moraga-Orinda Fire District (MOFD) provides fire protection and emergency medical services in Moraga. This service area represents 42 square miles and approximately 38,500 residents (MOFD 2021a). The MOFD operates five fire stations including four paramedic engine companies, one paramedic truck company, three paramedic ambulances (two cross-staffed), and one Battalion Chief. MOFD is an “all-risk” fire service agency with 68 regular employees, 30 volunteers, and 5 Board of Directors members.

MOFD’s goal for staffing is reviewed each budget cycle and considers historical and current year information related to fire and emergency services. MOFD responds to over 3,000 incidents annually. MOFD provides Advanced Life Support care within 6 minutes of notification, approximately 90 percent of the time (MOFD 2021b). MOFD’s annual budget is 27.9 million dollars, funded through property taxes. MOFD operates the following stations in Orinda and Moraga:

- Station 45 in Downtown Orinda at 33 Orinda Way is staffed with four fire fighters, and equipment includes a fire engine, a four-wheel drive wildland fire engine, and an ALS ambulance (cross-staffed).
- Station 44 on Orchard Road and Moraga Way in Orinda is staffed with three fire fighters and equipment includes a Ladder Truck, Type 6 wildland fire engine and a water tender.
- Station 43 on Honey Hill Road and Via Las Cruces in Orinda is staffed with three fire fighters, and equipment includes a fire engine and a type 3 wildland fire engine.
- Station 42 on Moraga Road in Moraga is staffed with three firefighters and equipment includes a fire engine, type 3 wildland fire engine and ALS ambulance (cross-staffed).
- Station 41 on Moraga Way in Moraga is staffed with five firefighters, equipment includes a fire engine and a type 3 wildland fire engine and ALS ambulance.

Primary service to the Planning Initiative area would be provided by Fire Stations 41 and 42.

b. Police Services

The Moraga Police Department (MPD) provides police services to the Town of Moraga. Police headquarters are located at 329 Rheem Boulevard. The MPD is currently authorized for 13 sworn officers, additional volunteer reserve officers and police cadets, and two civilian positions (Town of Moraga 2022). Sworn personnel include a Chief of Police, Lieutenant, Detective, Corporals, and Patrol Officers. Civilian positions include a Support Services Coordinator and Police Services Technician.

c. Schools

The Moraga School District operates three elementary schools (grades K-5) and one middle school (grades 6-8) in the town. The Acalanes Union High School District (AUHSD) operates four high schools (grades 9-12), an alternative school (grades 9-12), and an Adult Education Center in Contra Costa County. Two AUHSD schools, Campolindo and Miramonte, serve students from the Town of Moraga. In the 2021-2022 academic year, Campolindo High School had a total enrollment of 1,341 students and Miramonte High School had 1,183 students (CDE 2022).

d. Libraries

The Moraga Library is the only public library within Moraga, located at 1500 St. Mary's Road. The Moraga Library is managed by the Contra Costa County Library (CCCL) and contains over 65,000 books, audiobooks, music and DVDs (CCCL 2021). The Moraga Library also has public computers and free Wi-Fi available.

e. Parks and Recreation

The Moraga Parks and Recreation Department administers recreation centers and maintains parks within town limits. The Town is responsible for the management of 307 acres of existing parkland, including 57.5 acres of developed parks and 250 acres of preserved natural areas (Town of Moraga 2007). The Town operates a number of recreational facilities including picnic areas, volleyball courts, basketball courts, playgrounds, an amphitheater, a skate park, and about two miles of pedestrian and multi-use trail. The East Bay Regional Park District administers the 7.65 mile Lafayette-Moraga Regional Trail which parallels St. Mary's Road and is intended for hiking, bicycling, and equestrian use (EBRPD 2022).

4.13.2 Regulatory Setting

a. Federal Regulations

There are no federal regulations pertaining to public services that are applicable to this analysis. Applicable State and local regulations are described below.

b. State Regulations

California Fire and Building Code

The State of California provides minimum standards for building design through the California Building Code (CBC), which is located in Part 2 of Title 24, California Building Standards Code, of the CCR. The CBC is based on the International Building Code but has been amended for California conditions. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local building officials for compliance with the CBC. Typical fire safety requirements of the CBC include: the installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Code of Regulations

The California Code of Regulations, Title 5 Education Code, governs all aspects of education within the State. California State Assembly Bill 2926 (AB 2926) – School Facilities Act of 1986 – was enacted by the State of California in 1986 and added to the California Government Code (Section 65995). It authorizes school districts to collect development fees, based on demonstrated need, and generate revenue for school districts for capital acquisitions and improvements. It also established that the maximum fees which may be collected under this and any other school fee authorization are \$1.50 per square foot (\$1.50/ft²) for residential development and \$0.25/ft² for commercial and industrial development. AB 2926 was expanded and revised in 1987 through the passage of AB 1600, which added Section 66000 et seq. of the Government code. Under this statute, payment of statutory fees by developers serves as total mitigation under CEQA to satisfy the impact of development on school facilities. However, subsequent legislative actions have alternatively expanded and contracted the limits placed on school fees by AB 2926.

California Senate Bill 50

As part of the further refinement of the legislation enacted under AB 2926, the passage of SB 50 in 1998 defined the Needs Analysis process in government Code Sections 65995.5-65998. Under the provisions of SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development. SB 50 generally provides for a 50/50 State and local school facilities match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available; whether the school district is eligible for State funding; and whether the school district meets certain additional criteria involving bonding capacity, year-round schools, and the percentage of moveable classrooms in use.

California Government Code sections 65995-65998 sets forth provisions to implement SB 50. Specifically, in accordance with section 65995(h), the payment of statutory fees is “deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization...on the provision of adequate school facilities.” The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

Pursuant to Government Code section 65995(i), “A State or local agency may not deny or refuse to approve a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in section 56021 or 56073 on the basis of a person's refusal to provide school facilities mitigation that exceeds the amounts authorized pursuant to this section or pursuant to section 65995.5 or 65995.7, as applicable.”

California Education Code section 17620(a)(1) states that the governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities.

State Public Park Preservation Act (California Public Resource Code Section 5400 – 5409)

The State Public Park Preservation Act is the primary instrument for protecting and preserving parkland in California. Under the Act, cities and counties may not acquire any real property that is in

use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This ensures a no net loss of parkland and facilities.

Quimby Act (California Government Code Section 66477)

The Quimby Act allows cities and counties to adopt park dedication standards/ordinances requiring developers to set aside land, donate conservation easements, or pay fees towards parkland when property is subdivided.

c. Local Regulations

Moraga Municipal Code

Chapter 8.140, Park Dedications, of the Moraga Municipal Code, is enacted under the authority of California Government Code Section 66477 (the Quimby Act). It requires that a subdivider dedicates land or pays a fee for park, trail, or recreational purposes as a condition of approval of a tentative map or parcel map.

Town of Moraga 2002 General Plan

Policy GM1.5: Other Performance Standards. Establish the following performance standards for other Town facilities, services and infrastructure. These standards pertain to the development review process and should not be construed as applying to existing developed lands. Proposed developments must include mitigation measures to assure that these standards or their equivalent are maintained. Modifications to these standards may be accomplished by a resolution of the Town Council.

Parks. Three acres of parkland per 1000 residents.

Fire. A fire station within 1.5 miles of all residential and nonresidential development in the Town, in the absence of appropriate mitigation measures.

Police. Maintain a three-minute response time for all life-threatening calls and those involving criminal misconduct. Maintain a seven-minute response time for the majority of nonemergency calls.

Sanitary Facilities. The capacity to transport and treat residential and non-residential wastewater as indicated by the Central Contra Costa Sanitary District.

Water. The capacity to provide sufficient water to all residents and businesses in the Town as indicated by the East Bay Municipal Utility District.

Flood Control. Containment of the 100-year flood event (as determined by FEMA) by the flood control/drainage system.

Policy GM1.6: Development Impacts and Share of Costs. Require all new developments to contribute to or participate in the improvement of traffic service, parks, fire, police, sanitary, water and flood control systems in proportion to the demand generated by project occupants and users.

Fire Services

Policy PS3.1: Cooperation with the Moraga-Orinda Fire District. Cooperate with the Moraga-Orinda Fire District in developing standards, guidelines and local ordinances to assure provision

of adequate fire protection and emergency medical service for all persons and property in the community.

Policy PS3.2: Fire Stations. Maintain two fire stations in the Town. Work with the Moraga-Orinda Fire District to support its ongoing facility improvement program, including but not limited to the relocation of Station 42 from Rheem Boulevard to Moraga Road (as indicated on the General Plan Diagram).

Policy PS3.3: Response Times. Provide a maximum emergency response driving time of 3 minutes and/or a travel distance of not more than 1.5 miles for response vehicles from the closest fire station to arrive and effectively control fires and respond to medical and other emergencies in the community.

Policy PS3.5: Development Review for Emergency Response Needs. Evaluate new development proposals to ascertain and mitigate problems associated with emergency response needs.

Policy PS3.11: Development Review by the Moraga-Orinda Fire District. Require proposed construction projects that meet criteria established by the Moraga-Orinda Fire District (MOFD) to be reviewed by the MOFD at the beginning of the Town review process and before permits are issued. The MOFD shall submit conditions of approval for such projects to ensure that they meet adopted fire safety standards.

Police Services

Policy PS2.1: Police Services. Provide police services to maintain the peace, respond to localized emergencies and calls for service, and undertake crime prevention within the Town.

Police PS2.3: Public Safety and Design. Develop guidelines for the design and siting of buildings to reduce the opportunity for crime, and apply such considerations in the review of development proposals. Provide related information to the public to educate them on the benefits of appropriate home designs and other preventive steps they can take to reduce the incidence of crime in their neighborhood.

School Services

Policy FS2.1: Population Growth and School Capacity. Ensure that potential impacts on school facilities are considered when reviewing and approving development proposals, working with the Moraga School District and Acalanes Union High School District to determine potential impacts and establish appropriate mitigations, as necessary.

Policy FS2.2: Pace of Growth. Control the timing and location of new residential development in a way that allows the Moraga School District and Acalanes Union High School District to plan and finance facility expansion in an orderly fashion.

Policy FS2.3: School Impact Fees. Cooperate with the School Districts to assess an impact fee on new subdivision developments to offset the costs of facility expansion and other school impacts resulting from those developments, in accordance with State law.

Policy FS2.4: Cooperation with Schools. Maintain an ongoing collaborative working relationship with the Moraga School District, the Acalanes Union High School District, and private schools in the Town to address growth, facility planning, neighborhood impacts, and other issues of mutual concern.

Parks and Recreation Services

Policy FS3.1: Parks and Recreation Commission. Continue to appoint and support the Parks and Recreation Commission to advise the Town Council on parks and recreation matters. The Parks and Recreation Commission shall:

- Advise the Town Council concerning the establishment, implementation and evaluation of goals and policies relating to Parks and Recreation facilities and services.
- Maintain and biennially review and update the master plans for individual parks.
- Evaluate the need for additional park and recreation facilities.
- Review development proposals for adequacy of parks and recreation facilities and open space requirements.
- Advise the Town Council regarding the acceptance of park dedication funds and/or facilities

Policy FS3.2: Parks and Recreation Facilities in New Developments. Ensure that adequate recreation facilities are provided in areas of new residential development as a condition of development approval. Recreation facilities may include but need not be limited to amenities such as playgrounds, drinking fountains, trails, restrooms, picnic tables, play fields, and natural areas.

Policy FS3.3: Park Dedication Requirements. Require residential and business developments to make appropriate provisions for park land dedication, trails, trail easements and/or in-lieu fees as part of the planning and development process. Land and/or facilities provided by the developer can be considered for credit toward the park dedication requirement.

Policy FS3.4: Facility Maintenance. Provide a high level of maintenance at all park and recreation facilities.

Policy FS3.6: Access for People of All Abilities. Design and manage park and recreation facilities, including trail facilities, so that people of all abilities can access and enjoy Moraga's recreational opportunities, consistent with the requirements of the Americans with Disabilities Act (ADA).

Policy FS3.12: Recreation Programs. Develop recreation programs consistent with the carrying capacities of available park lands and facilities.

Policy FS3.15: Recreational Use of School Facilities. Consider school properties for recreational programming and joint facilities development to the extent feasible.

Policy FS3.20: Trails Master Plan. Implement the Moraga Trails Master Plan through ownership and easements to establish and maintain a comprehensive trails network in the Town. Adjust the plan as necessary to take advantage of any new trail opportunities that may arise.

Policy FS3.21: Trail Design and Maintenance. Consider the following when planning, designing, implementing and maintaining trail facilities:

- Environmental Impacts. Design trails for a minimum adverse environmental impact.
- Fiscal Impacts. Consider the fiscal impacts of accepting ownership and maintenance responsibility of trail facilities.
- Safety. Separate trail routes from motor vehicle routes whenever possible.
- Use of Fire Trails. In undeveloped areas, improve existing fire trails for trail use in cooperation with landowners.

4.13.3 Impact Analysis

a. Significance Thresholds and Methodology

In accordance with Appendix G of the *CEQA Guidelines*, impacts on public services and recreation from development facilitated by the Planning Initiative would be significant if the development would:

1. Result in substantial adverse physical impacts associated with the need for or provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives for:
 - a. Fire protection
 - b. Police protection
 - c. Schools
 - d. Parks
 - e. Other public facilities;
2. 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; or
3. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Additionally, for impacts to be considered significant, development of these public service and recreational facilities would also have to result in a significant physical environmental impact not already analyzed and disclosed in the other resource chapters of this EIR.

b. Impact Analysis

Threshold 1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Housing Element

Impact PS-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCREASE THE POPULATION IN THE TOWN, WHICH WOULD INCREASE DEMAND FOR FIRE PROTECTION SERVICES. HOWEVER, THIS INCREASE WOULD NOT REQUIRE ADDITIONAL AND/OR EXPANDED FIRE PROTECTION FACILITIES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.12, *Population and Housing*, development facilitated by the existing General Plan, plus the Housing Element, would add an estimated 5,067 residents to the Town, increasing Moraga's population from 18,048 to 23,115 persons. This population increase would incrementally increase demand for fire protection services. Most new development would be concentrated in the Moraga Center and Rheem Park areas, which are largely developed and are served by Station 41 on Moraga Way and Station 42 on Moraga Road, respectively. Station 41 is

within 0.5 mile of all Housing Opportunity Sites in Moraga Center and Station 42 is within 0.5 mile of Rheem Park area Housing Opportunity Sites.

Development facilitated by the Housing Element would increase calls for service for issues including, but not limited to, emergency medical service, structure or vegetation fires, and traffic collisions. The direct effect on MOFD would include evaluation of staffing and resource deployment to accommodate the increase in call volume throughout the community including Fire Stations 41 and 42. MOFD currently responds to 3,000 incidents annually for approximately 38,500 residents (including population of the Town of Moraga), which is about 0.08 incidents per resident. Therefore, development facilitated by the Housing Element is estimated to induce about 405 additional annual incidents. Since the Housing Element area is within MOFD's existing service area and potential development sites are within 2 miles of the nearest fire stations, emergencies on these sites could be responded to within current response times.

Development facilitated by the Housing Element would be required to comply with applicable fire code and ordinances for construction, emergency/fire access, water mains, fire flows, and hydrants, and would be subject to review and approval by the MOFD prior to building permit and certificate of occupancy issuance. In addition, new development would be required to meet current Building Code Standards for ember resistant construction. In case of a wildfire, the higher construction standards may allow for shelter in place considerations. Prior to issuance of occupancy permits, project applicants would be required to pay Town fees for Fire Code plan review and inspections.

2002 General Plan policies, including PS3.1, PS3.3, PS3.5, and PS3.11 are intended to reduce fire risk in the Town by encouraging fire protection and prevention education, development of an ordinance that requires fire protection features, and reviewing proposed construction projects to ensure fire code compliance. Additionally, proposed new and amended Policies S3.2 through S3.4, S3.7, S.8, , S3.13, S3.16, and S3.19 through S3.24 (see Section 4.17, *Wildfire*) would reduce the risk from wildfire for new development, such as maintain MOFD fire protection standards, continue wildfire mitigation strategies such as fuel breaks in open spaces and fire access easements, require proposed development to have adequate access for fire and emergency services, and maintaining evacuation routes in the event of an emergency.

In addition, the MOFD receives its funding through property taxes and fees for service and can fund expanded services as new development occurs. Development facilitated by the Housing Element would be required to pay fire protection development impact fees to fund additional facilities, staff resources, and equipment. These funds, in addition to MOFD's share of property tax revenue within its service area would help pay for costs associated with the development of new fire stations, if needed, including any required environmental analysis. Furthermore, construction of a new fire station or expansion of an existing station would be subject to CEQA review at the time a site is identified and a specific design proposed. Therefore, impacts related to new or physically altered fire protection facilities from Housing Element implementation would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact PS-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCREASE THE POPULATION IN THE STUDY AREA, WHICH WOULD INCREASE DEMAND FOR FIRE PROTECTION SERVICES. HOWEVER, THIS INCREASE WOULD NOT REQUIRE ADDITIONAL AND/OR EXPANDED FIRE PROTECTION FACILITIES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The analysis discussed in Impact PS-1 applies to the Bollinger Canyon Study Area. As discussed in Section 4.12, *Population and Housing*, development facilitated by the Bollinger Canyon Rezoning would add an estimated 138 residents to the Town. This population increase would incrementally increase demand for fire protection services. Development facilitated by the Bollinger Canyon Rezoning would induce about 11 annual incidents given the current rate of 0.08 incidents per resident. Development facilitated by the Bollinger Canyon Rezoning would be required to pay fire protection development impact fees to fund additional facilities, staff resources, and equipment. Due to the number of incidents that could occur because of the Bollinger Canyon Rezoning and because the impact fees would be collected to support fire protection services, an additional fire station or expanded fire station would not be required due to the Bollinger Canyon Rezoning.¹ As such, the impacts on fire services from the Bollinger Canyon Rezoning would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

<p>Threshold 2: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?</p>

Housing Element

Impact PS-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCREASE THE POPULATION IN THE TOWN, WHICH WOULD INCREASE DEMAND FOR POLICE PROTECTION SERVICES. HOWEVER, THIS INCREASE WOULD NOT REQUIRE ADDITIONAL AND/OR EXPANDED POLICE PROTECTION FACILITIES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.12, *Population and Housing*, development facilitated by the Housing Element would add an estimated 5,067 residents to the Town, increasing Moraga's population from 18,048 to 23,115 persons. This population increase would incrementally increase demand for police protection services. The cumulative effect of the new development and increased population will impact the ability of the Moraga Police Department to provide police protection and crime prevention services to the Town, given existing resources and staffing. The Town currently has 12 sworn police officers. To maintain, 0.75 officers per 1000 residents, an increase in population to

¹ Pursuant to a phone call between Afshan Hamid (Planning Director) and Jeff Isaacs (Fire Marsal) on October 6, 2022, Jeff Isaacs identified that a new fire station would not be needed due to the Housing Element or Bollinger Canyon Rezoning.

23,115 would require minimum of five additional officers and associated equipment. Adding five more officers to the Moraga Police Department would not require the expansion of existing facilities or construction of new facilities to maintain acceptable service ratios or response times.

2002 General Plan policy GM 1.5 calls for the Moraga Police Department to maintain a 3-minute response time for emergency calls and a 7-minute response time for non-emergency calls. Development facilitated by the Housing Element would be concentrated in the Moraga Center and Rheem Park areas and likely would not significantly raise response times.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact PS-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCREASE THE POPULATION IN THE STUDY AREA, WHICH WOULD INCREASE DEMAND FOR POLICE PROTECTION SERVICES. HOWEVER, THIS INCREASE WOULD NOT REQUIRE ADDITIONAL AND/OR EXPANDED POLICE PROTECTION FACILITIES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The analysis discussed in Impact PS-5 applies to the Bollinger Canyon Study Area. As discussed in Section 4.12, *Population and Housing*, development facilitated by the Bollinger Canyon Rezoning would add an estimated 138 residents to the Town. This population increase would incrementally increase demand for police protection services, which could increase police response times, though it is unknown by how much. This area is outside the current developed areas of the Town and would result in an expansion of the geographical area of routine patrols. However, because the Bollinger Canyon Rezoning would only add 51 residential units, the demand on police services would be low. As such, the Bollinger Canyon Rezoning would not require the construction of new or expanded police facilities and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Housing Element

Impact PS-5 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCREASE THE POPULATION IN THE PLANNING AREA, WHICH COULD RESULT IN THE NEED FOR ADDITIONAL AND/OR EXPANDED SCHOOL FACILITIES. HOWEVER, GOVERNMENT CODE 65995 (B) WOULD REQUIRE FUNDING FOR THE PROVISION OR EXPANSION OF NEW SCHOOL FACILITIES TO OFFSET IMPACTS FROM THE HOUSING ELEMENT. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the Housing Element could generate additional elementary, middle, and high school students. 2002 General Plan policies FS2.1 through FS2.4 would ensure population growth and school capacity impacts on school facilities are considered when reviewing and approving development proposals and impact fees are assessed to offset costs of facility expansion. Schools in the districts serving students in the Town, Acalanes Union High School District and Moraga School District, have experienced a total enrollment decline of 3.5 percent and 7.1 percent, respectively, in the previous three years (CDE 2022).

To offset a future project’s potential impact to schools, Government Code 65995 (b) establishes the base amount of allowable developer fees a school district can collect from development projects located within its boundaries. The fees obtained by Moraga School District and AUHSD are used to maintain the desired school capacity and the maintenance and/or development of new school facilities. Development facilitated by the Housing Element would be subject to these State-mandated school impact fees. Pursuant to Section 65995 (3)(h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998), the payment of statutory fees “is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization.” Therefore, existing laws and regulations would require funding for the provision or expansion of new school facilities to offset impacts from the Housing Element and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact PS-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCREASE THE POPULATION IN THE STUDY AREA, WHICH COULD RESULT IN THE NEED FOR ADDITIONAL AND/OR EXPANDED SCHOOL FACILITIES. HOWEVER, GOVERNMENT CODE 65995 (B) WOULD REQUIRE FUNDING FOR THE PROVISION OR EXPANSION OF NEW SCHOOL FACILITIES TO OFFSET IMPACTS FROM THE BOLLINGER CANYON REZONING. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

There are no schools located in the Bollinger Canyon Study Area and additional students would attend schools in the Town outside of the Study Area. The analysis discussed in Impact PS-5 applies to the Bollinger Canyon Study Area. Pursuant to California Government Code Section 65995(3)(h), the payment of statutory fees “is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization.” Therefore, existing laws and regulations would require funding for the provision or expansion of new school facilities to offset impacts from the Bollinger Canyon Rezoning and impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?
Threshold 4: 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?
Threshold 4: 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?

Housing Element

Impact PS-7 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCREASE THE POPULATION IN THE TOWN, WHICH WOULD INCREASE DEMAND FOR PARKS AND RECREATION SERVICES. HOWEVER, THE TOWN WOULD NOT EXCEED ITS THRESHOLD OF THREE ACRES OF PARKLAND PER 1,000 RESIDENTS. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.12, *Population and Housing*, development facilitated by the Housing Element would add an estimated 5,067 residents to the Town, increasing Moraga’s population from 18,048 to 23,115 persons. Moraga has approximately 869 acres of parkland and open space across four main parks: Moraga Commons Park, Rancho Laguna Park, West Commons Park, and Mulholland Ridge Open Space Preserve. The addition of 5,067 residents would decrease the Town’s

parkland ratio from approximately 48.3 acres of parkland per 1,000 residents to 37.7 acres per 1,000 residents. The parkland ratio in the Town would decrease, however it would remain well above the Town threshold of three acres of parkland per 1,000 residents. Moreover, new development would be required to dedicate parkland or contribute in-lieu fees to create new parkland, increasing the Town's parkland inventory as population grows. Overall, the Housing Element would not facilitate growth that would exceed the Town's parkland per resident threshold. Therefore, impacts to parks and recreation facilities from the Housing Element would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact PS-8 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCREASE THE POPULATION IN THE STUDY AREA, WHICH WOULD INCREASE DEMAND FOR PARKS AND RECREATION SERVICES. HOWEVER, THE TOWN WOULD NOT EXCEED ITS THRESHOLD OF THREE ACRES OF PARKLAND PER 1,000 RESIDENTS. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The analysis discussed in Impact PS-7 applies to the Bollinger Canyon Study Area. As discussed in Section 4.12, *Population and Housing*, development facilitated by the Bollinger Canyon Rezoning would add an estimated 138 residents to the Study Area. The addition of 138 residents in Bollinger Canyon would not decrease the Town's parkland ratio below the Town threshold of three acres of parkland per 1,000 residents. Overall, the Bollinger Canyon Rezoning would not facilitate growth in the Bollinger Canyon Study Area that would exceed the Town's parkland per resident threshold. Overall, impacts to parks and recreation facilities from the Bollinger Canyon Rezoning would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 5: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered public facilities, or the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Housing Element

Impact PS-9 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCREASE THE POPULATION IN THE TOWN WHICH WOULD INCREASE DEMAND FOR THE USE OF PUBLIC FACILITIES SUCH AS LIBRARIES. HOWEVER, ANY FUTURE PLANS TO EXPAND PUBLIC FACILITIES SUCH AS THE MORAGA LIBRARY WOULD BE SUBJECT TO ENVIRONMENTAL REVIEW UNDER CEQA AND GIVEN THAT THE MORAGA LIBRARY IS ON AN INFILL SITE EXPANSION IS UNLIKELY TO RESULT IN SIGNIFICANT IMPACTS. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As discussed in Section 4.12, *Population and Housing*, development facilitated by the Housing Element would add an estimated 5,067 residents to the Town, increasing Moraga's population from 18,048 to 23,115 persons.

The library is funded from local property taxes, which would continue to be paid by property owners. Moraga Library services are also available online, decreasing the need to use the library in person. Although there are currently no specific plans for a library expansion, potential future expansion would occur in an urbanized area in Moraga and would likely be developed as infill development. As infill development, it is not anticipated that expansion of the Moraga library would cause additional significant environmental impacts beyond those identified in this EIR. The environmental effects of the expansion would be consistent with the impacts determined in other sections of the EIR, which would be less than significant or less than significant with mitigation. If CCCL proposes an expansion and identifies appropriate funding, the Town would conduct a complete evaluation of the expansion's environmental impacts under CEQA. Therefore, impacts related to the provision of library services from Housing Element implementation would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact PS-10 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCREASE THE POPULATION IN THE TOWN, WHICH WOULD INCREASE DEMAND FOR THE USE OF PUBLIC FACILITIES SUCH AS LIBRARIES, POSSIBLY RESULTING IN THE NEED FOR ADDITIONAL OPEN HOURS AND STAFFING AND THE EXPANSION OF THE MORAGA LIBRARY. HOWEVER, ANY FUTURE PLANS TO EXPAND THE MORAGA LIBRARY WOULD BE SUBJECT TO ENVIRONMENTAL REVIEW UNDER CEQA AND GIVEN THAT THE MORAGA LIBRARY IS ON AN INFILL SITE EXPANSION IS UNLIKELY TO RESULT IN SIGNIFICANT IMPACTS. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Analysis discussed in Impact PS-9 applies to the Bollinger Canyon Study Area. Development facilitated by the Bollinger Canyon Rezoning would increase the Town's population and demand for public facilities such as the Moraga Library. The incrementally increased demand is unlikely to result in the need for expansion; however, if expansion is deemed necessary to keep up adequate service, the Town would conduct a complete evaluation of the expansion's environmental impacts under CEQA. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.14 Transportation

This section analyzes the potential impacts related to transportation, including the potential for conflicts with transportation plans; vehicle miles traveled (VMT); project-related transportation hazards; and emergency access associated with implementation of the Planning Initiative.

4.14.1 Setting

The existing vehicular circulation, bicycle and pedestrian facilities, and transit services in Moraga are described below.

a. Circulation System

The roadway network serving the Plan Area is shown in Figure 4.14-1. Key roadways are described below.

Arterials, Collectors, and Local Roadways

Arterials are major streets carrying the traffic of local and collector streets to and from freeways and other major streets, with controlled intersections and generally providing direct access to properties. Collectors are streets for traffic moving between arterial and local streets, generally providing direct access to properties. Local streets provide direct access to properties and are often designed to discourage through traffic. Key arterials and collectors in the town are described below. Public roadways in Moraga not included below are designated as local roads.

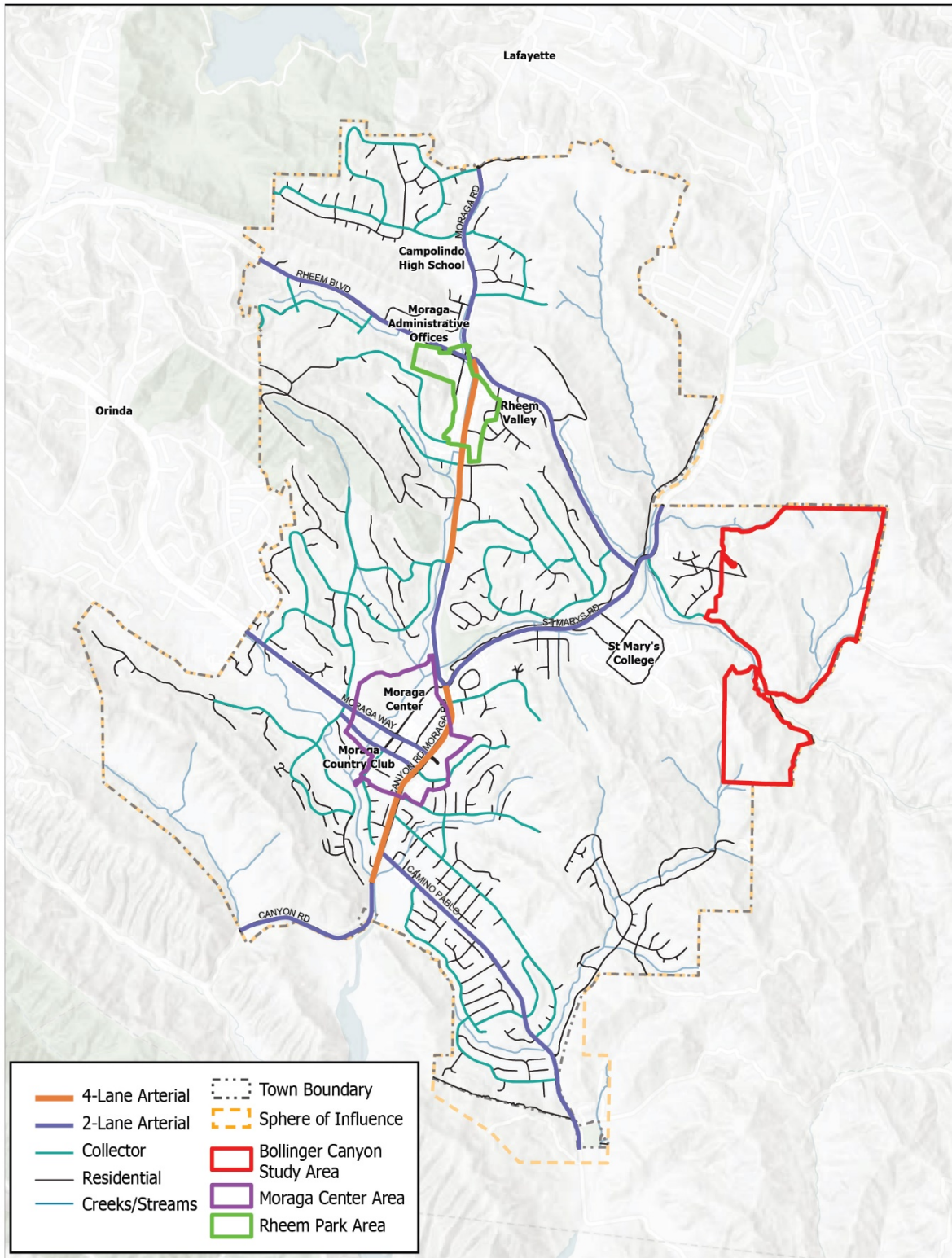
Arterials

- **Moraga Road/Canyon Road** is an arterial that varies between two and four lanes. Moraga Road extends between Moraga Way in the Town of Moraga and Mount Diablo Boulevard in the City of Lafayette. Canyon Road is the extension of Moraga Road south of Moraga Way, connecting to Pinehurst Road in Alameda County.
- **Camino Pablo** is a two-lane arterial that connects southern Moraga with Rancho Laguna Park, and also provides access to Camino Pablo Elementary School and Joaquin Moraga Intermediate School.
- **Moraga Way** is a two- to four-lane arterial extending from SR 24 in Orinda southeast to Moraga, terminating at Moraga Road/Canyon Road.
- **Saint Mary's Road** is a two-lane north-south arterial that extends from Moraga Road in Moraga to Moraga Road in Lafayette. The roadway provides access to Saint Mary's College of California in eastern Moraga.
- **Rheem Boulevard** is a two-lane arterial that connects from Saint Mary's Road to Glorietta Road in Orinda.

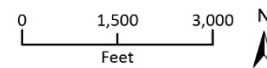
Collectors

- **Camino Ricardo/Saint Andrew's Drive.** Camino Ricardo is a two-lane north-south collector. It intersects Moraga Way where it becomes St. Andrew's Drive in the Moraga Country Club area.
- **Augusta Drive** is a two-lane north-south collector in the Moraga Country Club area.
- **Larch Avenue** is a two-lane collector between Camino Pablo and Canyon Road.

Figure 4.14-1 Roadway Network



Source: City of Moraga, 2002.



- **Sanders Drive** is a two-lane collector that extends from Canyon Road east to Old Moraga Ranch Trail.
- **Campolindo Drive** is a two-lane collector that extends from Moraga Road east to Paseo Grande. The roadway provides access to Campolindo High School.
- **Ascot Drive** is a two-lane collector that connects Moraga Road with Mulholland Ridge trail.
- **Fernwood Drive** is a two-lane collector that connects Rheem Boulevard with Draeger Drive in the Rheem Valley Manor residential neighborhood.
- **Corliss Drive** is a two-lane collector between Moraga Road and Sullivan Drive. It connects the surrounding residential area with Los Perales Elementary School.

b. Bicycle and Pedestrian Facilities

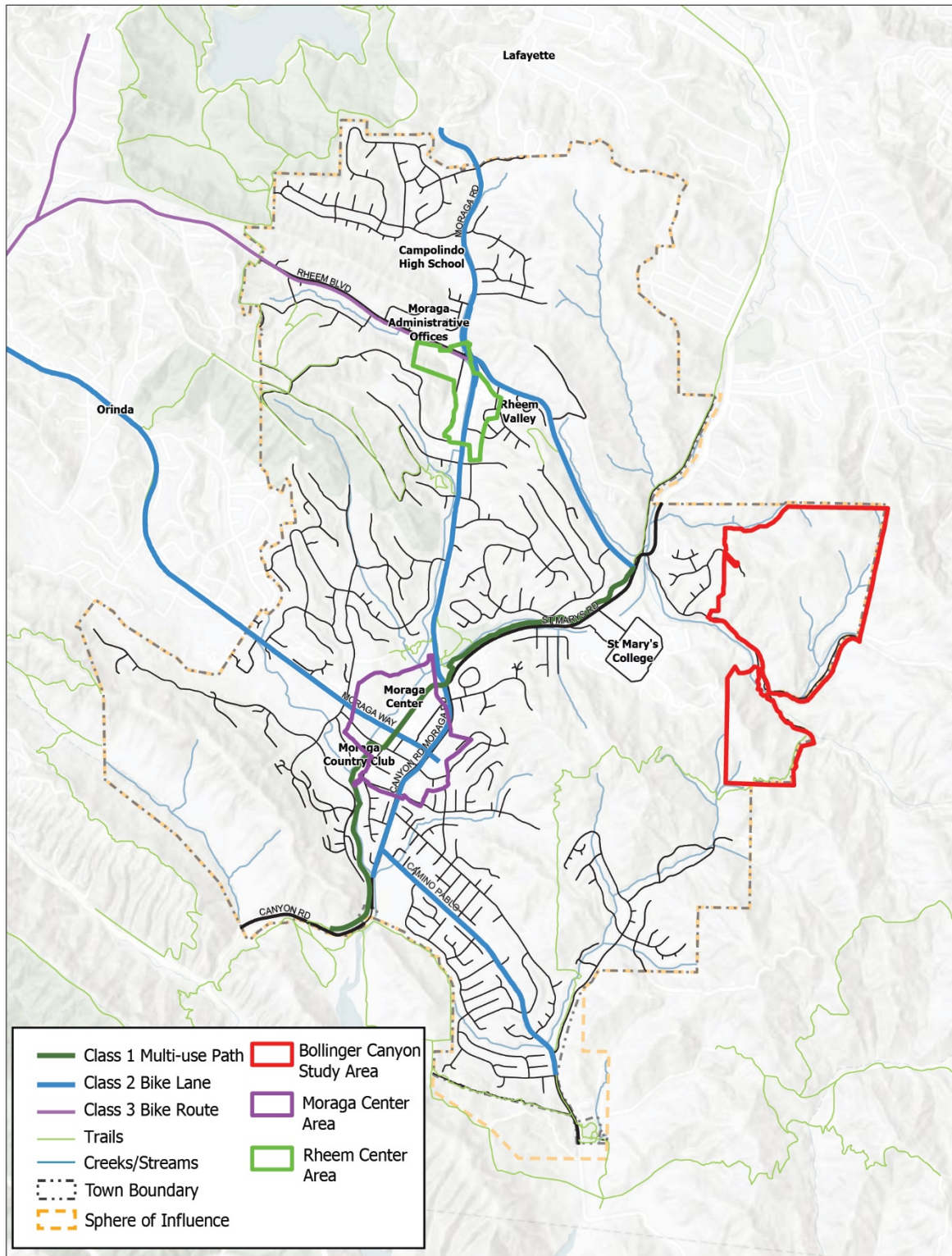
Bicycle Facilities

Bicycle planning and design typically relies on guidelines and design standards established by the California Department of Transportation (Caltrans) in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design). The *Highway Design Manual* provides four distinct types of bikeway facilities, as described below.

- **Class I Bikeways (Shared-Use Paths)** provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian crossflow minimized. In general, bike paths serve corridors where on-street facilities are not feasible or where sufficient right-of-way exists to allow them to be constructed.
- **Class II Bikeways (Bicycle Lanes)** are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically at least five feet wide. Adjacent vehicle parking and vehicle/pedestrian crossflow are permitted. Class II buffered bike lanes provide greater separation from an adjacent traffic lane and/or between the bike lane and on-street parking. This separation is created with chevron or diagonal striping.
- **Class III Bikeways (Bicycle Routes)** are designated by signs or pavement markings for shared use with pedestrians or motor vehicles but have no separated bike right-of-way or lane striping. Bike routes serve either to a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors.
- **Class IV Bikeways (cycle tracks or “separated” bikeways)** provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.

Existing and planned bicycle facilities are shown on Figure 4.14-2, based on the *Moraga Walk Bike Plan* (2016). The *Moraga Walk Bike Plan* and the *Moraga Capital Improvement Program* (2021-2022) identify the following recommended bicycle facility improvements in Moraga.

Figure 4.14-2 Existing and Proposed Bicycle Facilities



Source: City of Moraga, 2002.

Bicycle Facilities Projects from Walk Bike Plan

- **Moraga Way from Hardie Drive to Orinda City Limits Improvements:** On the north side, proposes prohibiting parking, then signing and stenciling the shoulder as a bike lane. On the south side, it would install a proper bike lane.
- **Camino Pablo from Canyon Road to Rimer Drive Improvements:** Proposes prohibiting parking except during school or church events and signing and striping the shoulders as bike lanes.
- **Camino Pablo from Oxford Drive to Hodges Drive Improvements:** Improves the existing bike lanes with more frequent signing and stenciling. Proposes prohibiting parking on the south side – to discourage jaywalking to the school – and installing a buffered or separated bike lane.
- **Camino Pablo from Hodges Drive to Moraga Creek Improvements:** Improves the existing bike lanes with more frequent signing and stenciling. Proposes prohibiting parking; then on the north side moving the bike lane to the curb and installing a buffered bike lane, and on the south side installing a separated bike lane.

Bicycle Facilities Projects from Capital Improvement Program

- **Rheem Boulevard Bicycle Improvement:** The Rheem Boulevard Bike Improvement project would provide bike lanes from the Moraga/Orinda border to Moraga Road.
- **Canyon Road Bicycle Improvements:** Some improvements outlined in the CIP include the following: install advisory and warning signs, shoulder widening or new shoulders, re-striping travel lane, new or improved turnouts, and enhanced roadway surfacing.

Moraga Road/Canyon Road Complete Streets Project

Moraga has applied for grant funding to build improvements on Moraga Road between St Mary's Road and Moraga Way and Canyon Road between Moraga Way and Sanders Drive. The project scope will add new sidewalks, bike lanes, pedestrian crossing improvements, street trees, new bus stop shelters with benches and trash cans, speed feedback signs, and other related improvements. The improvement project has been through planning phase and will enter design and environmental review once grant funding is obtained.

Pedestrian Facilities

The *Moraga Walk Bike Plan* and the *Moraga Capital Improvement Program (2021-2022)* identify pedestrian improvements on several streets in the town. Improvements are categorized as proposed walkways, trails, and intersection improvements designed to improve recreational, utilitarian, and school access.

The main on-street facilities for walking are sidewalks and crosswalks. While many of the arterials and collectors in Moraga have sidewalks, in many cases they are only on one side of the road, are discontinuous or have sections of substandard width. Marked crosswalks are included at key intersections, but there is often a long distance between crosswalks, limiting their convenience for users. Many of the residential streets also have sidewalks on at least one side; few have marked crosswalks, except at crossings with arterials and collectors. In addition, in recent years, the Town has been installing curb ramps at key locations to improve access for persons with disabilities.

Moraga has a number of other popular off-street walking, jogging, and biking trails, including the well-used Lafayette-Moraga Regional Trail. The Town's trail system is inventoried in the *Moraga Area Trails Guidebook 2014*, published by the Moraga Park Foundation.

Pedestrian Projects from Walk Bike Plan

- **Moraga Road from Devin Drive to Corliss Drive Improvement:** Sidewalk is missing or needs improvements on both sides of the street.
- **Moraga Way from School Street to Camino Ricardo/St. Andrew's Drive Improvement:** Proposes to build sidewalk or pave shoulder on the north side, and complete gaps on the south side.
- **Moraga Way from Hardie Drive to Ivy Drive Improvement:** Proposes to build sidewalk on the north side and complete the gap on the south side from Miramonte Drive to Ivy Drive.
- **Moraga Way from Warfield Street to Arroyo Drive:** Proposes to build sidewalk on one side of the street.
- **Canyon Road and Sanders Drive Intersection Improvement:** Evaluates safety improvement options for the existing crosswalk or considers moving it from Sanders Drive to Larch Avenue.

Pedestrian Projects from Capital Improvement Program

- **Corliss Drive One-Way Safe Routes to School:** This project would install pedestrian access on Corliss Drive near Los Perales Elementary School (from Woodside Drive to Arroyo Drive) to provide a safer path for students to walk to school. The project is envisioned to limit traffic to one-way to create adequate space to create a multi-use protected path on Corliss Drive.
- **Pedestrian Push Button Upgrade:** As part of the ADA Improvement Program, the Audible Pedestrian Push Button Upgrade Project will upgrade all existing pedestrian push buttons to ADA-compliant audible pedestrian push buttons at all signalized intersections within the Town. This project will replace approximately 45 pedestrian pushbuttons with audible pedestrian push buttons (APBB).
- **Moraga Road – Buckingham to Woodford Sidewalk Gap Closure:** This project will install a sidewalk on the east side of Moraga Road from Buckingham Drive to Woodford Drive. This location is adjacent to Campolindo High School and would provide a safe continuous path for students to walk to school.
- **Moraga Road – Donald Drive Sidewalk Gap Closure:** This project will install a sidewalk at the southwest corner of Moraga Road and Donald Drive to connect the sidewalk to the north and south. This will provide a continuous pedestrian path on one side of Moraga Road.

c. Public Transportation

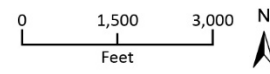
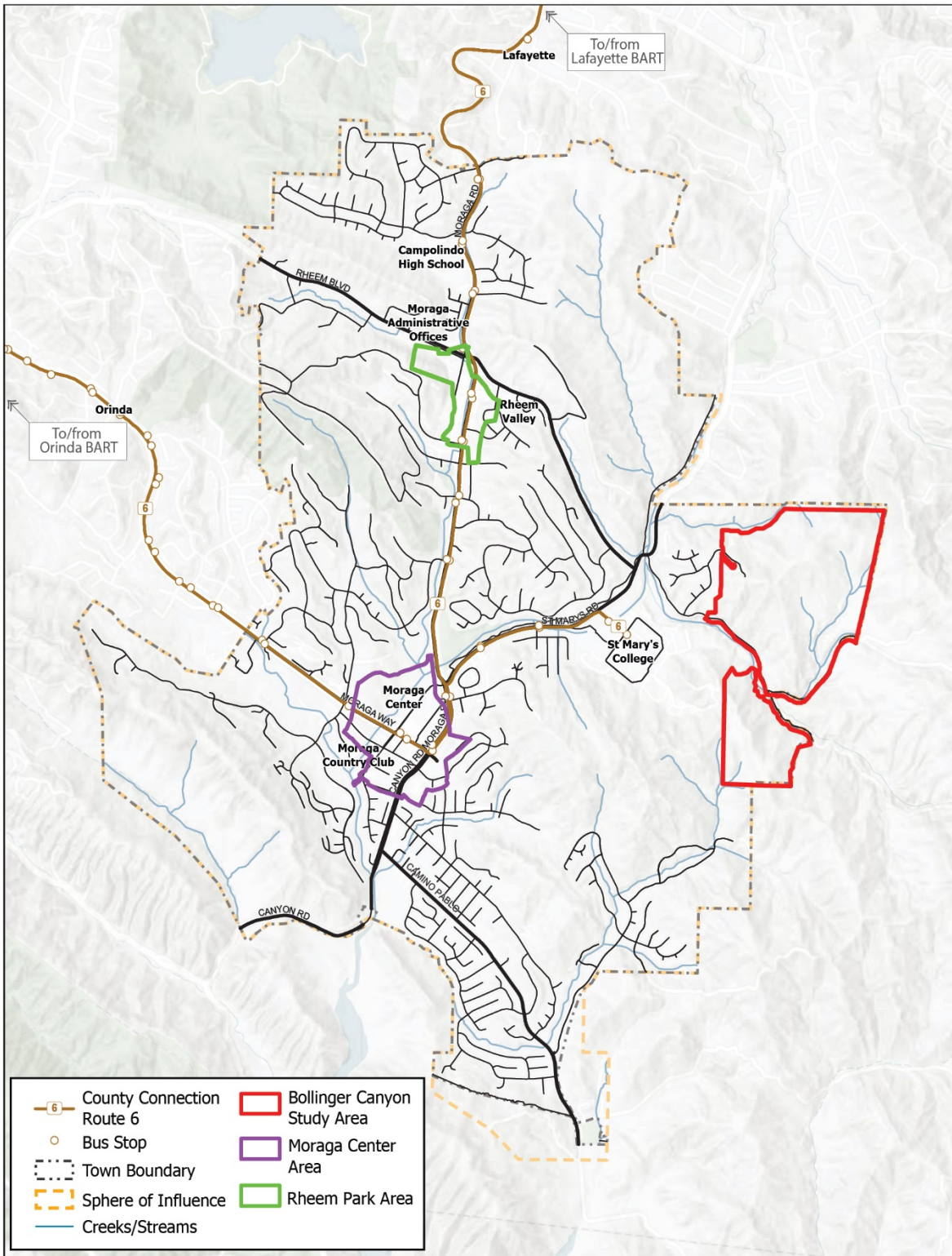
Transit agencies serving Moraga and the surrounding region include Bay Area Rapid Transit (BART), which has stations in Orinda and Lafayette, and Central Contra Costa Transit Agency (County Connection), which provides bus service in the area.

County Connection provides one fixed local route serving Moraga, as described below.

- **Route 6 – Lafayette BART/Orinda BART:** Route 6 operates between the Orinda and Lafayette BART stations via Moraga Way, Moraga Road, and Saint Mary's Road. The route also serves Saint Mary's College. Weekday service runs between 6:00 AM and 8:00 PM, with typical headways of 30 minutes during peak periods (6:00-9:00 AM and 3:00-8:00 PM) and up to an hour in off-peak periods. Saturday service runs between 9:30 AM and 5:30 PM, with headways of between 60 and 90 minutes.

Figure 4.14-3 shows Route 6, including stop locations, in Moraga.

Figure 4.14-3 Transit Routes



Source: City of Moraga, 2002.

4.14.2 Regulatory Setting

a. Federal Regulations

No federal plans, policies, regulations, or laws related to transportation and circulation are applicable to the Planning Initiative.

b. State Regulations

Assembly Bill 1358

Assembly Bill 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include “Complete Streets” policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as the redesign of corridors. The Town of Moraga adopted a Complete Streets Policy in 2015.

Senate Bill 743

Passed in 2013, California Senate Bill (SB) 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change was made by replacing Level of Service (LOS) with Vehicle Miles Traveled (VMT). This shift in transportation impact focus is intended to better align transportation impact analysis and mitigation outcomes with the state’s goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through development of multimodal transportation networks. LOS or other delay metrics may still be used to evaluate the impact of projects on drivers as part of land use entitlement review and impact fee programs.

In December 2018, the Natural Resources Agency finalized updates to Section 15064.3 of the CEQA Guidelines, including the incorporation of SB 743 modifications. The Guidelines’ changes were approved by the Office of Administrative Law and as of July 1, 2020 are now in effect statewide.

To help aid lead agencies with SB 743 implementation, the Governor’s Office of Planning and Research (OPR) produced the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) that provides guidance about the variety of implementation questions they face with respect to shifting to a VMT metric. Key guidance from this document includes:

- VMT is the most appropriate metric to evaluate a project’s transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a “per rate” basis.
- OPR recommends that a per capita or per employee VMT that is 15 percent below that of existing development may be a reasonable threshold. In other words, an office project that generates VMT per employee that is more than 85 percent of the regional VMT per employee could result in a significant impact. OPR notes that this threshold is supported by evidence that connects this level of reduction to the state’s emissions goals.
- OPR recommends that where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds described above should apply.

- Lead agencies have the discretion to set or apply their own significance thresholds.

Senate Bill 375

Senate Bill (SB) 375 provides guidance regarding curbing emissions from cars and light trucks. There are four major components to SB 375. First, SB 375 requires regional greenhouse gas emission targets. These targets must be updated every 8 years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, Metropolitan Planning Organizations are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. Third, SB 375 requires housing elements and transportation plans to be synchronized on eight-year schedules. Finally, Metropolitan Planning Organizations must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the California Transportation Commission.

Caltrans Construction and Safety Requirements

Caltrans issued the VMT-Focused Transportation Impact Study Guide (TISG) in May 2020, outlining the process by which Caltrans will review and assess VMT impacts of land development projects. The TISG generally aligns with the guidance in the OPR *Technical Advisory*.

c. Regional and Local Regulations

Plan Bay Area 2050

Plan Bay Area 2050 is a long-range integrated transportation and land-use/housing strategy through the year 2050 for the San Francisco Bay Area. On October 21, 2021, the Association of Bay Area Governments (ABAG) Executive Board and the Metropolitan Transportation Commission (MTC) jointly approved the plan. Plan Bay Area 2050 connects the elements of housing, the economy, transportation, and the environment through 35 strategies that will make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. In the short-term, the plan's Implementation Plan identifies more than 80 specific actions for MTC, ABAG, and partner organizations to take over the next five years to make headway on each of the 35 strategies. Plan Bay Area is the nine-county region's long-range plan designed to meet the requirements of Senate Bill 375, described above. However, during the time of this analysis, the CCTA Model reflects data included in Plan Bay Area 2040, and this model is currently the best available tool for VMT analysis.

Contra Costa County Congestion Management Program

The Contra Costa Transportation Authority (CCTA) is Contra Costa County's designated Congestion Management Agency (CMA). It is responsible for implementing programs to ensure traffic levels remain manageable. Moraga serves on the Southwest Area Transportation Committee (SWAT) that includes Contra Costa County, the Town of Danville, and the cities of Orinda, Lafayette, and San Ramon. It is also a member of the Lamorinda Program Management Committee, a subcommittee of SWAT.

As the CMA, CCTA coordinates land use, air quality, and transportation planning among local jurisdictions. A Congestion Management Program (CMP) was created to spend the funds allocated to these projects, known as Measure J. This measure is a one-half cent countywide sales tax used for transportation improvements within the County. The revenue must be spent on projects and programs included in the CCTA Transportation Expenditure Plan (Expenditure Plan) which designates 18 percent of the annual sales tax revenue as "return-to-source" funds. The Town's

eligibility for these funds is contingent on compliance with the Town's Growth Management Program (GMP), reflected in the Growth Management section of the General Plan.

Contra Costa Countywide Transportation Plan

As a member of CCTA, the Town of Moraga is active in the development of the Countywide Transportation Plan (CTP), intended to carry out the following countywide transportation goals:

- Enhance the movement of people and goods on highways and arterial roads
- Manage the impacts of growth to sustain Contra Costa's economy and preserve its environment
- Provide and expand safe, convenient, and affordable alternatives to the single-occupant vehicle
- Maintain the transportation system

The CTP incorporates five sub-regional Action Plans for Routes of Regional Significance (Action Plans). This is one of the primary vehicles for implementing achieving the Measure J Growth Management Program's goal of reducing the cumulative impacts of growth. The Action Plans also fulfill a key requirement of CCTA's Congestion Management Program. This is a state-mandated program for evaluating the impact of land use decisions on the regional transportation system and establishing performance measures. Each Action Plan contains these components:

- Long range assumptions about future land uses based on local general plans and travel demand based on household and job growth.
- Multimodal transportation objectives that can be measured and timed.
- Specific actions to be implemented by each jurisdiction.
- A process for consultation on environmental documents.
- A procedure for reviewing the impacts of local General Plan amendments that could affect the transportation objectives.
- A schedule for reviewing and updating the Action Plans.

The Town of Moraga is included in the Lamorinda Action Plan. The Action Plan includes both regional actions and actions for specific routes. There are two routes in the adjacent cities of Lafayette and Orinda that are identified as Routes of Regional Significance:

- State Route 24
- BART

The Action Plan also includes interjurisdiction routes. These routes do not warrant designation as Routes of Regional Significance, but would benefit from the multi-jurisdictional planning process envisioned in Measure J. The intent is to be able to monitor the performance of these routes and work cooperatively to specify projects and programs intended to increase the safety and reliability of the routes while increasing multimodal mobility within Lamorinda. There are two routes identified as Interjurisdictional Routes in Moraga:

- Moraga Way
- Moraga Road

CCTA and its consultants began updating the subregional Action Plans and the Countywide Transportation Plan in 2021. These updates will bring the plans into compliance with recent State transportation legislation such as SB 743 and will outline countywide efforts to increase public and

active transportation mode share. The updates may include changes to Routes of Regional Significance designations in Moraga, including St. Mary's Road and the Lafayette-Moraga Trail. In accordance with emerging transportation best management practices, these plans will expand beyond typical transportation evaluation topics and will consider safety, equity, climate change, and technology throughout. These plans will include Regional Transportation Objectives (RTOs) that set quantifiable metrics by which CCTA and its jurisdictions can measure the success of actions. Specific actions, including both projects and programs, will be adopted to support achievement of each RTO, and will be intended to result in a reduction of countywide VMT and GHG emissions.

CCTA VMT Guidance for Member Agencies

The CCTA has developed guidance for member jurisdictions to use in developing their own VMT analysis methods, metrics, and thresholds of significance. The CCTA's *Growth Management Program Implementation Guide* (Revised February 17, 2021), Appendix F (CCTA Recommended Methodology) describes the recommendations. A flow chart describing the recommended methodology is included in the Technical Appendix. The Town of Moraga has chosen to follow the CCTA guidance. More detail on the VMT analysis methodology, metrics, and thresholds of significance are provided in Section 4.14.3, *Methodology and Assumptions*.

Town of Moraga General Plan

The *Moraga General Plan* (2002) is a comprehensive long-range general plan for the physical development of the Town of Moraga. The General Plan contains the current Town of Moraga Housing Element, which was adopted in 2015. The various elements within the General Plan include goals and policies for the physical development of the Town. The goals and policies from the General Plan that are relevant to this transportation impact analysis are listed below.

Goal CD5: Multi-family developments that are centrally located, well designed, and appropriate to Moraga's context and character.

Policy CD5.1: Locate new multi-family developments in close proximity to commercial centers, transit stops, and community facilities such as parks and schools, with site design and landscaping to create buffers between adjacent uses while providing connection to pedestrian and bicycle paths.

Policy CD5.4: Design new multi-family developments to create high quality pedestrian environments, with connections to the Town's pedestrian path and trail system.

Goal C1: A circulation system that provides reasonable and safe access to the Town, egress from the Town, and internal movement.

Policy C1.11: Maintain and improve critical transportation facilities for emergency vehicle access and emergency evacuation needs.

Goal C4: Encourage Moragans to walk, bike, take transit or rideshare as a means of reducing traffic trips, improving environmental quality, and maintaining a healthy lifestyle.

Policy C4.1: Provide a safe, continuous, and connected system of pedestrian pathways through the Town, including sidewalks, paths, trails, and appropriate crosswalks along all principal streets, to link residential neighborhoods, commercial areas, community facilities such as

schools and parks, and other important destinations. Link this network as appropriate with the regional trails system.

Policy C4.2: Develop a complete bicycle system with direct, continuous, interconnected pathways between residential and commercial areas, community facilities, commuter corridors and transit hubs.

Policy C4.3: Encourage the use of transit to and from the Lamorinda BART stations.

Policy C4.4: Encourage development patterns and other strategies that may help reduce traffic trips, especially during the morning and afternoon peak hours.

4.14.3 Impact Analysis

a. Traffic Impact Assessment under CEQA

State law has changed with respect to how transportation-related impacts are addressed under CEQA. Traditionally, lead agencies used level of service (LOS) to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Mitigation measures typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological and cultural resources). Depending on circumstances, and an agency's tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of Senate Bill 743 (2013), PRC Section 21099(b)(1), directed the Governor's Office of Policy and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

CEQA Guidelines section 21099(b)(2) further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any." (Italics added.)

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) [regarding roadway capacity], a project's effect on automobile delay shall not constitute a significant environmental impact."

b. Significance Thresholds

The significance criteria used to evaluate the Planning Initiative impacts on transportation under CEQA are based on CEQA Guidelines Appendix G, as well as VMT thresholds of significance recommended by the CCTA. The Town Council provided direction to staff preparing the EIR to apply the CCTA VMT thresholds on September 15, 2022.

The following describes the significance criteria used to identify impacts on the transportation for the Planning Initiative. A significant impact would occur if implementation of the Planning Initiative would:

- Conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). For the purposes of this evaluation, this impact would be significant if the implementation of the Project would generate home-based VMT per resident within the Project planning areas that is higher than 85 percent of the County-wide average home-based VMT per resident;
- Result in designs for on-site circulation, access, and parking areas that fail to meet Town or industry standard design guidelines; or
- Result in inadequate emergency access to development sites.

c. Methodology

The VMT analysis methodology utilizes the procedures described in the CCTA's *Growth Management Program Implementation Guide* (Revised February 17, 2021), Appendix F. The procedures are summarized below. The analysis is presented for the Planning Initiative as a whole, as individual project-level VMT analysis would need to be prepared when projects are proposed and considered by the Town.

Project Screening

There are five screening criteria that can be applied to screen projects out of conducting project-level VMT analysis.

1. **CEQA Exemption.** Any project that is exempt from CEQA is not required to conduct a VMT analysis.
2. **Small Projects.** Small projects are presumed to cause a less than significant VMT impact. Small projects are defined as having 10,000 square feet or less of non-residential space, 20 residential units or fewer, or otherwise generate less than 836 VMT per day.
3. **Local-Serving Uses.** Projects that consist of local-serving uses can generally be presumed to have a less than significant impact absent substantial evidence to the contrary, since these types of projects will primarily draw users and customers from a relatively small geographic area that will lead to short-distance trips and trips that are linked to other destinations. (Note that the agency and analysts should provide substantial evidence to support the finding that a use is local serving, such as a market study, studies of similar uses elsewhere, survey of other similar uses within the project's market area, etc.)
4. **Projects Located in Transit Priority Areas (TPAs).** Projects located within a TPA can be presumed to have a less-than-significant impact absent substantial evidence to the contrary. This exemption would not apply if the project:

Comprehensive Advanced Planning Initiative

- Has a Floor Area Ratio (FAR) of less than 0.75;
 - Includes more parking for use by residents, customers, or employees than required by the lead agency (if the agency allows but does not require the project to supply a certain amount of parking);
 - Is inconsistent with the applicable Sustainable Communities Strategy (SCS) [as determined by the lead agency, with input from the Metropolitan Transportation Commission (MTC)]; or
 - Results in a net reduction in multi-family housing units.
5. **Projects Located in Low VMT Areas.** Residential and employment-generating projects located within a low VMT-generating area are presumed to have a less than significant impact absent substantial evidence to the contrary. A low VMT area is defined as follows:
- For housing projects: Cities and unincorporated portions within CCTA's five subregions that have existing home-based VMT per capita that is 85 percent or less of the existing countywide average.
 - For employment-generating projects: Cities and unincorporated portions of CCTA's five subregions that have existing home-work VMT per worker that is 85 percent or less of the existing regional average.

There is no definition of a low VMT area for regional-serving and other project types since these projects will always require a VMT analysis. Mixed-use projects may qualify for the use of this screening criterion if they include only housing, employment-generating uses and local-serving uses, and can reasonably be expected to generate VMT per resident and/or per worker that is similar to the existing land uses in the low VMT area.

Projects Requiring VMT Analysis

A project not excluded from VMT analysis through the screening process described above is subject to a VMT analysis to determine if it has a significant VMT impact. The analysis scenarios and significance assessment are described below.

The following scenarios are addressed in the VMT analysis. While the CCTA guidance recommends that project-level impacts be evaluated against baseline conditions, for this analysis the home-based VMT per resident of the Planning Initiative is evaluated under both baseline (2020) and future (2040) conditions, because the build-out period is expected to be several years. In addition to the project-level evaluation in both baseline and future conditions, a cumulative assessment of the Planning Initiative's effect on total VMT rates countywide is presented.

- **Baseline (2020) Conditions:** The most current version of the baseline (2020) CCTA model is used to determine the baseline home-based VMT per resident for the traffic analysis zones (TAZs) comprising the Planning Initiative Plan Area, as well as to determine the countywide average VMT per resident and the 85 percent of countywide average VMT per resident.
- **Baseline (2020) Plus Project Conditions:** The proposed land use(s) – in this case, the proposed additional housing units within the Planning Initiative Plan Area-- are added to the 2020 model for the relevant TAZs comprising the Plan Area, and a full 2020 Plus Project model run is performed.
- **Baseline Plus Project Significance Assessment:** The 2020 Plus Project home-based VMT per resident for the relevant TAZs comprising the Planning Initiative Plan Area is compared to the 2020 Baseline countywide home-based VMT per resident. If the home-based VMT per resident

for the TAZs is higher than 85 percent of the countywide average home-based VMT per resident, the impact is significant.

- **2040 No Project Conditions:** The most current version of the Year 2040 CCTA model is adjusted to reflect only the housing growth within Moraga that is approved but not yet constructed, and is run to determine the 2040 No Project home-based VMT per resident for the traffic analysis zones (TAZs) comprising the Planning Initiative Plan Area.¹ This No Project definition is used to assess the VMT effects of the project's development growth relative to the development growth that is currently proposed. This No Project definition is different than the "No Project" alternative discussed in Chapter 6, *Alternatives*. The No Project Alternative discussed in Chapter 6, *Alternatives*, considers the buildout allowed under the existing General Plan and existing zoning. The use of the No Project definition in this analysis (i.e., growth based on what is currently proposed) is reasonable to compare the impacts of the project with the impacts of the growth from other projects that are currently known.
- **2040 Plus Project Conditions:** The proposed land use(s) – in this case, the proposed additional housing units within the Planning Initiative Plan Area are added to the 2040 No Project model for the relevant TAZs comprising the planning areas, and a full 2040 Plus Project model run is performed.
- **2040 Plus Project Significance Assessment:** The 2040 Plus Project home-based VMT per resident for the relevant TAZs comprising the Planning Initiative Plan Area is compared to the 2020 countywide home-based VMT per resident. If the home-based VMT per resident for the TAZs comprising the Planning Initiative Plan Area is higher than 85 percent of the countywide average home-based VMT per resident, the impact is significant.

Cumulative Analysis and Significance Assessment (Project's Effect on Total Countywide VMT): The total countywide VMT per service population (defined as VMT generated by all trip types divided by all residents and employees) is compared for the 2040 Plus Project condition against the 2040 No Project condition. If the Planning Initiative causes total countywide VMT per service population to increase, this would constitute a significant impact.² This VMT metric and threshold measures the project's effect on all VMT within the County under 2040 conditions because the project's new housing not only generates its own VMT but could change travel patterns and thus VMT generated by other development in the region. The metric is different than the comparison of the project-generated VMT in 2040 to the countywide average, which is described above.

¹ Note that the travel demand model based on Plan Bay Area 2050 was not yet available for use in this analysis.

² Note that the cumulative analysis is only required by the CCTA Guidance if the project-level impact is found to be significant. While this is not the case for the Planning Initiative, the cumulative analysis is provided for information. Note also that it may be appropriate to re-distribute the Planning Initiative's housing units to other areas within the County for the 2040 No Project case, as the Planning Initiative itself does not affect market choices about where new development may occur, and therefore the development potential represented by the Planning Initiative may occur elsewhere under the 2040 No Project case. However, for this analysis, the Planning Initiative units were not re-distributed to other sites throughout the County for the 2040 No Project case.

d. Impact Analysis

Threshold: Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
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Housing Element

Impact TRA-1 THE HOUSING ELEMENT WOULD NOT CONFLICT WITH AN APPLICABLE PROGRAM, PLAN, ORDINANCE, OR POLICY ESTABLISHING MEASURES OF EFFECTIVENESS FOR THE PERFORMANCE OF ADDRESSING THE CIRCULATION SYSTEM, INCLUDING TRANSIT, ROADWAY, BICYCLE, AND PEDESTRIAN FACILITIES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT IMPACT.

The Housing Element would be subject to the implementation of General Plan policies applicable to transit, roadway, bicycle, and pedestrian facilities and service. Additionally, development projects facilitated by the Housing Element would be subject to applicable Town guidelines, standards, and specifications related to transit, roadway bicycle, or pedestrian facilities. The Housing Element does not include designs or programs for new or redesigned roads.

Specifically, modifications or new transit, roadway, bicycle, and pedestrian facilities would be subject to and designed in accordance with applicable General Plan Guiding and Implementing policies. Policy C1 calls for a circulation system that provides reasonable and safe access to the Town, egress from the Town, and internal movement. Policy C4 encourages Moragans to walk, bike, take transit or rideshare as a means of reducing traffic trips, improving environmental quality, and maintaining a healthy lifestyle. Regarding Implementing Policies, Policy CD5.1 encourages the location of new multi-family developments in close proximity to commercial centers, transit stops, and community facilities such as parks and schools. Policy CD5.4 calls for designing new multi-family developments to create high quality pedestrian environments, with connections to the Town's pedestrian path and trail system. Policy C1.11 calls for maintaining and improving critical transportation facilities for emergency vehicle access and emergency evacuation needs. Policy C4.1 encourages the provision of a safe, continuous, and connected system of pedestrian pathways through the Town, including sidewalks, paths, trails, and appropriate crosswalks along all principal streets, to link residential neighborhoods, commercial areas, community facilities such as schools and parks, and other important destinations. Policy C4.2 calls for developing a complete bicycle system with direct, continuous, interconnected pathways between residential and commercial areas, community facilities, commuter corridors and transit hubs. Policy C4.3 encourages the use of transit to and from the Lamorinda BART stations. Finally, Policy C4.4 encourages development patterns and other strategies that may help reduce traffic trips, especially during the morning and afternoon peak hours.

Because implementation of the Housing Element would be subject to applicable Town guidelines, standards, and specifications, it would not conflict with adopted policies, plans, or programs for transit, bicycle, or pedestrian facilities. Therefore, the Housing Element would result in a less-than-significant impact to transit, bicycle, and pedestrian facilities.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact TRA-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT CONFLICT WITH AN APPLICABLE PROGRAM, PLAN, ORDINANCE, OR POLICY ESTABLISHING MEASURES OF EFFECTIVENESS FOR THE PERFORMANCE OF ADDRESSING THE CIRCULATION SYSTEM, INCLUDING TRANSIT, ROADWAY, BICYCLE, AND PEDESTRIAN FACILITIES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT IMPACT.

Analysis discussed in Impact TRA-1 applies to the Bollinger Canyon Study Area. The Bollinger Canyon Rezoning does not propose any specific development within the Bollinger Canyon Study Area, and it would not conflict with policies applicable to transit, roadway, bicycle, and pedestrian facilities and service. Additionally, development projects facilitated by the Bollinger Canyon Rezoning in the Study Area would not directly conflict with applicable Town guidelines, standards, and specifications related to transit, roadway, bicycle, or pedestrian facilities. Therefore, the Bollinger Canyon Rezoning would result in a less-than-significant impact to transit, bicycle, and pedestrian facilities.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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

Impact TRA-3 THE HOUSING ELEMENT WOULD GENERATE HOME-BASED VMT PER RESIDENT THAT IS GREATER THAN 85 PERCENT OF THE COUNTYWIDE AVERAGE HOME- BASED VMT PER RESIDENT. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

This analysis quantified VMT for the total Planning Initiative, which includes VMT from the future development associated with the Housing Element and the Bollinger Canyon Rezoning. Unlike other analyses in this EIR, where the impacts were separated out, the VMT impact analysis considers the effect of all the housing in the Planning Initiative as a whole and does not assess individual development project site VMT. As such, this analysis uses the term “Planning Initiative” and the results here apply to both the Housing Element and the Bollinger Canyon Rezoning.

Screening Analysis

The potential to screen the full Planning Initiative, or a portion of the Planning Initiative, from a full VMT analysis was considered, as described below. The five key screening criteria are addressed. For the reasons given, it was determined that a full VMT analysis should be conducted for the Planning Initiative.

Comprehensive Advanced Planning Initiative

1. **CEQA Exemption.** The Planning Initiative is not otherwise exempt from CEQA, so this criterion does not apply.
2. **Small Projects.** While it is possible that certain housing developments built under the Planning Initiative would be 20 or fewer units, this screening test would need to be applied as a part of individual project review and does not apply to the Planning Initiative as a whole.
3. **Local-Serving Uses.** This screening criteria is intended to apply to commercial uses, and is not relevant to residential project types.
4. **Projects Located in Transit Priority Areas (TPAs).** There is no TPAs in the study area, so this criterion does not apply.
5. **Projects Located in Low VMT Areas.** Screening based on location within a low-VMT area would be based on the VMT maps prepared by CCTA at the traffic analysis zone (TAZ) level, using the Contra Costa Countywide Travel Demand Model results. Certain TAZs could meet the criteria of low-VMT generating characteristics, and housing projects within these TAZs could be presumed to have a less than significant impact with respect to VMT.

VMT Analysis

Modeling Procedure

The Contra Costa Countywide Travel Demand Model (CCTA Model) was used to generate VMT estimates for the Planning Initiative. The CCTA Model allows analysts to forecast regional travel behavior as a function of local land use development decisions, transportation network infrastructure planning, and land use and network policies. The CCTA Model reflects data included in Plan Bay Area 2040, the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) that was recently replaced with adoption of Plan Bay Area 2050 by MTC/ABAG. CCTA has prepared a memorandum documenting the CCTA Model's consistency with Plan Bay Area 2040, and the model is currently the best available tool for analysis of VMT impacts.

Residential projects are evaluated based on the home-based VMT per resident VMT metric. Home-based VMT is defined as all home-based automobile vehicle trips traced back to the residence of the trip-maker. Non-home-based trips are excluded. This VMT includes the entire length of the trip. This home-based VMT is then divided by the number of residents to calculate home-based VMT per resident.

This calculation is done in the CCTA model via the production and attraction trip matrices to be able to attribute automobile vehicle trips to the residence of the trip-maker. The calculations are done to include all trips, including trips that leave the travel model area (the nine-county Bay Area). VMT for trips that leave the travel model area is adjusted to account for the part of the trip that occurs outside of the travel model area.

The number of housing units added under the No Project scenario (consisting of approved but not yet constructed units) and the With Project scenario (consisting of all units proposed under the Planning Initiative, which includes the approved/not constructed projects) are shown in Table 4.14-1 and Table 4.14-2. As shown in the tables, the No Project scenario would add a total of 225 housing

units to the study area and the Plus Project scenario would add 1,820 units.³ The units are listed by TAZ in the CCTA model. Figure 4.14-4 shows the corresponding TAZs throughout the Town.

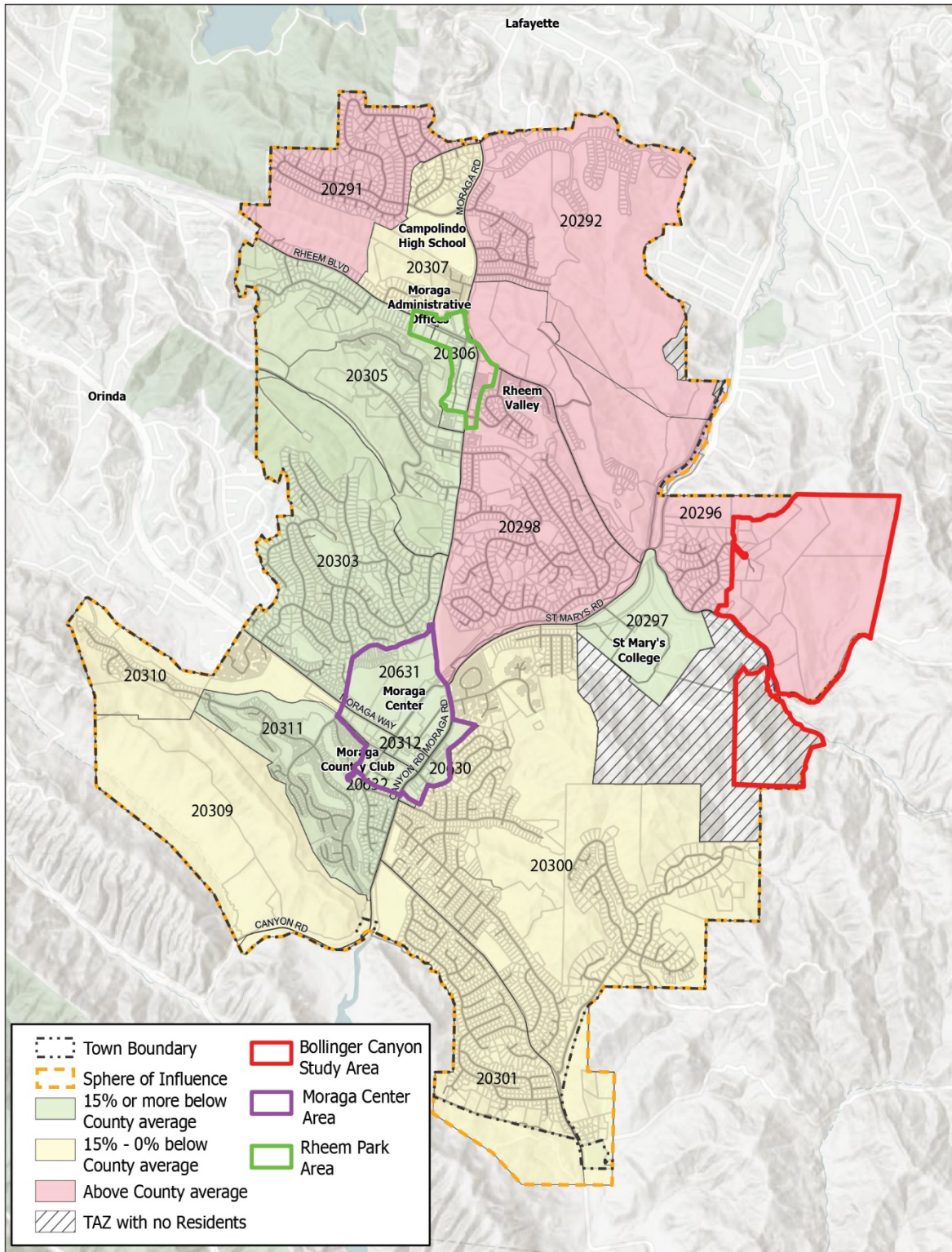
Table 4.14-1 Housing Units Added by TAZ under No Project Scenario

TAZ	Single-Family Detached Units	Single-Family Attached Units	Multi-Family Units	Auxiliary Dwelling Units	Total
20292	123	–	–	30	153
20296	–	–	–	–	–
20298	–	–	–	–	–
20300	7	–	–	–	7
20303	–	–	–	–	–
20305	–	–	–	–	–
20306	–	–	–	–	–
20307	–	–	–	–	–
20309	–	–	–	–	–
20310	65	–	–	–	65
20312	–	–	–	–	–
20630	–	–	–	–	–
20631	–	–	–	–	–
20632	–	–	–	–	–
Total	195	0	0	30	225

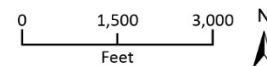
Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers 2022.

³ The 1,820 dwelling units includes the 1,365 dwelling units that would be allowed by the existing zoning, the 405 dwelling units that would be allowed by the changes in zoning at the Moraga Center area and Rheem Park area, and approximately 50 dwelling units in Bollinger Canyon. The approach in this analysis is to consider 1,820 dwelling units, to consider the overall cumulative impact from all the residential units that could be accommodated by both existing zoning, the Housing Element, and the Bollinger Canyon Rezoning.

Figure 4.14-4 TAZs within the Town of Moraga



Note: TAZ 20301 is not included as a Moraga Town TAZ because it falls largely outside Town limits.



Source: City of Moraga, 2002.

Table 4.14-2 Housing Units Added by TAZ under Plus Project Scenario

TAZ	Single-Family Detached Units	Single-Family Attached Units	Multi-Family Units	Auxiliary Dwelling Units	Total
20292	127	–	–	30	157
20296	88	–	–	–	88
20298	2	–	23	–	25
20300	35	–	–	–	35
20303	2	–	–	–	2
20305	7	–	93	–	100
20306	–	–	250	–	250
20307	2	–	–	–	2
20309	150	–	–	–	150
20310	65	–	–	–	65
20312	–	–	15	–	15
20630	36	33	–	–	69
20631	16	124	521	–	661
20632	–	–	201	–	201
Total	530	157	1,103	30	1,820

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers 2022.

VMT Results

The Contra Costa Countywide Travel Demand Model was adjusted to reflect the relevant housing unit numbers for the No Project and Plus Project cases, for 2020 and 2040 conditions, and the resulting VMT metrics were reported. Table 4.14-3 presents the results for the 2020 Plus Project case, and Table 4.14-4 presents the results for the 2040 Plus Project case.

Table 4.14-3 VMT Summary: 2020 With Project

VMT Area	Home-Based VMT/Resident			
	2020 Base	2020 + Project	2020 Base	2020 + Project
Countywide Average	19,965,854	20,063,402	17.3	17.3
Townwide Average	249,866	312,854	13.8	13.9
Threshold: 85 percent of 2020 Base Countywide Average	–	–	14.7	–
Project (Planning Initiative Plan Area)	188,351	250,998	15.0	14.7
Project above Significance Threshold?	–	–	–	No

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers 2022.

Table 4.14-4 VMT Summary: 2040 With Project

VMT Area	Home-Based VMT/Resident					
	2020 Base	2040 No Project	2040 + Project	2020 Base	2040 No Project	2040 + Project
Countywide Average	19,965,854	22,281,810	22,334,686	17.3	16.0	16.0
Townwide Average	249,866	264,932	312,888	13.8	13.8	13.5
Threshold: 85 percent of 2020 Base Countywide Average	–	–	–	14.7	–	–
Project (Planning Initiative Plan Area)	188,351	204,378	252,208	15.0	14.9	14.3
Project above Significance Threshold?	–	–	–	–	–	No

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers 2022.

The analysis indicates that:

- The Town of Moraga VMT per resident of 13.8 miles-per-resident is lower than the countywide average VMT per resident of 17.3 miles-per-resident in the 2020 baseline, and it is not projected to change in 2040 without the project but would decrease to 13.5 with the project.
- VMT rates in the County as a whole are projected to decline between 2020 and 2040, but VMT rates in Moraga are projected to remain at the same level.
- The VMT rates within the Planning Initiative Plan Area are projected to be less than 85 percent of the baseline countywide average for the Planning Initiative, in both 2020 and 2040.

These results suggest that the Planning Initiative’s impact with respect to VMT would be less than significant under baseline and future conditions, owing to the low VMT rates within Moraga and within the Planning Initiative development areas (less than 85 percent of countywide average), which may be due to the Town’s relative proximity to two BART stations and closer proximity to jobs centers in Alameda County and San Francisco, relative to Contra Costa as a whole. More specifically, the sites in the Moraga Center and Rheem Park being rezoned through the Housing Element are in low VMT areas. Because these sites near services, workplaces, and transit, the impacts on VMT are lower than if these sites were on the edges of the Town.

The year 2040 total countywide VMT per service population (all residents and employees) is shown in Table 4.14-5, for the No Project and With Project scenarios. These metrics reflect VMT generated by all trips by all land uses in the County, as opposed to the home-based trips generated by housing development only, described above. As shown in the table, the Planning Initiative would result in slightly lower total VMT per service population than the No Project scenario. Therefore, the cumulative impact with respect to VMT would be less than significant.

Overall, the Planning Initiative is expected to result in a less than significant impact in the 2020 Plus Project, 2040 Plus Project, and Cumulative Scenarios.

Table 4.14-5 Cumulative VMT Analysis

VMT Area	Total VMT			Total VMT/Service Population		
	2020 Base	2040 No Project	2040 + Project	2020 Base	2040 No Project	2040 + Project
Countywide Average	25,892,700	30,326,500	30,351,700	16.57	16.11	16.07
VMT Rate Increases with Project?	–	–	–	–	–	No

Note: service population consists of all residents and employees.

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers 2022.

Future Project-Level Analysis

The analysis above covers the potential impacts from implementing the whole Planning Initiative. However, an individual project could result in a significant impact if it exceeded significance thresholds. This analysis considers the potential for individual future projects to exceed significance thresholds.

Future development projects under the Planning Initiative, whether on sites proposed for re-zoning or not, that meet any of the screening criteria described above and do not have project characteristics that would otherwise warrant a VMT analysis would not require a VMT impact analysis. In other words, they may be presumed to have a less than significant impact. The screening criteria related to projects in low VMT areas would generally apply to projects in the Moraga Center and Rheem Park study areas (refer to Figure 4.14-4). However, screening determination would need to be made at the time projects are proposed.

In addition, there are previously zoned and designated sites on the edges of Moraga where housing may be constructed. Although these sites are not impacted by the Planning Initiative, they have the capacity for housing under existing General Plan and zoning regulations. Individual development proposals under the Planning Initiative may occur on these sites that do not screen out of further analysis. Any project that does not screen out from VMT analysis would require a project-specific VMT analysis, and results of that analysis may exceed the VMT criteria. Around 30 percent of the units already approved or proposed (537 out of the 1,820 units) are in areas which have a home-based VMT per resident above the significance threshold. The areas with VMT per resident above the threshold are TAZs 20292, 20296, 20298, 20300, 20307, 20309, and 20310 (see Figure 4.14-4).

Because the VMT impacts of individual future development projects cannot be determined as part of this analysis, the impact of the Planning Initiative as a whole would be significant and mitigation measures would be required.

Mitigation Measure

TRA-1 VMT Reduction Measures

Individual housing project development proposals that do not screen out from VMT impact analysis shall provide a quantitative VMT analysis using the methods applied in this EIR, with modifications if appropriate based on future changes the Town of Moraga practices and CCTA VMT analysis methodology guidelines. Projects which result in a significant impact shall include measures to reduce VMT. These shall include travel demand management measures and physical measures to reduce VMT, including but not limited to the measures below, which have been identified as

potentially VMT reducing in the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (December 2021). Potential VMT reduction estimates are included below, but detailed requirements, calculation steps, and limitations are described in the CAPCOA Handbook. In addition, application of one or more transportation demand measures (TDM) is generally expected to result in a net VMT reduction of 10 percent or less for development projects in suburban settings such as Moraga.

- Unbundle parking costs (i.e., sell or lease parking separately from the housing unit). Effectiveness: up to 15.7 percent reduction in GHG from VMT per the CAPCOA Handbook.
- Provide car-sharing, bike sharing, or scooter sharing programs. Effectiveness: 0.15 – 0.18 percent reduction in GHG from VMT for car share, 0.02 – 0.06 percent for bike share, and 0.07 percent for scooter share, per the CAPCOA Handbook. The higher car share and bike share values are for electric car and bike share programs. Note that these effectiveness rates are based on available research and analysis prepared by CAPCOA.
- Subsidize transit passes for residents of affordable housing. Effectiveness: up to 5.5 percent reduction in GHG from VMT per the CAPCOA Handbook.

In addition to the on-site measures noted above, individual housing projects that are above the VMT threshold could potentially contribute to future VMT mitigation fee programs, banks, or exchanges. No regional VMT mitigation programs currently exist; however, the CCTA is currently evaluating different mitigation program frameworks which may lead to a countywide or sub-regional VMT mitigation program. Should such a program be implemented, development projects could potentially pay into a fee program or purchase mitigation credits to achieve needed VMT mitigation instead of, or in addition to, onsite TDM measures.

Significance After Mitigation

Because the effectiveness of the above measures in reducing an individual project's VMT impact to a less than significant level cannot be determined in this analysis, the impact for projects which do not screen out from VMT impact analysis would remain significant and unavoidable even with mitigation.

Bollinger Canyon Rezoning

Impact TRA-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD GENERATE HOME-BASED VMT PER RESIDENT THAT IS GREATER THAN 85 PERCENT OF THE COUNTYWIDE AVERAGE HOME-BASED VMT PER RESIDENT. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Analysis discussed in Impact TRA-3 applies to the Bollinger Canyon Study Area. The VMT analysis considered the Planning Initiative as a whole, including the Bollinger Canyon Study Area. Likewise, future development projects that would occur within the Bollinger Canyon Study Area may exceed VMT criteria set forth by CCTA, because the Study Area is one of the areas envisioned for housing that has high VMT per capita. Therefore, the Bollinger Canyon Rezoning would result in a significant and unavoidable impact to VMT and would require mitigation.

Mitigation Measures

Mitigation Measure TRA-1 would be required.

Significance After Mitigation

Because the effectiveness of the above measures in reducing an individual project's VMT impact to a less than significant level cannot be determined in this analysis, the impact for projects which do not screen out from VMT impact analysis would remain significant and unavoidable even with mitigation.

Threshold: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?
--

Housing Element

Impact TRA-5 THE HOUSING ELEMENT WOULD NOT RESULT IN DESIGNS FOR ON-SITE CIRCULATION, ACCESS, AND PARKING AREAS THAT FAIL TO MEET TOWN OR INDUSTRY STANDARD DESIGN GUIDELINES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Projects facilitated by the Housing Element, including new roadway, bicycle, pedestrian, and transit infrastructure improvements, would be subject to, and designed in accordance with Town standards and specifications which address potential design hazards including sight distance, driveway placement, and signage and striping. Additionally, new transportation facilities, or improvements to such facilities associated with projects would be constructed based on industry design standards and best practices consistent with the Town's zoning code and building design and inspection requirements. The Town's evaluation of projects' access and circulation would incorporate analysis with respect to Town standards for vehicular level of service and queueing, as well as for service to pedestrians, bicyclists, and transit users. Therefore, the Housing Element would result in a less than significant impact to transportation hazards.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact TRA-6 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN DESIGNS FOR ON-SITE CIRCULATION, ACCESS, AND PARKING AREAS THAT FAIL TO MEET TOWN OR INDUSTRY STANDARD DESIGN GUIDELINES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Analysis discussed in Impact TRA-5 applies to the Bollinger Canyon Study Area. Projects facilitated by the Bollinger Canyon Rezoning, including new roadway, bicycle, pedestrian, and transit infrastructure improvements, would be subject to, and designed in accordance with Town standards and specifications which address potential design hazards including sight distance, driveway placement, and signage and striping. Additionally, new transportation facilities, or improvements to such facilities associated with projects would be constructed based on industry design standards and best practices consistent with the Town's zoning code and building design and inspection requirements. The Town's evaluation of projects' access and circulation would incorporate analysis

with respect to Town standards for vehicular level of service and queueing, as well as for service to pedestrians, bicyclists, and transit users. Therefore, the Bollinger Canyon Rezoning would result in a less than significant impact to transportation hazards.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold: Would the project result in inadequate emergency access?
--

Housing Element

Impact TRA-7 THE HOUSING ELEMENT WOULD NOT RESULT IN INADEQUATE EMERGENCY ACCESS TO DEVELOPMENT SITES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

There are no specific development projects associated with the Housing Element; and thus, specific housing sites developed under the Housing Element cannot be analyzed for adequacy of emergency access at this time. However, the Town maintains the roadway network which would provide access to new development sites in accordance with industry design standards. Emergency access to new development sites proposed under the Project would be subject to review by the Town of Moraga and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. The Town also requires projects to obtain encroachment permits that include mandated limits on working hours and days, and traffic control plans. These would minimize temporary obstruction of traffic during site construction.

Additional vehicles associated with new development sites could increase delays for emergency response vehicles during peak commute hours. However, emergency responders maintain response plans which include use of alternate routes, sirens and other methods to bypass congestion and minimize response times. In addition, California law requires drivers to yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes to ensure the safe and timely passage of emergency vehicles.

Based on the above considerations, adequate emergency access would be provided to new development sites, and the impact would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact TRA-8 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT RESULT IN INADEQUATE EMERGENCY ACCESS TO DEVELOPMENT SITES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Analysis discussed in Impact TRA-7 also applies to the Bollinger Canyon Study Area. Emergency access to new development sites proposed under the Project would be subject to review by the Town of Moraga and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. The Town also requires construction projects to obtain encroachment permits that include mandated limits on working hours and days, and traffic control plans. These would minimize temporary obstruction of traffic during site construction. Based on the above considerations, adequate emergency access would be provided to new development sites, and the impact would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.15 Tribal Cultural Resources

This section analyzes potential impacts related to tribal cultural resources (TCR) associated with the implementation of the Planning Initiative. Potential impacts to archaeological and historical resources are addressed in Section 4.4, *Cultural Resources*.

4.15.1 Setting

a. Ethnographic Overview

The Town of Moraga lies within an area traditionally occupied by the Ohlone (or Costanoan) people. Ohlone territory extends along the California coast from the point where the San Joaquin and Sacramento Rivers merge into the San Francisco Bay to Point Sur. Their inland boundary was limited to the interior Coast Ranges (Kroeber 1925:462). The Ohlone language belongs to the Penutian family, with several distinct dialects throughout the region (Kroeber 1925:462). It is divided into eight regional dialects: Karkin, Chochenyo, Ramaytush, Awaswas, Taymen, Mutsun, Rumsen, and Chalon (Jones 2015).

The pre-contact Ohlone were semi-sedentary, with a settlement system characterized by base camps and seasonal reserve camps composed of tule reed houses with thatched roofs made of matted grass (Schick 1994; Skowronek 1998). Just outside base camps, large sweat houses were built into the ground near stream banks used for spiritual ceremonies and possibly hygiene (Schick 1994, Jones 2015). Villages were divided into small polities, each of which was governed by a chief responsible for settling disputes, acting as a war leader during times of conflict, and supervising economic and ceremonial activities (Skowronek 1998; Kroeber 1925:468). Social organization appeared flexible to ethnographers and any sort of social hierarchy was not apparent to mission priests (Skowronek 1998).

Archaeological investigations have informed Ohlone mortuary rituals. Cemeteries were set away from villages and visited during the annual Mourning Anniversary (Leventhal and DiGiuseppe 2009). Ceremonial human grave offerings might include *Olivella* beads, as well as tools like drills, mortars, pestles, hammerstones, bone awls, and utilized flakes (Leventhal and DiGiuseppe 2009). Ohlone mythology included animal characterization and animism, which was the basis for several creation narratives. Ritually burying of animals, such as a wolf, squirrel, deer, mountain lion, gray fox, elk, badger, grizzly bear, blue goose, and bat ray, was commonly practiced. Similar to human burials, ceremonial offerings were added to ritual animal graves like shell beads, ornaments, and exotic goods (Kroeber 1925; Field and Leventhal 2003; Jones 2010).

Ohlone subsistence strategies were based on hunting, gathering, and fishing (Kroeber 1925:467, Skowronek 1998). Larger animals, like bears, might be avoided, but smaller game was hunted and snared on a regular basis (Schick 1994:17). Like much of California, the acorn was an important staple and was prepared by leaching acorn meal in openwork baskets and in holes dug into the sand (Kroeber 1925:467). The Ohlone also practiced controlled burning to facilitate plant growth (Kroeber 1925:467, Skowronek 1998). During specific seasons or in times of drought, the reserve camps would be utilized for gathering seasonal food and accessing food storage (Schick 1994). Fishing would be done with nets and gorge hooks out of tule reed canoes (Schick 1994:16-17). Mussels were a particularly important food resource. Sea mammals such as sea lions and seals were hunted, and beached whales were exploited (Kroeber 1925:467).

Seven Franciscan missions were built within Ohlone territory in the late 1700s, and all members of the Ohlone group were eventually brought into the mission system (Kroeber 1925:462, Skowronek 1998). After the establishment of the missions, Ohlone population dwindled from roughly 10,000 people in 1770 to 1,300 by 1814 (Skowronek 1998). In 1973, the population of people with Ohlone descent was estimated at fewer than 300. The descendants of the Ohlone united in 1971 and have since arranged political and cultural organizations to revitalize aspects of their culture (Skowronek 1998).

4.15.2 Regulatory Setting

a. Federal Regulations

No existing federal regulations pertain to TCR within Moraga.

b. State Regulations

Assembly Bill 52

As of July 1, 2015, California Assembly Bill (AB) 52 of 2014 was enacted and expanded CEQA by defining a new resource category, “tribal cultural resources.” Assembly Bill 52 establishes that “[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (Public Resources Code [PRC] Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

- a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC section 5020.1(k)
- b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.

AB 52 also establishes a formal consultation process for California Native American Tribes regarding those resources. The formal consultation process must be completed before a CEQA document can be released if a California Native American Tribe traditionally and culturally affiliated with the geographic area of the proposed project requests consultation from the lead agency (PRC Section 21080.3.1). California Native American Tribes to be included in the process are those that have requested notice of proposed projects within the jurisdiction of the lead agency.

Senate Bill 18

Enacted on March 1, 2005, Senate Bill (SB) 18 (California Government Code Section 65352.3 and 65352.4) requires cities/towns and counties to notify and consult with California Native American

tribal groups and individuals regarding proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places (sacred sites), prior to adopting or amending a general plan or designating land as open space. Tribal groups or individuals have 90 days to request consultation following the initial contact.

c. Local Regulations

Town of Moraga 2002 General Plan

Adopted in 2002, and last amended in April 2018, the Town's 2002 General Plan includes policies for preserving historical resources in the context of growth and change under the General Plan. There are no goals or policies relevant to tribal cultural resources in the 2002 General Plan.

4.15.3 Existing Conditions

In accordance with AB 52 and SB 18, the Town of Moraga notified the following 12 tribes of the Planning Initiative on October 26, 2021 and invited them to participate in consultation:

- Amah Mutsun Tribal Band of Mission San Juan Bautista
- Chicken Ranch Rancheria of Me-Wuk Indians
- Guidiville Indian Rancheria
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- Indian Canyon Mutsun Band of Costanoan
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe
- North Valley Yokuts Tribe
- The Confederated Villages of Lisjan
- The Ohline Indian Tribe
- Tule River Indian Tribe
- Wilton Rancheria
- Wuksache Indian Tribe/Eshom Valley Band

The Town prepared and mailed letters with the Notice of Preparation of an Environmental Impact Report for the Planning Initiative in accordance with AB 52 and SB 18 on October 26, 2021. No tribes responded to request formal consultation.

4.15.4 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

Based on *CEQA Guidelines* Appendix G, a project may be deemed to have a significant impact on TCR if it would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

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

Methodology

The presence and significance of a potential TCR is determined through consultation between lead agencies and local California Native Americans. Impacts to TCRs are highly dependent on the nature of the resource but, in general, could occur if there is destruction or alteration of the resource and its surroundings, restricted access to the resource, or other disturbances.

b. Project Impacts and Mitigation Measures

Threshold 1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource?

Housing Element

Impact TCR-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT IN THE MORAGA CENTER AND RHEEM PARK AREAS MAY INVOLVE GRADING AND EXCAVATION DURING CONSTRUCTION, WHICH HAS THE POTENTIAL TO UNCOVER PREVIOUSLY UNIDENTIFIED TRIBAL CULTURAL RESOURCES. IMPLEMENTATION OF PROPOSED IMPLEMENTATION PROGRAMS IN THE HOUSING ELEMENT WOULD REDUCE IMPACTS TO TRIBAL CULTURAL RESOURCES TO A LESS THAN SIGNIFICANT LEVEL.

On September 8, 2021, a letter was sent to the Native American Heritage Commission (NAHC) requesting a current SB 18 Native American Contact List for the Plan Area. The NAHC provided a list of 12 tribal contacts with tribal connections to the Plan Area. The Town of Moraga sent letters via email to each tribal contact to determine if they had knowledge of tribal cultural resources in the Plan Area or if they would like to request additional consultation with the Town regarding the Planning Initiative. No tribes responded to request for consultation under AB 52 or SB 18 during the consultation period.

Although the AB 52 consultation for this document did not identify specific TCRs within the Town, new TCRs could be identified or established during implementation of the Housing Element. Additionally, unknown TCRs may be unearthed during construction and ground disturbing activities related to development on individual sites. As specific projects are proposed, consultation with tribes under AB 52 would occur to determine if TCRs may be impacted by specific projects. If TCRs are identified during AB 52 consultation, compliance with AB 52 on a project-by-project basis, as required, would ensure that development facilitated by the Housing Element does not have a detrimental effect on TCRs. Additionally, 2002 General Plan Policy CD7.2 promotes the conservation of historic sites, which would reduce impacts of the discovery of a tribal cultural resource. Due to the possibility of ground disturbance during construction activities, the Housing Element would increase the likelihood for development that could affect TCRs.

Proposed Implementation Programs CR-A through CR-C would reduce impacts to tribal cultural resources (see Section 4.4, *Cultural Resources*). In addition, the following proposed Implementation Programs pertaining to tribal cultural resources, which require specific actions in the event that resources are discovered during ground disturbance, would be included as part of the General Plan Update:

Implementation Program TCR-A: Suspension of Work Around Tribal Cultural Resources. Suspend all earth-disturbing work within 60 feet of identified cultural resources of Native American origin. Retain a qualified cultural resource specialist and consult with an appropriate Native American representative to design and implement feasible mitigation.

Implementation Program TCR-B: Tribal Cultural Resource Treatment Plan. Retain a qualified cultural resource specialist, in consultation with appropriate Native American representative, to design a tribal cultural resource treatment plan in the event an unanticipated archaeological resource that may be considered a tribal cultural resource is identified during construction.

Required implementation of these proposed Implementation Programs would reduce impacts to a less than significant level.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact TCR-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING MAY INVOLVE GRADING AND EXCAVATION DURING CONSTRUCTION, WHICH HAS THE POTENTIAL TO IMPACT PREVIOUSLY UNIDENTIFIED TRIBAL CULTURAL RESOURCES. PROPOSED IMPLEMENTATION PROGRAMS WOULD REDUCE IMPACTS TO A LESS THAN SIGNIFICANT LEVEL.

As discussed above, the letter sent to NAHC requesting a current SB 18 Native American Contact List applies to development facilitated by the Bollinger Canyon Rezoning. Although the AB 52 consultation for this document did not identify specific TCRs within the Bollinger Canyon Study Area, new TCRs may be identified or established during implementation of the Bollinger Canyon Rezoning which is expected to occur over many years. As specific projects are proposed, consultation with tribes under AB 52 would occur to determine if TCRs may be impacted by specific projects. For example, unknown TCRs may be unearthed during construction and ground disturbing activities related to buildout of the Bollinger Canyon Study Area. If TCRs are identified during AB 52 consultation, compliance with AB 52 on a project-by-project basis, as required, would ensure that development facilitated by the Bollinger Canyon Rezoning would not have a detrimental effect on TCRs.

Due to the possibility of ground disturbance during construction activities within the Bollinger Canyon Study Area there is the likelihood for development under the Bollinger Canyon Rezoning to affect unknown TCRs and impacts would be potentially significant. However, implementation of

proposed Implementation Programs CR-A through CR-C and TCR-A and TCR-B would reduce impacts to less than significant levels.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.16 Utilities and Service Systems

This section assesses impacts to utilities and service systems, including water, wastewater, stormwater, electricity, natural gas, telecommunications, and solid waste services, associated with implementation of the Planning Initiative.

4.16.1 Setting

a. Water Supply

Water supply to the Town of Moraga is provided by the East Bay Municipal Utility District (EBMUD), which provides service to approximately 1.4 million people in a 332-square-mile-area of the San Francisco Bay Area East Bay region (EBMUD 2022). Approximately 90 percent of the raw water entering EBMUD's system originates from the Mokelumne River watershed and approximately 10 percent originates from the protected watershed lands in the East Bay Area. EBMUD's water supply system consists of a network of reservoirs, aqueducts, water treatment plants, pumping plants, and other distribution facilities and pipelines that convey Mokelumne River water from the Pardee Reservoir to the EBMUD service areas. Recycled water is a critical element of EBMUD's water supply management policy and supplements EBMUD's limited drinking water supply, producing approximately 8.3 million gallons per day (mgd) in 2020 from the six existing recycled water projects with potential for additional recycled water projects to take place in the future. EBMUD does not currently have supplies of groundwater, stormwater, or desalinated water (EBMUD 2021a).

EBMUD is responsible for preparing and implementing an Urban Water Management Plan (UWMP). The current 2020 UWMP includes an assessment of past and future water supplies and demands, evaluation of the future reliability of the region's water supplies over a 30-year planning horizon, and discussion of demand management measures (EBMUD 2021a). EBMUD has water rights that allow for delivery of up to a maximum of 325 mgd. In addition, on average, local runoff supplies the East Bay 23 mgd. During multi-year droughts when the Mokelumne River and local runoff alone cannot meet projected customer demand, EBMUD signed a contract with the US Bureau of Reclamation (USBR) for delivery of Central Valley Project (CVP) water providing for delivery of up to 133,000 acre-feet (AF) or approximately 36,087 mgd in a single qualifying year, not to exceed a total of 165,000 AF or 44,769 mgd in three consecutive qualifying years. EBMUD's current water supply is sufficient to meet water demands during normal, single dry, and second dry year demands through 2050. However, current water supply would not be sufficient to meet water demands during third dry years (EBMUD 2021a). EBMUD also updated its Water Shortage Contingency Plan (WSCP) 2020 which provides a framework for EBMUD to help address water shortages that may occur to ensure a reliable water supply (EBMUD 2021b).

b. Wastewater

The Central Contra Costa Sanitary District (Central San) is responsible for the collection and treatment of wastewater from the Town of Moraga. Central San operates a 1,500-mile network of collection system pipes, 22 miles of force mains, 19 pumping stations, and a treatment plant that processes an average flow of 32 mgd generated by Central Contra Costa County homes and businesses. One of Central San's force mains as well as a system of gravity sewers and pump stations are located within Moraga. Central San identifies existing infrastructure needs such as improvements to the Moraga pump stations as well as gravity sewers throughout the Central San

collection system. These improvements are included in the Capital Improvements Program which identifies the cost of the improvements (Central San 2017).

The wastewater generated in the Town is conveyed to the Central San treatment plant. The plant is a conventional air-activated sludge facility that provides secondary treatment. Final treated effluent is disinfected and conveyed by a 3.5-mile underground outfall pipeline to the Suisun Bay shoreline as a deep water outfall (Central San 2017; EBMUD 2021a). The Central San treatment plant is located in Martinez and serves the entire Central San service area. It has a designed capacity of 54 mgd and 240 mgd of wet weather flow. The treatment plant cleans an average of 34 mgd of wastewater (Central San 2022). A portion of the wastewater treated by the treatment plant is further treated to produce around 550 million gallons per year of recycled water for landscape irrigation at schools, parks, businesses, golf courses, medians, toilet flushing, and truck washing (Central San 2017). Central San assumes flows would rebound to approximately 34 mgd and would steadily increase at an average rate of less than one (1) percent per year for the next 20 years with a projected average dry weather flow of 41 mgd in 2035 (Central San 2017). The plant's permitted design capacity of 54 mgd was developed to accommodate buildout in Central San's service area and would be sufficient to treat buildout flows through 2040. The treatment plant is currently undergoing capital improvement projects within its Capital Improvement Program to improve service (Central San 2020).

c. Stormwater

Stormwater in Moraga is conveyed via privately owned storm drains and storm drainage system consisting of pipes and ditches. Recently funded projects in the Town's Capital Improvement Program includes storm drain improvements (Town of Moraga 2021).

The Town's stormwater system currently has 27 miles of storm drain collectors and 35 creek culverts. In some instances, creeks are routed through large underground culverts, such as Laguna Creek. The steep terrain of the Town transports sediment and debris through the pipe network system, which can limit the capacity. Therefore, the Town has adopted a Storm Drain Master Plan (SDMP), which establishes a prioritized capital improvements program in order to improve stormwater conditions within the Town and to prolong the life of existing structures (Town of Moraga 2015). The SDMP analyzes storm drain capacity within the Town and identifies areas of storm drain overflows. Although it is impossible to entirely eradicate storm drain overflows due to local topography or creek-caused overflows, most of the overflows can be mitigated with improvements proposed in the SDMP.

The Town complies with the most updated Municipal Regional Stormwater Permit (MRP 3.0), issued by the Regional Water Quality Control Board in 2022, for its stormwater pollution protection. The MRP 3.0 requires local agencies in Contra Costa County to incorporate stormwater controls in development projects, and provides specific guidelines on design measures, source controls, stormwater treatment measures, hydromodification management, and construction site controls. The Town also implements a comprehensive storm water program as required by the RWQCB through the Contra Costa Clean Water Program. The program includes tasks to educate residents and businesses in the Town with the overall goal of reducing storm water pollutants that enter the storm drain system and minimizing potential water quality impacts to nearby water bodies. It also sets forth stormwater quality requirements for development applications in their Stormwater C.3 Guidebook.

d. Solid Waste

The Central Contra Costa Solid Waste Authority (CCCSWA or RecycleSmart) is a joint powers agency created by the cities of Lafayette, Orinda, Walnut Creek, and the towns of Danville and Moraga and unincorporated areas of Central Contra Costa County which included Alamo, Diablo and Blackhawk and the unincorporated areas of the cities listed above. RecycleSmart provides residential and commercial solid waste, recycling and organic services to the project area. RecycleSmart contracts under franchise agreements with Republic Services (formerly Allied Waste Systems, Inc.) for the collection, transfer, and disposal of residential and commercial organics, and landfill materials, and with Mt. Diablo Recycling for the processing of residential and commercial recyclable materials. Solid waste is disposed of at the Keller Canyon Landfill located approximately 15 miles northeast of Moraga in Pittsburg. Recyclables are processed at the Mt. Diablo Recycling Center located approximately 19 miles northeast of Moraga in Pittsburg. Franchised green materials and home food scrap organic materials are processed at the Forward Compost Facility in Mantecalocated approximately 73 miles east of Moraga in Richmond. Some commercial food waste is pre-processed at the Contra Costa Transfer Station owned by Republic Services, Inc. located approximately 13 miles northeast of Moraga in Martinez (CCCSWA 2014a; CCCSWA 2014b).

Table 4.16-1 provides the permitted and remaining capacities of the Keller Canyon Landfill.

Table 4.16-1 Solid Waste Disposal Operations

Solid Waste Disposal Operation	Total Permitted Capacity	Remaining Capacity	Maximum Permitted Throughput	Expected Closure Year
Keller Canyon Landfill	75,018,280 cy	63,408,410 cy	3,500 tpd	2066

Notes: tpd = tons per day; cy = cubic yards
 Source: CalRecycle 2019

e. Telecommunications, Electricity, and Natural Gas

Telecommunications services in Moraga are provided by private companies, including AT&T and Comcast/XFINITY. The telecommunications provider used by residents and businesses in Moraga is subject to the user’s discretion. Telecommunications facilities are generally available throughout the Town.

As discussed in Section 4.5, *Energy*, Marin Clean Energy (MCE) is the default electricity provider for the Town, and Pacific Gas and Electric Company (PG&E) is the primary natural gas provider for the Town. However, residents have the option to opt out of MCE and enroll in PG&E for electricity service. In conjunction with the utility companies, the California Public Utilities Commission (CPUC) regulates energy conservation programs.

4.16.2 Regulatory Setting

The regulatory setting for utilities is provided below, organized by the topics addressed in this section, including water supply; wastewater; stormwater; solid waste; telecommunications, electricity, and natural gas.

a. Water Supply and Quality

State

Sustainable Groundwater Management Act

In September 2014, the governor signed legislation requiring that California’s critical groundwater resources be sustainably managed by local agencies. The Sustainable Groundwater Management Act gives local agencies the power to sustainably manage groundwater and requires groundwater sustainability plans to be developed for medium- and high-priority groundwater basins, as defined by the DWR. Please refer to Section 4.9, *Hydrology and Water Quality*, for more detailed descriptions of the groundwater basins underlying the Planning Initiative area.

California Water Code

The California Water Code contains regulations including, but not limited to water supply, safe drinking water, clean water, and water quality. More specifically, Division 24, Chapter 6, contains provisions for water supply reliability through water conservation and groundwater recharge, local projects, feasibility projects, management of Sacramento Valley water and habitat protection measures, and implementation of the river parkway program.

California Plumbing Code

The California Plumbing Code is codified in Title 24, California Code of Regulations, Part 5. The Plumbing Code contains regulations including, but not limited to, plumbing materials, fixtures, water heaters, water supply and distribution, ventilation, and drainage. More specifically, Part 5, Chapter 4, contains provisions requiring the installation of low flow fixtures and toilets. Existing development will also be required to reduce its wastewater generation by retrofitting existing structures with water efficient fixtures (SB 407 [2009] Civil Code Sections 1101.1 et seq.).

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code, Section 10610 et seq.), which requires urban water suppliers to develop water management plans to actively pursue the efficient use of available supplies. Every five years, water suppliers are required to develop Urban Water Management Plans to identify short-term and long-term water demand management measures to meet growing water demands.

Local

Town of Moraga 2002 General Plan

The Town of Moraga General Plan was adopted June 4, 2002, was most recently amended on April 11, 2018 and is the primary mechanism for guiding future population growth and development in the Town of Moraga and provides a guide for land use decision making. The General Plan’s Open Space Conservation Element includes the following goals and policies applicable to water resources:

Goal OS3 Protection of water resources through protection of underground water aquifers and recharge areas; maintenance of watercourses in their natural condition; and efficient water use.

Policy OS3.7 Water Conservation Measures. Encourage water conservation in new building construction and retrofits, through measures such as low-flow toilets and drought-tolerant landscaping.

Policy OS3.8 Water Recycling. When and where feasible and appropriate, encourage the use of recycled water for landscape irrigation purposes.

b. Wastewater

Federal

Federal Clean Water Act

The federal Clean Water Act is described in Section 4.16.2, *Water Supply*.

State and Regional

Standards for wastewater treatment plant effluent are established using State and federal water quality regulations. After treatment, wastewater effluent is either disposed of or reused as recycled water. The RWQCBs set the specific requirements for community and individual wastewater treatment and disposal and reuse facilities through the issuance of Waste Discharge Requirements, required for wastewater treatment facilities under the California Water Code Section 13260.

The California Code of Regulations Title 22, Division 4, Chapter 3, Sections 60301 through 60355 are used to regulate recycled wastewater and are administered by the RWQCBs. Title 22 contains effluent requirements for four levels of wastewater treatment, from un-disinfected secondary recycled water to disinfected tertiary recycled water. Higher levels of treatment have higher effluent standards, allowing for a greater number of uses under Title 22, including irrigation of freeway landscaping, pasture for milk animals, parks and playgrounds, and vineyards and orchards for disinfected tertiary recycled water.

Local

Town of Moraga 2002 General Plan

The General Plan's Open Space Conservation Element and Growth Management Element include the following policies applicable to wastewater:

Policy OS3.1 Sewer Connections. Require all development to be connected to a sewage system, with exceptions granted only in those areas where it is demonstrated that a sewer connection is not feasible and it has been confirmed by a competent technical counsel that septic system effluent will not infiltrate underground aquifers.

Policy GM1.5 Sanitary Facilities. Establish the following performance standards for other Town facilities, services and infrastructure: The capacity to transport and treat residential and non-residential wastewater as indicated by the Central Contra Costa Sanitary District.

c. Stormwater

Federal

Clean Water Act Section 402

Section 402 of the Clean Water Act regulates point-source discharges to surface waters and requires that all construction sites on an acre or greater of land, as well as municipal, industrial, and commercial facilities discharging wastewater or stormwater directly from a point source (e.g., pipe, ditch, or channel) into waters of the United States (WOTUS) must obtain permission under the National Pollutant Discharge Elimination System (NPDES) permit. All NPDES permits are written to ensure that the surface water receiving discharges will achieve specified water quality standards.

In California, the NPDES program is administered by the SWRCB through the RWQCBs and requires municipalities to obtain permits that outline programs and activities to control wastewater and stormwater pollution. The Clean Water Act prohibits discharges of stormwater or wastewater unless the discharge is in compliance with an NPDES permit. Municipal stormwater and wastewater discharges from Municipal Separate Storm Sewer Systems (MS4s) and all other discharges are regulated by the State through the SWRCB and its various RWQCBs as authorized by the USEPA. Most MS4 Permits are tailored versions of general USEPA permits, while many industrial discharge permits are individual permits created for the specific discharge requirements of the project.

The SWRCB is the permitting authority in California, issues general MS4 permits and Industrial General Permits, and adopts an NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order 2009-0009, as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), as well as a Statewide General Permit for stormwater discharges associated with industrial activities (Industrial General Permit) (Order 2014-0057-DWQ). The Construction General Permit order applies to construction sites that include one or more acre of soil disturbance. Projects with fewer acres of soil disturbance would be subject to Provision C.6 of the MRP. Containment and spill cleanup are encompassed in the Storm Water Pollution Prevention Plan (SWPPP), which is required to be developed as a condition of permit issuance. The SWPPP must include measures to ensure that: all pollutants and their sources are controlled; non-stormwater discharges are identified and eliminated, controlled, or treated; site best management practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges; and BMPs installed to reduce or eliminate pollutants after construction are completed and maintained. Development less than one acre would be required to prepare an Erosion and Sediment Control Plan (ESCP) instead of an SWPPP.

Requirements for post-construction control of stormwater runoff are included in MS4 permits under Provision C.3, which allows permitting authorities to use the permit process to enforce appropriate source control and treatment measures in new development to address operational stormwater discharges.

State

California Green Building Standards Code

The California Green Building Standards Code (24 CCR, Part 11) includes mandatory measures for residential and nonresidential development. For example, Section 4.106.2 requires residential projects that disturb less than one acre and are not part of a larger common plan of development to

manage stormwater drainage during construction through on-site retention basins, filtration systems, and/or compliance with a stormwater management ordinance. Section 5.106.1 requires newly constructed nonresidential projects and additions of less than one acre to prevent the pollution of stormwater runoff from construction through compliance with a local ordinance or implementing BMPs that address soil loss and good housekeeping to manage equipment, materials, and wastes. Section 5.303 sets measures for indoor water use for non-residential development requiring metering devices to conserve water.

California Construction Stormwater Permit

The California Construction Stormwater Permit (Construction General Permit), adopted by the SWRCB, regulates construction activities that include soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater, authorized non-stormwater discharges, and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 CFR 117.3 or 40 CFR 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters
- Develop and implement a SWPPP which specifies BMPs that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards
- Perform inspections and maintenance of all BMPs

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment and pollutants from construction materials, and address post construction runoff. The SWPPP also includes a plan for inspection and maintenance of all BMPs, as well as procedures for altering or increasing BMPs based on changing project conditions.

San Francisco Bay Area Municipal Regional Permit

The San Francisco Bay Area MRP addresses water quality and stormwater runoff impacts on receiving waters. The MRP regulates activities related to construction sites, industrial sites, illegal discharges and connections, new development, and municipal operations (Flows to Bay 2022).

Local

Contra Costa Clean Water Program

The CCCWP includes 21 local government agencies who each own and operate a Municipal Separate Storm Sewer System (MS4). The primary goal of CCCWP is to reduce the pollution carried by stormwater throughout Contra Costa County into creeks, wetlands, and the Bay/Delta. CCCWP is responsible for maintaining compliance with the NPDES Stormwater Discharge Permit within the County and works to promote stormwater pollution prevention.

Town of Moraga 2002 General Plan

The General Plan's Open Space Conservation Element and Public Safety Element include the following policies applicable to stormwater:

Policy OS3.2 Polluting Materials. Prohibit the accumulation and dumping of trash, garbage, vehicle lubricant wastes and other materials that might cause pollution.

Policy OS3.3 Street and Gutter Maintenance. Maintain streets and gutters to prevent accumulation of debris and litter.

Policy OS3.6 Run-off from New Developments. Engineer future major developments to reduce peak storm runoff and non-point source pollution to local creeks and streams, taking into consideration economically viable Best Management Practices (BMPs) in the design of the project as well as factors such as the physical constraints of the site, the potential impact on public health and safety and the practicability of possible mitigation measures.

Policy PS5.6 On-site Storm Water Retention. Require on-site storm water retention for new developments.

d. Solid Waste

Federal

Title 40 of the Code of Federal Regulations

Title 40 of the CFR, Part 258 (Resource Conservation and Recovery Act, Subtitle D), contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the Federal landfill criteria.

State

CCR 14

The California Code of Regulations Title 14, Division 7, outlines current CalRecycle regulations pertaining to non-hazardous waste management in California, which includes minimum standards for solid waste handling and disposal; compostable materials handling operations and facilities regulatory requirements; standards for handling and disposal of asbestos containing waste; resource conservation programs; enforcement of solid waste standards and administration of solid waste facility permits; special waste standards; used oil recycling program; electronic waste recovery and recycling; mandatory commercial recycling; and short-lived climate pollutants.

PRC Chapter 476 (Assembly Bill 341) and PRC Chapter 295 (Senate Bill 1383)

The purpose of Assembly Bill (AB) 341 of 2011 (PRC Chapter 476, Statutes of 2011) is to reduce greenhouse gas emissions by diverting commercial solid waste to recycling efforts and to expand the opportunity for additional recycling services and recycling manufacturing facilities in California. In addition to Mandatory Commercial Recycling, AB 341 sets a statewide goal for 75 percent disposal reduction by the year 2020.

SB 1383

SB 1383 of 2016 (PRC Chapter 395, Statutes of 2016) established the following goals: a 50-percent reduction in the level of the statewide disposal of organic waste from 2014 levels by 2020, and a 75-

percent reduction in the level of the statewide disposal of organic waste from 2014 levels by 2025. This bill also authorized CalRecycle to adopt regulations, to take effect on or after January 1, 2022, to achieve these targets.

PRC 41780 (Assembly Bill 939)

AB 939 (PRC 41780) requires cities and counties to prepare integrated waste management plans and to divert 50 percent of solid waste from landfills beginning in calendar year 2000 and each year thereafter. AB 939 also requires cities and counties to prepare source reduction and recycling elements as part of the integrated waste management plans. These elements are designed to develop recycling services to achieve diversion goals, stimulate local recycling in manufacturing, and stimulate the purchase of recycled products.

PRC Chapter 727 (Assembly Bill 1826)

AB 1826 of 2014 (PRC Chapter 727, Statutes of 2014) requires businesses that generate a specified amount of organic waste per week to arrange for recycling services for that waste, and that jurisdictions implement a recycling program to divert organic waste from businesses subject to the law. The jurisdictions must report to CalRecycle on their progress in implementing an organic waste recycling program. As of January 1, 2017, businesses that generate four cubic yards or more of organic waste per week shall arrange for organic waste recycling services.

PRC Chapter 343 (Senate Bill 1016)

SB 1016 of 2007 (PRC Chapter 343, Statutes of 2007) requires that the 50 percent solid waste diversion requirement established by AB 939 be expressed in pounds per person per day. SB 1016 changed the CalRecycle review process for each municipality's integrated waste management plan. After an initial determination of diversion requirements in 2006 and establishing diversion rates for subsequent calendar years, the Board reviews a jurisdiction's diversion rate compliance in accordance with a specified schedule. Since January 1, 2018, the Board is required to review a jurisdiction's source reduction and recycling element and hazardous waste element once every two years.

Local

Town of Moraga 2002 General Plan

The General Plan's Open Space Conservation Element includes the following policy applicable to solid wastes:

Policy OS2.11 Recycling and Source Reduction. Enhance the long-term viability of natural resources and reduce the volume of material sent to solid waste sites by continuing source reduction and recycling programs, encouraging participation of all residents and businesses.

e. Electric Power and Natural Gas

State

California Energy Commission

As the State's primary energy policy and planning agency, the CEC collaborates with State and federal agencies, utilities, and other stakeholders to develop and implement State energy policies.

Since 1975, the CEC has been responsible for reducing the State’s electricity and natural gas demand, primarily by adopting new Building and Appliance Energy Efficiency Standards that have contributed to keeping California’s per capita electricity consumption relatively low. The CEC is also responsible for the certification and compliance of thermal power plants 50 megawatts and larger, including all project-related facilities in California (CEC 2022).

California Public Utilities Commission

The CPUC regulates investor-owned electric and natural gas utilities operating in California. The energy work responsibilities of the CPUC are derived from the California State Constitution, specifically Article XII, Section 3 and other sections more generally, numerous State legislative enactments and various Federal statutory and administrative requirements. The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from PG&E and other natural gas utilities across California (CPUC 2022a).

Local

Moraga Municipal Code

The Town of Moraga Municipal Code Chapter 96-10 requires all new subdivisions to underground utilities including electric, communication and cable lines.

Additional regulations and policies pertaining to electric power are discussed in Section 4.5, *Energy*.

f. Telecommunication

The CPUC develops and implements policies for the telecommunication industry. The Communications Division is responsible for licensing, registration and the processing tariffs of local exchange carriers, competitive local carriers, and non-dominant interexchange carriers. It is also responsible for registration of wireless service providers and franchising of video service providers. The Division tracks compliance with commission decisions and monitors consumer protection and service issues and Commission reliability standards for safe and adequate service. The Communications Division is responsible for oversight and implementation of the six public purpose Universal Service Programs (CPUC 2022b).

4.16.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, impacts on utilities and service systems due to development facilitated by the Planning Initiative would be significant if the development would:

1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
2. Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;

3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
4. 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; or
5. Would not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

b. Impact Analysis

Threshold 1:	Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
Threshold 2:	Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
Threshold 3:	Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Housing Element

Impact UTIL-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD INCREASE DEMAND FOR WATER, WASTEWATER TREATMENT, STORM WATER DRAINAGE, ELECTRIC POWER, NATURAL GAS, AND TELECOMMUNICATIONS. HOWEVER, EXISTING UTILITY SYSTEMS WOULD HAVE CAPACITY TO SERVE THE PROJECT. RELOCATION OR CONSTRUCTION OF NEW OR EXPANDED FACILITIES RESULTING IN SIGNIFICANT ENVIRONMENTAL IMPACTS WOULD NOT OCCUR, AND ADEQUATE WATER SUPPLY AND WASTEWATER CAPACITY EXISTS TO SERVE THE PROJECT'S DEMAND. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Water

The Town of Moraga is served by existing EBMUD water infrastructure. Development facilitated by the Housing Element may require the installation of additional water main lines, lateral connections, and hydrants within the Town. Such facilities would be installed during individual project construction and generally within the disturbance area of such projects or the rights-of-way of previously disturbed roadways; therefore, the construction of these infrastructure improvements would not substantially increase the project's disturbance area or otherwise cause significant environmental effects beyond those already identified throughout this EIR.

In 2020, EBMUD's total service population was 1,405,000, of which 66 percent was within Alameda County and 34 percent was within Contra Costa County. Using ABAG 2040 population projections, EBMUD's UWMP estimates a 2030 service population of 1,542,000, a 2035 service population of 1,606,000, and a 2040 service population of 1,704,00 (EBMUD 2020). As discussed in Section 4.12, *Population and Housing*, development facilitated by the Housing Element would add an estimated 5,067 residents to the Town, increasing Moraga's population from 18,048 to 23,115 persons. As shown in Table 4.12-3, the population increase associated with the Housing Element Update would exceed ABAG 2040 population projections by 5,035 people. Because EBMUD uses ABAG population

projections to determine its future service populations in its UWMP, the Housing Element Update would also incrementally exceed the UWMP estimated 2040 service population of 1,704,000 by approximately 5,035 people, or approximately 0.3 percent. However, this increase would be negligible (less than 1 percent increase) and would be accounted for as the UWMP does not factor in anticipated levels of additional conserved and recycled water into its planning level of water demand (EBMUD 2020). As such, the information included in EBMUD’s Urban Water Management Plan would apply to the Housing Element. The EBMUD 2020 UWMP projects water supplies and demand from 2020 to 2050 using Plan Bay Area 2040 population projections, as shown in Table 4.16-2.

Table 4.16-2 EBMUD 2020-2050 Supply and Demand Assessment

	2020	2025	2030	2035	2040	2045	2050
Normal Year							
Mokelumne Supply (MGD)	>181	>186	>190	>194	>201	>209	>218
Demand Totals (MGD)	181	186	190	194	201	209	218
Need for Water (TAF) ¹	0	0	0	0	0	0	0
Single Dry Year or First Year of Multi-Year Drought							
Mokelumne Supply	121	126	129	132	138	144	151
CVP Supplies ²	60	60	60	60	60	60	60
Total Supplies	181	186	189	192	198	204	211
Voluntary Rationing ³	0%	0%	1%	1%	2%	2%	3%
Need for Water (TAF) ¹	0	0	0	0	0	0	0
Second Year of Multi-Year Drought							
Mokelumne Supply	82	86	89	92	98	104	111
CVP Supplies ²	74	74	74	74	74	74	74
Supply Totals	156	161	164	167	172	178	185
Mandatory Rationing ⁴	13%	13%	13%	14%	14%	14%	15%
Need for Water (TAF) ¹	0	0	0	0	0	0	0
Third Year of Multi-Year Drought							
Mokelumne Supply	141	145	146	145	132	118	105
CVP Supplies ²	12	12	12	12	12	12	12
Supply Totals	153	157	158	157	144	130	117
Mandatory Rationing ⁴	15%	15%	15%	15%	15%	15%	15%
Need for Water (TAF) ¹	0	0	0	0	28	52	75

¹ Need for Water includes unmet customer demand as well as shortages on the Lower Mokelumne River.

² Projected available CVP supplies are taken according to the Drought Management Program Guidelines.

³ Rationing reduction goals are determined according to projected system storage levels in the Drought Management Program Guidelines discussed in the 2020 UWMP, Table W-5.

Source: EBMUD 2020

As shown in Table 4.16-2, EBMUD would not have sufficient supplies to satisfy demand during third dry year conditions. Under such conditions, EBMUD would implement its Water Shortage Contingency Plan (WSCP) to provide procedures to respond to water shortages and ensure a reliable water supply. In addition, EBMUD would implement its Drought Management Program which includes four stages (moderate, significant, severe, and critical) to address shortage conditions

ranging from up to 40 percent to greater than 50 percent shortage. EBMUD strives to keep water use reductions at or below 15 percent, but in the case of a severe drought, mandatory water use reductions could exceed 15 percent. New development of the Housing Element would be subject to the same drought restrictions that apply to all EBMUD customers. EBMUD also imposes drought rates, penalties, and regulations depending on the severity of drought which would further reduce water use and help recover costs for EBMUD. By imposing water restrictions in the first dry year of potential drought periods, EBMUD attempts to minimize water use restrictions in subsequent years if a drought persists.

Furthermore, EBMUD has developed a portfolio of water supply projects to help supplement shortages in its water supply during multi-year droughts and provide customers with relief from frequent and severe water rationing. The Bayside Groundwater Project is being developed in phases to provide a source of supplemental supply during dry years. EBMUD has also developed a water transfer program and plans to use the Freeport Project to convey transfer water to EBMUD's service area. Other potential supplemental water projects include northern California water transfers and the expansion of Contra Costa Water District's Los Vaqueros Reservoir to meet the projected long-term water supplemental need during multi-year drought periods. The Los Vaqueros Reservoir, located in Contra Costa County to the northwest of Altamont Pass, is surrounded by natural open space in the Los Vaqueros watershed (Contra Costa Water District 2018). Currently, the U.S. Bureau of Reclamation and the Contra Costa Water District are studying the feasibility of expanding the reservoir's storage capacity from 160,000 acre-feet to 275,000 acre-feet, and EBMUD would have the right to utilize up to 30,000 acre-feet of the reservoir's expanded capacity (EBMUD 2021). In addition to supplemental water projects, EBMUD maximizes resources through continuous improvements in the delivery and transmission of available water supplies and investments in ensuring the safety of its existing water supply facilities to ensure a reliable water supply to meet projected demands for current and future EBMUD customers within the service area.

Despite deficits projected for multi-year droughts, compliance with the water conservation regulations and policies would help to maintain sufficient supplies. New development would be subject to the California Code of Regulations concerning water-efficient landscapes (Division 2, Title 23, CCR, Chapter 2.7, Sections 490 through 495), which the Town adopted in 2022 as the Model Water Efficient Landscape Ordinance (MWELo) in Chapter 8.178 of the Moraga Municipal Code. The MWELo, reinforces landscape irrigation and water conservation best management practices currently required by EBMUD's Section 31 Regulations, would also encourage the use of drought-tolerant landscaping and low-flow irrigation systems.

Implementation of the MWELo would encourage water conservation for development in the Housing Element area. Furthermore, future development would be subject to other green building and water conservation requirements described in the Water Supply Regulatory Setting. As mentioned above, there would be sufficient water supply to serve development facilitated by the project, with the implementation of the Drought Management Program during multi-year drought conditions. Each subsequent development application would be required to demonstrate the MWELo requirements. Additionally, the Housing Element would facilitate development of multi-family housing through rezoning, which generally consumes less water per capita than single-family housing. Therefore, there are sufficient water supplies available to serve the Housing Element; impacts related to water supply and potential new water facilities would be less than significant.

Wastewater

Development facilitated by the Housing Element may require upsized sewer lines and additional lateral connections within the Town. As with water facilities, sewer laterals and main extensions to serve the future development would generally be installed within the rights-of-way of existing roads or within the disturbance footprints of such projects. As such, construction of these infrastructure improvements would not substantially increase the project's disturbance area or otherwise cause significant environmental effects beyond those identified throughout this EIR. Furthermore, implementation of proposed capital improvement projects for the Central San treatment plant would ensure adequate capacity to serve projected demand from development facilitated by the project in addition to the provider's existing commitments.

According to the 2020 EBMUD UWMP, Central San collected and treated 35 mgd of wastewater in 2020 and this number is expected to increase to 41.8 mgd by 2045 (EBMUD 2021). Both the 2020 wastewater levels, as well as the 2045 projects water levels are within the treatment plant's overall capacity of 54 mgd. Central San has developed the following wastewater loading criteria for different types of land uses (Central San 2017 Comprehensive Wastewater Master Plan):

- 180 gallons per dwelling unit per day (gpd) for single family dwelling units
- 105 gpd for multiple family dwelling units

Using the unit loading criteria for multiple family dwelling units, development facilitated by the Housing Element would generate approximately 185,850 gpd of wastewater or approximately 0.2 mgd, which would constitute approximately 1 percent of the remaining capacity (19 mgd)¹ of the wastewater treatment plant.² Furthermore, in 2045 the projected wastewater demand, including the Housing Element would be 42.0³, which would be within the capacity of the treatment plant. Therefore, Central San's treatment plant would have sufficient capacity to accommodate wastewater generated by the Housing Element.

Additionally, Central San has prepared and is implementing a 10-year Capital Improvement Program (CIP) which serves to expand, upgrade, and replace its treatment plant and collection system. Central San has included a Collection System Program which aims to renovate aging sewers and to serve new development in Central San's service area. Specific near-term and long-term goals include addressing capacity needs by upsizing sewers to increase capacity, improving the reliability of Central San's pumping stations, and implementing projects to address renovation needs. Projects under the Collection System Program would reduce the likelihood of sewage overflows during dry and wet weather (Central San 2015).

Development facilitated under the Housing Element would undergo review by Central San to ensure that development does not encroach on easements for sewer pipes, and applicants would be responsible for the payment of standard sewer connection fees, as necessary (Town of Moraga 2022). General Plan Policy GM 1.5 requires development facilitated under the Planning Initiative to have the capacity to transport and treat wastewater as indicated by Central San, and to develop mitigation measures if Central San standards are not met. Policy OS 3.1 would require development to be connected to a sewage system, with exceptions granted in areas where it is demonstrated that a sewer connection is not feasible, and it has been confirmed that septic system effluent would not infiltrate underground aquifers. Applicants would be responsible for constructing on-site wastewater treatment conveyance systems and paying standard sewer connection fees, as

¹ 19 mgd = 54 mgd (capacity) – 35 mgd (wastewater treatment in 2020).

² 1 percent = [0.2 mgd (Housing Element wastewater demand) / 19 mgd (remaining capacity in 2020)] * 100 percent

³ 42.0 mgd = 41.8 mgd (projected wastewater demand in 2045) + 0.2 mgd (Housing Element wastewater demand)

necessary. Therefore, the Housing Element would not require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects beyond those already identified throughout this EIR. Impacts related to potential new wastewater facilities would be less than significant.

Stormwater

The Housing Element would facilitate development mostly on developed sites that contain existing impervious surfaces and are served by existing storm drains along curbs and roadways. The existing storm drain system in several areas throughout the town is currently limited in capacity; however, as mentioned above under Section 4.16.1©, the Town has adopted a Storm Drain Master Plan (SDMP) which prioritizes improvements to stormwater facilities within the town and to prolong the life of existing structures (Town of Moraga 2015). Future development would be required to comply with Moraga Municipal Code Sections 13.04.050 and 14.52.010, which requires all construction projects to have a BMP plan and stormwater control plan with stormwater control measures as well as a stormwater pollution prevention plan (SWPPP) that meets the requirement of either the town or the Construction General Permit. Additionally, development would be subject federal, State, and local regulations such as the Clean Air Act, which mandates preparation of an NPDES-compliant Stormwater Pollution Prevention Plan and establishes post-construction control C.3 requirements for MS4 permits, provision C.4 requirements for industrial and commercial sites, provision C.6 requirements for construction site control, and requirements of the Contra Costa Clean Water Program and the Construction General Permit. Therefore, impacts related to potential new stormwater facilities would be less than significant.

Electricity and Natural Gas

The Housing Element would require connections to existing electrical transmission and distribution systems in the Town to serve development facilitated by the project. This service would be provided in accordance with the rules and regulations of MCE and PG&E and under the authority of the CPUC. Based on the availability of existing electrical infrastructure, it is not anticipated that the construction of new electrical transmission and distribution lines would be required, and all sites would be able to connect to existing infrastructure. Therefore, there would be adequate electrical facilities to serve development facilitated by the Housing Element and impacts related to potential new electrical facilities would be less than significant.

Development facilitated by the Housing Element would connect to existing natural gas infrastructure to meet the needs of site residents and tenants. Based on the availability of existing natural gas infrastructure, construction of new natural gas pipelines would not be required, and all sites would be able to connect to existing infrastructure. Therefore, there would be adequate natural gas facilities to serve the development facilitated by the Housing Element and impacts related to potential new natural gas facilities would be less than significant.

Telecommunications

Implementation of the Housing Element would require connections to existing adjacent utility infrastructure to meet the needs of site residents and tenants. Based on the availability of existing telecommunications infrastructure, construction of new telephone and cable lines would not be required, and all sites would be able to connect to existing infrastructure. Development facilitated by the Housing Element would be required to adhere to applicable laws and regulations related to the connection to existing telecommunication infrastructure. Therefore, there would be adequate

telecommunications facilities to serve the development facilitated by the Housing Element and impacts related to potential new telecommunications facilities would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact UTIL-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD INCREASE DEMAND FOR WASTEWATER TREATMENT, STORM WATER DRAINAGE, ELECTRIC POWER, NATURAL GAS, AND TELECOMMUNICATIONS. IN ADDITION, THE BOLLINGER CANYON STUDY AREA IS NOT CURRENTLY SERVED BY UTILITY PROVIDERS, AND NEW INFRASTRUCTURE WOULD NEED TO BE EXTENDED IN PREVIOUSLY UNDEVELOPED AREAS TO ACCOMMODATE THE DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING. EVEN WITH IMPLEMENTATION OF MITIGATION MEASURES, IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Water

Rezoning of the Bollinger Canyon Study Area to facilitate residential development would contribute to an increase in water demand. As discussed under Impact UTIL-1 for the Planning Initiative, there would be sufficient water supply to serve development facilitated by the project, including in Bollinger Canyon, with the implementation of the Drought Management Program during multi-year drought conditions. Therefore, the marginal increase in demand for water would not significantly impact water supply.

The Bollinger Canyon Study Area is not currently served by EBMUD and is outside of their service boundary. The Study Area would need to be annexed to EBMUD's service area with formal approval issued by the U.S. Bureau of Reclamation to provide water service to it. There is a lack of existing water infrastructure where the Bollinger Canyon Rezoning would occur, and additional water lines would be required to accommodate the increase in demand. Although details of future development in the Bollinger Canyon Study Area are currently unknown, the impacts are analyzed throughout this EIR. Because new water utilities would be installed within the Bollinger Canyon Study Area, the impacts of future development identified in this EIR would also include impacts from future construction of utilities. Specifically, the impact discussions and mitigation measures and implementation programs identified in the following sections would apply: Section 4.3, *Biological Resources*, Section 4.4, *Cultural Resources*, Section 4.6, *Geology and Soils* and Section 4.15, *Tribal Cultural Resources*.

The physical impact on the environment on cultural resources, paleontological resource, and tribal cultural resources due to the installation of water utilities in the Bollinger Canyon Study Area would be reduced to a less than significant level for the following reasons. Development facilitated from the Bollinger Canyon Rezoning would be required to implement Implementation Programs CR-A through CR-D (Historical and Archaeological Resources Survey, Protect Potential Historic and Archaeological Resources, Construction Monitoring, and Unanticipated Discovery of Cultural Resources), which would reduce impacts on archaeological and historical resources to a less than significant level; Implementation Program PAL-A (Paleontological Survey), which would reduce impacts to paleontological resources to a less than significant level; and Implementation Programs

TCR-A and TCR-B (Suspension of Work Around Tribal Cultural Resources, and Tribal Cultural Resource Treatment Plan), which would reduce impacts to tribal cultural resources to a less than significant level.

The installation of new water utilities due to the Bollinger Canyon Rezoning would result in a physical impact on the environment on biological resources. As described in Section 4.3, *Biological Resources*, potentially significant impacts on biological resources would be mitigated through the implementation of Mitigation Measures BIO-1 through BIO-9. However, as described in Impact BIO-6, impacts related to wildlife movement in the Bollinger Canyon Study Area would be significant and unavoidable due to future residences impeding the movement of wildlife species at a regional scale. Likewise, the implementation of new utilities due to the Bollinger Canyon Rezoning would result in a similar significant and unavoidable impact on wildlife movement. As such, the Bollinger Canyon Rezoning would require the construction of new water facilities, the construction of which could cause significant and unavoidable environmental effects.

Wastewater

There is currently no municipal wastewater collection system serving the Bollinger Canyon Study Area. New development with municipal wastewater service connections would increase sewage generation to the local wastewater system, including the Moraga Pumping Station and Central San's wastewater treatment plant. However, as discussed under Impact UTIL-1 for the Housing Element, Central San's wastewater treatment plant would have sufficient capacity to accommodate the increased wastewater generated by the proposed project, and impacts would be less than significant.

Pursuant to General Plan Policy OS 3.1, development is required to be connected to a sewage system and development in Bollinger Canyon would require the extension of wastewater conveyance infrastructure. Although details of future development in the Bollinger Canyon Study Area are currently unknown, the impacts of overall development in the Bollinger Canyon Study Area are analyzed throughout this EIR. Because new wastewater utilities would be installed within the Bollinger Canyon Study Area, the impacts for future development identified in this EIR would also apply to the future construction of wastewater facilities. Specifically, the impacts identified in the following sections would apply: Section 4.3, *Biological Resources*, Section 4.4, *Cultural Resources*, Section 4.6, *Geology and Soils*, and Section 4.15, *Tribal Cultural Resources*.

The physical impact on the environment on cultural resources, paleontological resource, and tribal cultural resources due to the installation of water utilities in the Bollinger Canyon Study Area would be reduced to a less than significant level for the following reasons. Development facilitated in the Bollinger Canyon Study Area would be required to implement Implementation Programs CR-A through CR-D (Historical and Archaeological Resources Survey, Protect Potential Historic and Archaeological Resources, Construction Monitoring, and Unanticipated Discovery of Cultural Resources), which would reduce impacts on archaeological and historical resources to a less than significant level; Implementation Program PAL-A (Paleontological Survey), which would reduce impacts to paleontological resources to a less than significant level; and Implementation Programs TCR-A and TCR-B (Suspension of Work Around Tribal Cultural Resources, and Tribal Cultural Resource Treatment Plan), which would reduce impacts to tribal cultural resources to a less than significant level.

For the same reasons identified above in the Water subheading, the installation of new wastewater facilities due to the Bollinger Canyon Rezoning would result in significant and unavoidable impacts on wildlife movement. As such, the Bollinger Canyon Rezoning would require the construction of

new wastewater facilities, the construction of which could cause significant and unavoidable environmental effects.

Stormwater

Development in the Bollinger Canyon Study Area would occur on sites that are currently undeveloped, which would convert existing permeable, undeveloped surfaces into impervious surfaces. Increased stormwater runoff rates and volumes can degrade stream channels, erode stream banks, and lower water tables, which can also indirectly reduce coverage of riparian vegetation. Runoff can carry sediments, nutrients, and pollutants which can directly degrade water quality in the nearby Las Trampas Creek. However, future development would be required to comply with federal, State, and local stormwater regulations (NPDES General Permit, the Contra Costa County Clean Water Program, the Provision C.3 of the MS4, and Moraga Municipal Code Sections 13.04.050 and 14.52.010). Future projects would be required to construct stormwater conveyance, filtration, and/or on-site treatment systems, such as bioswales, in compliance with these regulations as part of Mitigation Measures, Conditions of Approval and Building Permit approval. Since the construction of new stormwater treatment facilities beyond those on project sites and roadway-adjacent would not be required, with adherence to the regulations mentioned above, impacts from the expansion of stormwater utilities would be less than significant.

Electricity, Natural Gas, and Telecommunications

Development facilitated in the Bollinger Canyon Study Area would be located in an undeveloped area which lacks electrical, natural gas, and telecommunications infrastructure. Construction of new electrical transmission and distribution lines, natural gas pipelines, and telephone and cable lines would be required to accommodate the increase of 51 units. Newly constructed utilities would be required to be connected to existing utilities through PG&E approval. The impacts of overall development in the Bollinger Canyon Study Area are analyzed throughout this EIR, and since new electrical and natural gas infrastructure would be installed within the Bollinger Canyon Study Area, the impacts of future development identified in this EIR would also apply to the future construction of electrical and natural gas infrastructure. Specifically, the impacts identified in the following sections would apply: Section 4.3, *Biological Resources*, Section 4.4, *Cultural Resources*, Section 4.6, *Geology and Soils*, and Section 4.15, *Tribal Cultural Resources*. Pursuant to Moraga Municipal Code Chapter 96-10, the utilities would be required to be installed underground and would not significantly exacerbate a wildfire hazard. Pursuant to PG&E, any new development will also require a load study at time of application.

The physical impact on the environment on cultural resources, paleontological resource, and tribal cultural resources due to the installation of water utilities in the Bollinger Canyon Study Area would be reduced to a less than significant level for the following reasons. Development facilitated in the Bollinger Canyon Study Area would be required to implement Implementation Programs CR-A through CR-D (Historical and Archaeological Resources Survey, Protect Potential Historic and Archaeological Resources, Construction Monitoring, and Unanticipated Discovery of Cultural Resources), which would reduce impacts on archaeological and historical resources to a less than significant level; Implementation Program PAL-A (Paleontological Survey), which would reduce impacts to paleontological resources to a less than significant level, and Implementation Programs TCR-A and TCR-B (Suspension of Work Around Tribal Cultural Resources, and Tribal Cultural Resource Treatment Plan), which would reduce impacts to tribal cultural resources to a less than significant level.

For the same reasons identified above in the Water subheading, the installation of new electrical transmission and distribution lines, natural gas pipelines, and telephone and cable lines due to the Bollinger Canyon Rezoning would result in significant and unavoidable impacts on wildlife movement. As such, the Bollinger Canyon Rezoning would require the construction of new electrical transmission and distribution lines, natural gas pipelines, and telephone and cable lines, the construction of which could cause significant and unavoidable environmental effects.

Mitigation Measures

Mitigation Measures BIO-1 through BIO-9 (See Section 4.3, *Biological Resources*).

Implementation Programs CR-A through CR-D (Historical and Archaeological Resources Survey, Protect Potential Historic and Archaeological Resources, Construction Monitoring, and Unanticipated Discovery of Cultural Resources).

Implementation Program PAL-A (Paleontological Survey), and Implementation Programs TCR-A and TCR-B (Suspension of Work Around Tribal Cultural Resources.

Tribal Cultural Resource Treatment Plan), which would reduce impacts to tribal cultural resources to a less than significant level.

Significance After Mitigation

The installation of new utilities due to the Bollinger Canyon Rezoning (water, wastewater, electrical, natural gas, and telecommunications) would result in a physical impact on the environment on biological resources. Despite implementation of Mitigation Measures BIO-1 through BIO-9, impacts related to wildlife movement in the Bollinger Canyon Study Area would be significant and unavoidable due to new utilities impeding the movement of wildlife species at a regional scale.

Threshold 4: Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Threshold 5: Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Housing Element

Impact UTIL-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD NOT GENERATE SOLID WASTE IN EXCESS OF STATE OR LOCAL STANDARDS, OR IN EXCESS OF THE CAPACITY OF LOCAL INFRASTRUCTURE. THE HOUSING ELEMENT WOULD NOT IMPAIR THE ATTAINMENT OF SOLID WASTE REDUCTION GOALS AND DEVELOPMENT FACILITATED BY THE PROJECT WOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STATUTES AND REGULATIONS RELATED TO SOLID WASTE. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Housing Element would facilitate the development of 1,770 housing units, 1,365 of which would be allowed by existing zoning and 405 of which would be due to changes in zoning the Moraga Center Area and Rheem Park Area. Based on a solid waste generation rate of 3.3 pounds per dwelling unit per day (CalRecycle 2019), the Housing Element could generate an estimated 5,841 pounds of solid waste per day. This would equate to approximately 1,059 tons per year, 2,665 cubic yards per year, or 7 cubic yards per day.⁴ As shown in Table 4.16-1, Keller Canyon Landfill has a

⁴ Household trash is approximately 800 pounds per cubic yard (CalRecycle 2019).

permitted capacity of 3,500 tons per day and approximately 63.4 million cubic yards of remaining capacity.

Solid waste generated from development of the Housing Element would account for less than approximately 0.00004 percent of the remaining capacity of the Keller Canyon Landfill. Therefore, development facilitated by the project would not generate solid waste in excess of the capacity of local solid waste infrastructure. Furthermore, AB 939 requires the Town to divert 50 percent of solid waste from landfills, and SB 1383 would require the Town to reduce organic waste disposal by 75 percent by 2025. New development would be required to comply with General Plan Policy OS 2.11, which addresses solid waste and aims to increase waste diversion by encouraging residents and businesses to participate in source reduction and recycling programs. Additionally, development would be required to comply with Moraga Municipal Code Section 8.156, which would require recycling and diversion of at least 65 percent construction and demolition debris. As discussed above, local infrastructure would have the capacity to accommodate solid waste generated by development facilitated under the Housing Element, and development must demonstrate compliance with all applicable regulations. Therefore, impacts on solid waste infrastructure would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Bollinger Canyon Rezoning

Impact UTIL-4 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT GENERATE SOLID WASTE IN EXCESS OF STATE OR LOCAL STANDARDS, OR IN EXCESS OF THE CAPACITY OF LOCAL INFRASTRUCTURE. THE BOLLINGER CANYON REZONING WOULD NOT IMPAIR THE ATTAINMENT OF SOLID WASTE REDUCTION GOALS AND DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STATUTES AND REGULATIONS RELATED TO SOLID WASTE. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Bollinger Canyon Rezoning would facilitate the development of 51 housing units. Based on a solid waste generation rate of 3.3 pounds per dwelling unit per day (CalRecycle 2019), the Bollinger Canyon Rezoning would generate an estimated 168 pounds of solid waste per day. This would equate to approximately 31 tons per year, 77 cubic yards per year, or 0.2 cubic yards per day.⁵ As shown in Table 4.16-1, Keller Canyon Landfill has a permitted capacity of 3,500 tons per day and approximately 63.4 million cubic yards of remaining capacity.

Solid waste generated from development facilitated by the Bollinger Canyon Rezoning would account for less than approximately 0.000001 percent of the remaining capacity of the Keller Canyon Landfill. Therefore, development facilitated by the project would not generate solid waste in excess of the capacity of local solid waste infrastructure. Furthermore, AB 939 requires the Town to divert 50 percent of solid waste from landfills, and SB 1383 would require the Town to reduce organic waste disposal by 75 percent by 2025. New development would be required to comply with General Plan Policy OS 2.11, which addresses solid waste and aims to increase waste diversion by

⁵ Household trash is approximately 800 pounds per cubic yard (CalRecycle 2019).

encouraging residents and businesses to participate in source reduction and recycling programs. Additionally, development would be required to comply with Moraga Municipal Code Section 8.156, which would require recycling and diversion of at least 65 percent construction and demolition debris. As discussed above, local infrastructure would have the capacity to accommodate solid waste generated by development facilitated in the Bollinger Canyon Rezoning, and development must demonstrate compliance with all applicable regulations. Therefore, impacts on solid waste infrastructure would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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4.17 Wildfire

The analysis in this section addresses impacts related to wildfire risks and exposure associated with the implementation of the Planning Initiative.

4.17.1 Setting

a. Overview of Wildfire

A wildfire is an uncontrolled fire in an extensive area of combustible vegetation. Wildfires differ from other fires in that they take place in areas of grassland, woodlands, brushland, scrubland, peatland, and other wooded areas that act as a source of fuel, or combustible material. Buildings may become involved if a wildfire spreads to adjacent communities. The primary factors that increase an area's susceptibility to wildfire include slope and topography, vegetation type and condition, and weather and atmospheric conditions. Extreme wildfire events are expected to increase in frequency with the effects of increased global temperature, although changes in specific fire-prone areas are difficult to predict with any certainty (US Forest Service [USFS] 2022).

The Governor's Office of Planning and Research (OPR) has recognized that although high-density structure-to-structure loss can occur, structures in areas with low- to intermediate-density housing were most likely to burn, potentially due to intermingling with wildland vegetation or difficulty of firefighter access. In general, increasing density decreases risk of wildfire. The risk of loss of human life, property, natural resources, or economic assets from wildfire is highest at the Wildland-Urban Interface (WUI), areas of urban development located adjacent to or even within wildland areas. Today approximately one-third of houses in California are within the WUI area (OPR 2020). It is important to note that there are varying definitions of what constitutes a WUI, and some local or regional agencies consider some areas to be WUI that are not defined as Wildland Interface or Intermix zones under the Wildland-Urban Interface Building Standards in Title 24, Part 2 of the California Code of Regulations (CCR); these standards are discussed under *Regulatory Setting* below. WUI zones in Moraga are shown in Figure 4.17-1.

The indirect effects of wildfires also can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards.

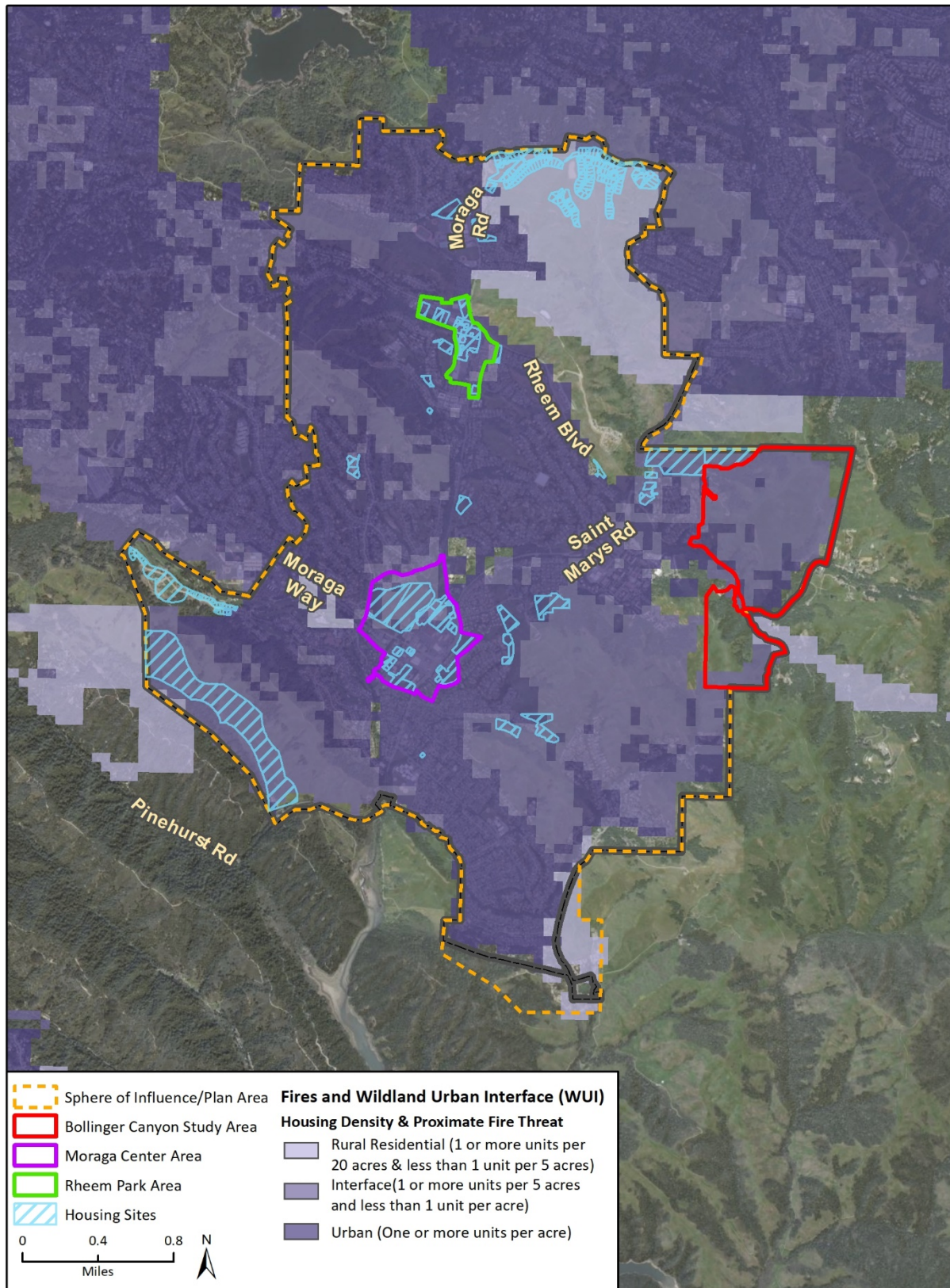
Due to Contra Costa County's Mediterranean climate; rugged, wind-conductive topography; and fire-adaptive native vegetation, the County is susceptible to large periodic wildfires. In recent years, wildfires have been less frequent but occur at higher intensities, mostly due to hazards of vegetation, topography, structures, and fire weather. "Red Flag" weather warnings in Contra Costa County denote the occurrence of strong, hot, dry, offshore Foehn winds also known as "Diablo winds"¹ which carry extremely dry air at high velocity and often occur in the fall, bringing higher wind speeds with hot and dry weather (Moraga-Orinda Fire District [MOFD] 2021).

¹ Diablo winds refer to a northern California wind pattern which starts in high elevations in the east of the state traveling through the valley, getting warmer and drier towards the Pacific Ocean. While they can happen anytime, they typically peak in October and November. Gusts can reach over 80 miles per hour (AccuWeather 2022).

Comprehensive Advanced Planning Initiative

As discussed further below, Moraga’s hilly terrain, dry wildland fuel, low humidity, and wind patterns make the Town susceptible to a wildland fire event.

Figure 4.17-1 Wildland-Urban Interface Near Moraga



Imagery provided by Microsoft Bing and its licensors © 2022.
Additional data provided by CalFire, 2022.

Fig WF-1 Wildland Urban Interface

Slope and Aspect

According to the California Department of Forestry and Fire Protection (CALFIRE), sloping land increases susceptibility to wildfire because fire typically burns faster up steep slopes, and they may hinder firefighting efforts (CALFIRE 2007). Following severe wildfires, sloping land is also more susceptible to landslide or flooding from increased runoff during substantial precipitation events. Aspect is the direction that a slope faces, and it determines how much radiated heat the slope will receive from the sun. Slopes facing south to southwest will receive the most solar radiation and are warmer and drier than slopes facing a northerly to northeasterly direction, increasing the potential for wildfire ignition and spread (University of California 2018).

The County's mountainous topography intensifies fire effects, especially westward facing slopes which are more arid and more combustible. Historically the ranges would have burned on a decadal basis through a patchwork of burned and unburned areas. In more recent years, with fire suppression and inadequate forest management, fuel loads have increased throughout Contra Costa County (Contra Costa County 2021).

Moraga is situated in a valley and surrounded by hills. The landscape of Moraga is comprised of a system of ridgelines, hillsides, valleys, canyons, streams, and floodplains that lie in between and run parallel to the Berkeley/Oakland Hills (Gudde Ridge) to the west and Las Trampas Ridge to the east. Hills to the north, west, and northeast are developed with residences, while hills to the south and southeast consist of undeveloped open space. Due to local topography, vegetation, and weather conditions, the Berkeley Hills and Las Trampas Ridge are conducive to large periodic wildfires. The ridge and hillside landscape in Moraga is mostly dry, and most of the hillsides, knolls, slopes and ridges are covered with grasses or oak chaparral. The Town's topography ranges in elevation from 500 to 1,200 feet above mean sea level. The Housing Opportunity Sites are predominantly located in infill sites and in commercial areas that are already urbanized. These areas are located in the central portion of the Town, which is generally flat. However, as shown in Figure 2-4 in Section 2, *Project Description*, Housing Opportunity Site B-14 (Indian Valley) is located at the southern portion of the Town, an area which is not currently developed and characterized by hilly terrain. It should be noted that the Town is not proposing changes to the zoning of Site B-14 as part of the Housing Element, and the site is already shown for residential use in the 2002 General Plan (see Section 4.0, *Environmental Impact Analysis*, for further explanation).

Vegetation

Vegetation is fuel to a wildfire, and it changes over time with seasonal growth and die-back. The relationship between vegetation and wildfire is complex, but generally some vegetation is naturally fire resistant, while other vegetation is extremely flammable. Some plant types in California landscapes are fire resistant, while others are fire-dependent for their seed germination cycles.

Wildfire behavior depends on the type of fuels present, such as ladder fuels, surface fuels, and aerial fuels. Surface fuels include grasses, logs, and stumps low to the ground. Ladder fuels, such as tall shrubs, young trees, and the lowest branches of mature trees, provide a path for fire to climb upward into the crowns of trees. Aerial fuels include upper limbs, foliage, and branches not in contact with the ground. Ample spacing in between tree crowns and trimming of lower branches close to the ground is effective at preventing fire from either igniting the crown of a tree or spreading from an ignited tree to adjacent trees; conversely, closely packed trees with low branches are especially susceptible to crown ignition and spread (CALFIRE 2020a). Weather and climate

conditions, including drought cycles, can lead to dry vegetation with low moisture content, increasing its flammability.

As discussed further in Section 4.3, *Biological Resources*, due to its diverse topography, the Town includes a wide variety of plant communities and wildlife habitats. The Housing Opportunity Sites are located throughout the Town but the higher density sites are predominantly located in infill sites and sites in commercial areas that are already urbanized and have minimal vegetation that could act as fuel for wildfires. Figure 2-6, section 2, the Rheem Park Area is across from painted rock hillside, (which is high fire severity zone and wildland interface). However, as shown in Figure 2-4 in Section 2, *Project Description*, Housing Opportunity Sites B-14 is at the southern portion of the Town, an area which is not currently developed and is characterized by cropland, annual grassland, and coastal oak woodland. This area may have ladder and aerial fuels from the trees, and sufficient surface fuel in scattered leaves, branches, and dry grass to form an ignition risk.

Weather and Atmospheric Conditions

Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (CALFIRE 2020a). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire, causing its spread. Drought conditions lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential.

Most precipitation is received from October through April, with an average annual rainfall of 24 inches (BestPlaces 2022). May through September is the driest time of the year and coincides with what has traditionally been considered the fire season in California. However, increasingly persistent drought and climatic changes in California have resulted in drier winters, and fires during the autumn, winter, and spring months are becoming more common. Prevailing winds in Moraga are generally from the west off the ocean from February to November, and from the north from November to February (Weatherspark 2022). The regional Diablo wind conditions often occur in the fall, bringing higher wind speeds with hot and dry weather (MOFD 2021).

b. Wildfire Hazards

In California, responsibility for wildfire prevention and suppression is shared by federal, state, and local agencies. Federal agencies are responsible for federal lands in Federal Responsibility Areas (FRA). The State of California has determined that some non-federal lands in unincorporated areas with watershed value are of statewide interest and have classified those lands as State Responsibility Areas (SRA), which are managed by California Department of Forestry and Fire Protection (CALFIRE) (US Department of the Interior, US Department of Agriculture, and CALFIRE 2018). All incorporated areas and other unincorporated lands are classified as Local Responsibility Areas (LRA).

CALFIRE is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (Public Resources Code Sections 4201-4204 and California Government Code Sections 51175-89). As described above, the primary factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. CALFIRE maps fire hazards based on zones, referred to as Fire Hazard Severity Zone (FHSZs). CALFIRE maps three zones in SRA: 1) Moderate FHSZs; 2) High FHSZs; and 3) Very High FHSZs (VHFHSZs). Currently only the VHFHSZs are mapped in LRAs; however, per the MOFD, all new maps will reflect all fire severity zones. Each of the zones influence how people construct buildings and protect property to reduce risk associated with wildfires. Under state regulations, areas within

VHFHSZs must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life within these areas.

As shown in Figure 4.17-2, the mountainous, highly combustible area nearest to the Berkeley/Oakland Hills at the southern portion of Moraga is located within the SRA and has FHSZ ranking of “very high.” Therefore, this area is highly susceptible to wildfires.

4.17.2 Regulatory Setting

a. Federal Regulations

The Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 requires a state-level mitigation plan as a condition of disaster assistance and provides funding to communities developing their own mitigation plans through the Pre-Disaster Mitigation Grant Program. There are two different levels of state disaster plans: “Standard” and “Enhanced.” States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. The Act also established new requirements for local mitigation plans.

National Fire Plan

The National Fire Plan was developed in August 2000, following a historic wildfire season. Its intent is to establish plans for active response to severe wildfires and their impacts to communities while ensuring sufficient firefighting capacity. The plan addresses firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability.

National Incident Management System

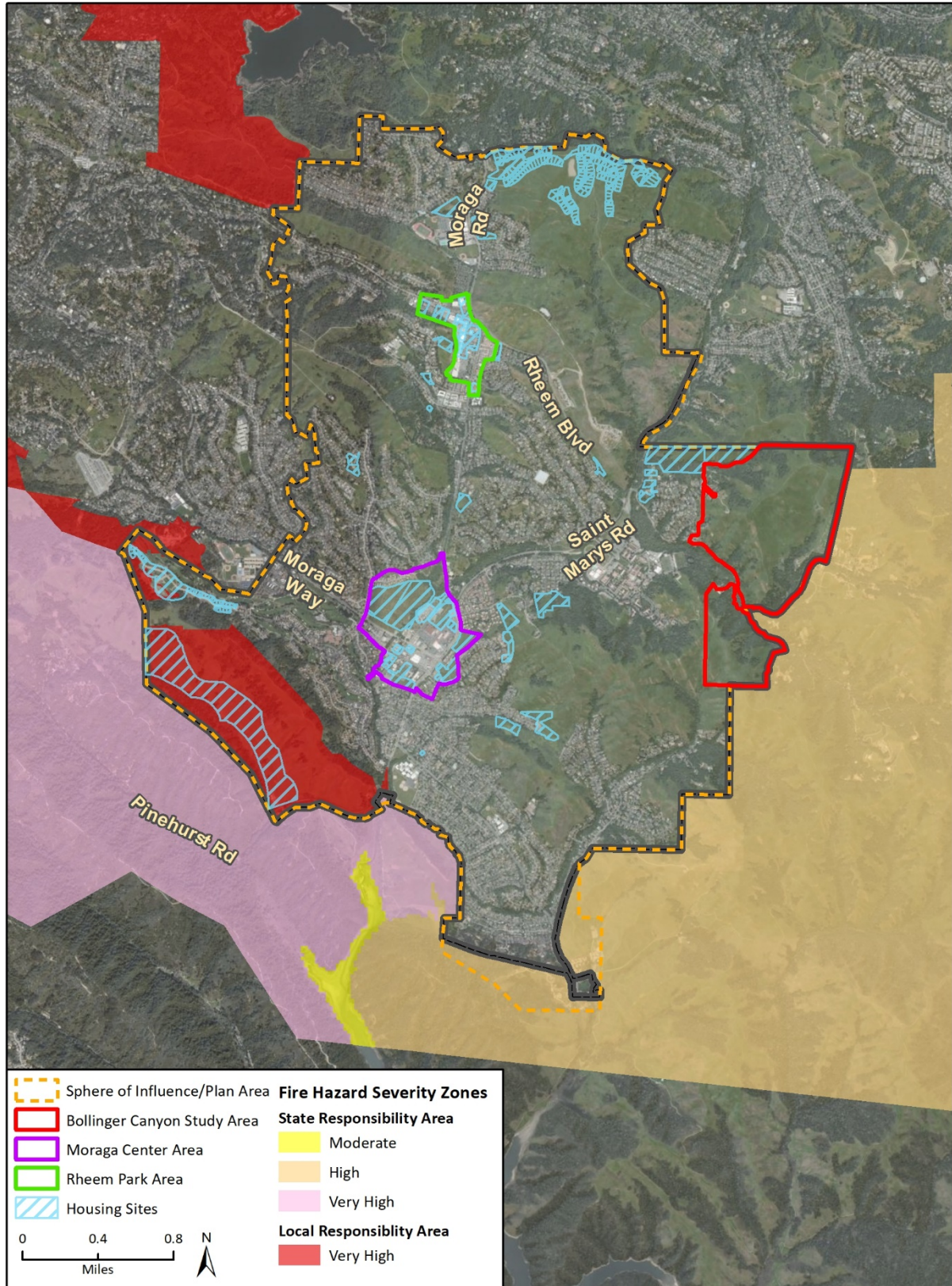
The National Incident Management System (NIMS) provides a systematic, proactive approach to guide government agencies, nongovernmental organizations, and the private sector to work together to prevent, report to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property harm to the environment. NIMS guides all levels of government and provides a structured framework to prepare for and respond to potential incidents and hazard scenarios (FEMA 2022).

b. State Regulations

California Board of Forestry

The Board of Forestry maintains fire safe road regulations, as part of CCR Title 14. This includes requirements for road width, surface treatments, grade, radius, turnarounds, turnouts, structures, driveways, and gate entrances. These regulations are intended to ensure safe access for emergency wildland fire equipment and civilian evacuation.

Figure 4.17-2 Fire Hazard Severity Zones Near Moraga



Imagery provided by Microsoft Bing and its licensors © 2022.
Additional data provided by CalFire, 2022.

Fig WF-1 Very High Fire Hazard Severity Zones

California Fire and Building Codes (2019)

The California Fire Code is Chapter 9 of CCR Title 24. It establishes the minimum requirements consistent with nationally recognized good practices to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structure, and premises, and to provide safety and assistance to firefighters and emergency responders during emergency operations. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The California Fire Code regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The California Fire Code and the California Building Code (CBC) use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines and specialized equipment. To ensure that these safety measures are met, the California Fire Code employs a permit system based on hazard classification. The provisions of this Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California.

More specifically, the Fire Code is included in CCR Title 24. Title 24, part 9, Chapter 7 addresses fire-resistance-rated construction; CBC (Part 2), Chapter 7A addresses materials and construction methods for exterior wildfire exposure; Fire Code Chapter 8 addresses fire related Interior finishes; Fire Code Chapter 9 addresses fire protection systems; and Fire Code Chapter 10 addresses fire related means of egress, including fire apparatus access road width requirements. Fire Code Section 4906 also contains existing regulations for vegetation and fuel management to maintain clearances around structures. These requirements establish minimum standards to protect buildings located in FHSZs within SRAs and WUI Fire Areas. This code includes provisions for ignition-resistant construction standards for new buildings.

MOFD has adopted the 2019 California Fire Code with localized amendments to exterior hazard compliance, landscape and defensible space provisions, and roadway widths in Ordinance 20-01. (see “Local and Regional Regulations” section for an overview of MOFD).

Wildland-Urban Interface Building Standards

On September 20, 2007, the Building Standards Commission approved the Office of the State Fire Marshal’s emergency regulations amending the CCR Title 24, Part 2, known as the 2007 CBC. These codes include provisions for ignition-resistant construction standards in the WUI.

Interface zones are areas with dense housing adjacent to vegetation that can burn that meet the following criteria:

1. Housing density class 2 (one house per 20 acres to one house per 5 acres), 3 (more than one house per 5 acres to one house per acre), or 4 (more than one house per acre)
2. In Moderate, High, or Very High Fire Hazard Severity Zone
3. Not dominated by wildland vegetation (i.e., lifeform not herbaceous, hardwood, conifer, or shrub)
4. Spatially contiguous groups of 30-meter cells² that are 10 acres and larger

² Note that “30-meter cells” refers to satellite mapping or Geographic Information Systems (GIS) data, and indicates data is presented as 30-meter by 30-meter squares in the source maps used to determine zone types.

Intermix zones are housing development interspersed in an area dominated by wildland vegetation and must meet the following criteria:

1. Not interface
2. Housing density class 2
3. Housing density class 3 or 4, dominated by wildland vegetation
4. In Moderate, High, or Very High Fire Hazard Severity Zone
5. Improved parcels only
6. Spatially contiguous groups of 30-meter cells 25 acres and larger

Influence zones have wildfire-susceptible vegetation up to 1.5 miles from an interface zone or intermix zone (CALFIRE 2019a).

While the 2007 CBC creates WUI definitions for interface, intermix and influence zones to apply required construction standards, many local and regional entities use their own definitions of WUI areas for other purposes, ranging from simple resident awareness and public outreach to further municipal-level standards.

The California Fire Plan

The Strategic Fire Plan for California is the State’s road map for reducing the risk of wildfire. The most recent version of the plan was finalized in January 2019 and directs each CALFIRE Unit to address and meet incremental requirements to achieve four specific goals by 2023, including improving core capabilities, enhancing internal operations, ensuring health and safety, and building an engaged workforce (CALFIRE 2019b). A core element of the plan is increasing staffing levels from 2.67 employees per position to 3.11 employees per position to ensure adequate staffing during times of increased mobilization.

California Office of Emergency Services

The California Office of Emergency Services (CalOES) prepares the State of California Multi-Hazard Mitigation Plan (SHMP). The SHMP identifies hazard risks and includes a vulnerability analysis and a hazard mitigation strategy. The SHMP is federally required under the Disaster Mitigation Act of 2000 for the State to receive Federal funding. The Disaster Mitigation Act of 2000 requires a state mitigation plan as a condition of disaster assistance.

State Emergency Plan

The foundation of California’s emergency planning and response is a statewide mutual aid system which is designed to ensure that adequate resources, facilities, and other support is provided to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation.

The California Disaster and Civil Defense Master Mutual Aid Agreement (California Government Code Sections 8555–8561) requires signatories to the agreement to prepare operational plans to use within their jurisdiction, and outside their area. These plans include fire and non-fire emergencies related to natural, technological, and war contingencies. The State of California, all State agencies, all political subdivisions, and all fire districts signed this agreement in 1950.

Section 8568 of the California Government Code, the “California Emergency Services Act,” states that “the State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out

the provisions thereof.” The Act provides the basic authorities for conducting emergency operations following the proclamations of emergencies by the Governor or appropriate local authority, such as a Town Manager. The provisions of the Act are reflected and expanded on by appropriate local emergency ordinances. The Act further describes the function and operations of government at all levels during extraordinary emergencies, including war.

All local emergency plans are extensions of the State of California Emergency Plan. The State Emergency Plan conforms to the requirements of California’s Standardized Emergency Management System (SEMS), which is the system required by Government Code 8607(a) for managing emergencies involving multiple jurisdictions and agencies (CalOES 2017). The SEMS incorporates the functions and principles of the Incident Command System (ICS), the Master Mutual Aid Agreement, existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination. Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs. The SEMS consists of five organizational levels that are activated as necessary, including: field response, local government, operational area, regional, and state. CalOES divides the state into several mutual aid regions. Contra Costa County is located in Fire Mutual Aid Region II, which also includes Del Norte, Humboldt, Mendocino, Sonoma, Lake, Napa, Marin, San Mateo, Solano, San Francisco, San Mateo, Alameda, Santa Clara, Santa Cruz, San Benito, and Monterey Counties (CalOES 2022).

Government Code Sections 65302 and 65302.5, Senate Bill 1241 (Kehoe) of 2012

Senate Bill (SB) 1241 requires cities and counties to address fire risk in SRAs and Very High FHSZs in the safety element of their general plans. The bill also amended CEQA to direct amendments to the *CEQA Guidelines* Appendix G environmental checklist to include questions related to fire hazard impacts for projects located in or near lands classified as SRAs and Very High FHSZs. In adopting these Guidelines amendments, the Governor’s Office of Planning and Research recognized that generally, low-density, leapfrog development may create higher wildfire risks than high-density, infill development.³

California Public Utilities Commission General Order 166

General Order 166 Standard 1.E requires that investor-owned utilities (IOU) develop a Fire Prevention Plan which describes measures that the electric utility will implement to mitigate the threat of power-line fires generally. Additionally, this standard requires that IOUs outline a plan to mitigate power line fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning in a high fire threat area. Fire Prevention Plans created by IOUs are required to identify specific parts of the utility’s service territory where the conditions described above may occur simultaneously. Standard 11 requires that utilities report annually to the California Public Utilities Commission (CPUC) regarding compliance with General Order 166 (CPUC 2017).

California Government Code 51182 and Assembly Bill 3074

California Government Code 51182 sets the requirements for creation of defensible space zones around residential units built in WUI areas. Currently the law requires two zones of vegetation management reaching to 30 feet and 100 feet from the residence. In 2020 the legislature passed Assembly Bill 3074, which requires the Board of Forestry to develop regulations for a third zone

³ “Leapfrog development” describes the construction of new development at a distance from existing developed areas, with undeveloped land between the existing and new development.

within 0 to 5 feet of the home by January 1, 2023. Local and regional fire districts are tasked with regulation and inspection of defensible spaces. As of July 1, 2021, documentation of a compliant Defensible Space Inspection by the jurisdictional fire district is a condition of the sale or transfer of any residential property located in a High FHSZ or VHFHSZ.

c. Regional and Local Regulations

Moraga-Orinda Wildfire Action Plan/Contra Costa County Community Wildfire Protection Plan

The Contra Costa County Community Wildfire Protection Plan was developed with input from many organizations, including state and local departments, federal agencies, community groups, and land management agencies. An appendix to the county-wide plan is the Moraga-Orinda Wildfire Action Plan, which is a local plan specific to the geography covered by MOFD. The purpose of the Community Wildfire Protection Plan is to reduce hazard through increased information and education about wildfires, hazardous fuels reduction, actions to reduce structure ignitability and other recommendations to assist emergency preparedness and fire suppression efforts. It also works to facilitate a coordinated effort between various stakeholders. The plan describes the wildfire risk and potential throughout the county, designates WUI areas, discusses assets at risk throughout the county, provides mitigation strategies, and discusses resources available (Diablo Fire Safe Council 2019). The Action Plan also notes MOFD requires new development projects to create a Wildfire Hazard Assessment and Plan containing area-specific wildfire prevention measures beyond Fire Code requirements.

Contra Costa County Local Hazard Mitigation Plan

The adopted 2018 Contra Costa County Local Hazard Mitigation Plan (LHMP) incorporates wildfire hazard mitigation principles and practices into the routine government activities and functions of the County. The LHMP recommends specific actions that are designed to protect people and community assets from losses to those hazards that pose the greatest risk. Mitigation programs and activities identified in the LHMP include fuel reduction and vegetation management, public education and outreach programs, increased training for urban firefighters responding to WUI-area fires, and regional consistency of building code standards. The Town of Moraga is considered a municipal planning partner under the LHMP (Contra Costa County 2018) and an “annex” of the Countywide LHMP specifically addresses hazards in Moraga.

Moraga-Orinda Fire District

The MOFD was formed in 1997 as an integrated independent special district. The MOFD consolidated the Moraga Fire Protection District and the Orinda Fire Protection District to increase efficiency in fire protection and emergency medical services. The MOFD provides services to Moraga, Orinda, and surrounding unincorporated areas such as Canyon from five fire stations located in the district (MOFD 2022).

Ordinance 20-01

On July 15, 2020, the MOFD adopted the 2018 International Fire Code with the 2019 California Fire Code Amendments and continues to reaffirm their adoption of the current International and California Fire Codes every three years (MOFD 2020a). MOFD has amended the Fire Code to better

reflect local conditions and concerns, as do most municipalities that adopt the International Fire Code.

Ordinance 20-02

On June 17, 2020, the MOFD adopted Ordinance 20-02, which designates WUI Fire Areas within portions of the MOFD, including all of Moraga. WUI Fire Areas require ember resistant construction in areas classified as High Fire Hazard Severity Zones and Very High Fire Severity Zones (MOFD 2020b).

Contra Costa County Emergency Operations Plan

The Contra Costa County Office of Emergency Services (OES), a division of the Contra Costa County Office of the Sheriff, is responsible for the planning, outreach, and training related to disaster management and emergency preparedness. The County's Emergency Operations Plan provides the basis for a coordinated response before, during, and after an emergency. The plan facilitates multi-jurisdictional and interagency coordination in emergency operations and serves as the County plan to be used for emergency planning in addition to emergency operations. The plan is to be used in coordination with applicable local, State, and Federal contingency plans and establishes protocols required to effectively respond to, manage and recover from major emergencies and disasters. (Contra Costa County 2015).

Town of Moraga Emergency Operations Plan

Moraga's Emergency Operations Plan is the foundation for emergency planning, organization, and response policies and procedures for emergencies and disasters. The Emergency Response Plan addresses Moraga's responsibilities during all hazards, including natural disasters and human-caused emergencies, and provides a framework for coordination of response and recovery efforts. Moraga's Emergency Response Plan follows and is consistent with procedures in the County's Emergency Operations Plan, SEMS, and NIMS. The Emergency Operations Plan identifies wildfire events as the natural hazard with the highest risk ranking.

Town of Moraga 2002 General Plan

The Town's General Plan Public Safety Element (Moraga 2002) includes the following goals and policies pertaining to fire suppression and wildfires:

Goal PS3: A high level of fire and life safety.

Policy PS3.1: Cooperation with the Moraga-Orinda Fire District. Cooperate with the Moraga-Orinda Fire District in developing standards, guidelines and local ordinances to assure provision of adequate fire protection and emergency medical service for all persons and property in the community.

Policy PS3.2: Fire Stations. Maintain two fire stations in the Town. Work with the Moraga-Orinda Fire District to support its ongoing facility improvement program, including but not limited to the relocation of Station 42 from Rheem Boulevard to Moraga Road (as indicated on the General Plan Diagram).

Policy PS3.3: Response Times. Provide a maximum emergency response driving time of 3 minutes and/or a travel distance of not more than 1.5 miles for response vehicles from the

closest fire station to arrive and effectively control fires and respond to medical and other emergencies in the community.

Policy PS3.4: Fire Flows. Deploy the fire-fighting forces of the Moraga-Orinda Fire District to deliver a minimum fire flow in accordance with the adopted standards of the Moraga-Orinda Fire District. Major fires requiring fire flows in excess of the adopted standards will exceed the initial fire attack capability of local-fighting forces and structures involved in such fires are expected to incur major fire damage unless protected by fire resistive interiors and fire sprinkler systems.

Policy PS3.5: Development Review for Emergency Response Needs. Evaluate new development proposals to ascertain and mitigate problems associated with emergency response needs.

Policy PS3.6: Fire Vehicle Access. Provide access for fire-fighting vehicles to all new developments in accordance with fire access standards of the Moraga-Orinda Fire District and Town of Moraga Ordinances.

Policy PS3.7: Preemptive Devices at Traffic Signals. Equip all new traffic signals with preemptive devices for emergency response services. Existing traffic signals significantly impacted by new developments shall be retrofitted with preemptive devices at developer's cost.

Policy PS3.8: Fire Safety Devices in Buildings. Require the installation of appropriate fire safety devices in all structures at the time of original construction, additions, or remodeling, in accordance with adopted building codes and standards.

Policy PS3.9: High Occupancy Residential Buildings. Require approved built-in fire protection systems in new construction in high occupancy residential buildings (such as multi-story/multiunit structures, group quarters, etc.) in accordance with Moraga-Orinda Fire District standards. For each new building or addition exceeding 5,000 square feet of fire area in high occupancy residential buildings, a comparable amount of existing fire area shall be equipped with approved built-in fire protection systems.

Policy PS3.10: Fire Protection Systems. Cooperate with the Moraga-Orinda Fire District to enforce requirements for built-in fire protection systems as required by ordinance, including specialized built-in fire protection systems that may be required based upon building size, use or location.

Policy PS3.11: Development Review by the Moraga-Orinda Fire District. Require proposed construction projects that meet criteria established by the Moraga-Orinda Fire District (MOFD) to be reviewed by the MOFD at the beginning of the Town review process and before permits are issued. The MOFD shall submit conditions of approval for such projects to ensure that they meet adopted fire safety standards.

Policy PS3.12: Hazardous Fire Areas. Apply special fire protection standards to all new developments in hillside, open space, and wildland interface areas. Fire prevention measures such as removal of dry grass and brush, landscaping with fire and drought-resistant vegetation, provision of adequate water supplies and access for fire-fighting vehicles shall be required to reduce the risk of wildland fires. All new structures located in hazardous fire areas shall be constructed with fire resistant exterior materials consistent with applicable building codes and standards.

Policy PS3.13: Dry Grass and Brush Control. Require that all properties be maintained so as to preclude the existence of dry grass and brush that would permit the spread of fire from one property to another. Encourage preventive measures by homeowners to reduce fire risks.

Policy PS3.14: Fire Retardant Roofing. Require fire retardant roofing of Class B or better in all new construction and when replacing roofs on existing structures.

Policy PS3.15: Fire Roads and Trails. Require adequate fire access to open space areas in accordance with Moraga-Orinda Fire District standards.

The Town is currently updating the General Plan Safety Element which is anticipated to be adopted with the Comprehensive Advanced Planning Initiative. The draft Safety Element would update the 2002 element and includes relevant goals and policies to minimize the hazards related to wildfire in and around Moraga. Draft policies are discussed in Section 4.17.3, *Impact Analysis*, below.

4.17.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

The following thresholds of significance are based on *CEQA Guidelines* Appendix G. For purposes of this EIR, since the Plan Area is within 2 miles of an SRA, project implementation may have a significant adverse impact if it would do any of the following:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan;
2. 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;
3. 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;
4. 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; or
5. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.⁴

Methodology

The assessment of impacts related to wildfire hazards and risks were evaluated using FHSZ mapping for Moraga, aerial imagery, and topographic mapping. Weather patterns related to prevailing winds and precipitation trends were evaluated as they relate to the spread and magnitude of wildfire. CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. Consequently, impacts under the thresholds identified above would only be considered significant if the project risks exacerbating those existing environmental conditions. In addition, the assessment evaluates proposed new and

⁴ Appendix G of the *CEQA Guidelines* includes this threshold question under the "Hazards and Hazardous Materials" environmental topic. However, this potential impact is addressed in Section 4.17, *Wildfire*, to group questions related to wildfire in the same section.

amended Safety Element goals and policies related to wildfire safety. Goals and policies include the following:

Goal PS1: A community that effectively minimizes threats to public health, safety, and welfare resulting from natural and human-caused hazards.

Policy S1.1: Adoption of Local Hazard Mitigation Plan. Incorporate the Contra Costa County Hazard Mitigation Plan and the Town of Moraga Annex, approved by the Federal Emergency Management Agency in 2018, into this Safety Element by reference, as permitted by California Government Code Section 65302.6.

Policy S1.2: Local Hazard Mitigation Plan Implementation, Updates, and Mutual Aid Agreements. In coordination with the County of Contra Costa, implement and update the Contra Costa County Local Hazard Mitigation Plan, as directed by the California Governor's Office of Emergency Services and the Federal Emergency Management Agency, and maintain mutual-aid agreements with federal, state, and local agencies as well as the private sector, to assist in:

1. Clearance of debris in the event of seismic hazards, collapsed buildings or structures, or other circumstances that could result in blocking emergency access or regress
2. Heavy search and rescue
3. Fire suppression
4. Hazardous materials response
5. Temporary shelter
6. Geologic and engineering needs
7. Traffic and crowd control
8. Building inspection

Policy S1.3: SEMS Response. Coordinate with local and State Emergency Management agencies using the Standardized Emergency Management System (S.E.M.S.) and National Incident Management System (N.I.M.S.) to facilitate multiagency emergency response.

Policy S1.4: Coordination with Other Agencies. Continue to cooperate with other public agencies to ensure adequate medical and other emergency services.

Policy S1.5: Interjurisdiction Agreements. Maintain inter-jurisdictional cooperation and coordination, including automatic aid agreements, with fire protection and suppression agencies in Contra Costa County.

Policy S1.6: Equitable Response. Ensure that communication, educational and informational materials, assistance in preparedness activities, and evacuation and short-term recovery activities are available in multiple languages and formats appropriate for people with access and functional needs.

Policy S1.7: Communication Resiliency. Ensure that communication systems used by emergency responders and key Town staff have sufficient redundancy and resiliency to meet Town needs during and after a hazard event.

Policy S1.8: Data Sharing. Ensure that the Town is able to prepare for and respond to large-scale disasters through coordination and sharing data, experience, and strategies with other emergency management agencies in state or regional efforts on disaster planning.

Policy S1.9: Location of Critical Facilities. Locate critical facilities outside of known hazard zones, including 100-year and 500-year flood hazard zones, dam inundation zones, very high fire hazard severity zones, and Wildland-Urban Interface zones. If facilities must be located in these zones, design and site them to minimize potential damage and increase their ability to remain operational during and after hazard events.

Policy S1.10: Evacuation Assistance for Persons with Limited Mobility. Develop and implement an evacuation assistance program, in coordination with CCTA and local community organizations and paratransit providers, to help those with limited mobility or lack of access to a vehicle to evacuate safely.

Policy S1.13: High Risk Areas. Prohibit development in 'high risk' areas, as defined by the Moraga Municipal Code and Open Space Ordinance.

Policy S1.14: Moderate Risk Areas. Avoid building in 'moderate risk' areas, which are defined as being (1) those areas within 100 yards of an active or inactive landslide, as defined by the Town's Landslide Map, or (2) upon a body of colluvium. Where it is not possible to avoid building in such areas entirely, due to parcel size and configuration, limit development accordingly through density regulations, subdivision designs that cluster structures in the most stable portions of the subdivision, site designs that locate structures in the most stable portion of the parcel, and specific requirements for site engineering, road design, and drainage control.

Goal PS2: A community environment that is free from crime and prepared for any potential disaster.

Policy S2.2: Address Visibility. Support measures that help police, firefighting crews and emergency response teams respond to fire hazards or work under low-visibility conditions, such as high-visibility signage for streets and building addresses.

Goal PS3: A community that seeks to avoid and minimize the risk of loss of life, injury, and property loss from wildfires and urban fires.

Policy S3.2: Fire Stations. Maintain two fire stations in the Town. Work with the Moraga-Orinda Fire District to support its ongoing facility improvement program.

Policy S3.3: Fire Protection. Continue to require a high level of fire protection to residential and commercial development to avoid or minimize wildfire hazards associated with new land uses, consistent with MOFD standards.

Policy S3.4: Fuel Breaks. Coordinate with MOFD and landowners to develop and maintain fuel breaks in dedicated open space and fire-access easements.

Policy S3.7: Development Review for Emergency Response Needs. Evaluate new development proposals to ascertain and mitigate problems associated with emergency response needs. Require that proposed development be in areas where fire and emergency services have sufficient capacity to meet project needs or require that they be upgraded to provide necessary capacity as part of the proposed development activities.

Policy S3.8: Fire Vehicle Access. Require proposed development to provide adequate access for fire-fighting and emergency vehicles and equipment in accordance with fire access standards of the Moraga-Orinda Fire District and Town of Moraga Ordinances.

Policy S3.13: Development Review by the Moraga-Orinda Fire District. Continue to require review by the Planning Department and Moraga-Orinda Fire District (MOFD) prior to the issuance of development permits for proposed construction projects and conceptual

landscaping plans. The MOFD shall submit conditions of approval for such projects to ensure that they meet adopted fire safety standards. Plans for proposed development in such areas shall include, at a minimum:

- a. Site plan, planting plan, planting palette, and irrigation plan to reduce the risk of fire hazards and with consideration to site conditions, including slope, structures, and adjacencies.
- b. Defensible space maintenance plan.
- c. Multiple points of ingress and egress to improve evacuation, emergency response, and fire equipment access, and adequate water infrastructure for water supply and fire flow.
- d. Class A roof materials for new and replacement roofs.

Policy S3.16: Fire-Resistant Landscaping in New Development. Continue to uphold fire-resistant landscaping requirements for new residential and commercial development. All new residential development must comply with MOFD and California Board of Forestry regulations.

Policy S3.19: Fire prevention plans in new development. Require project-specific fire prevention plans for all new development projects in Very High Fire Hazard Severity Zones and Wildland Urban Interface Zones, including plans for long-term, comprehensive, fuel reduction and management.

Policy S3.20: Post-Disaster Recovery. Develop and update programs as needed that ensure recovery and redevelopment after a large fire and that reduce future vulnerabilities to fire hazard risks through site preparation, redevelopment layout design, fire resistant landscape planning, and fire-retarding building design and materials.

Policy S3.21: Coordination with EBMUD. Coordinate with the East Bay Municipal Utility District to maintain an adequate water supply for fire-righting purposes in the community.

Policy S3.23: Evacuation Routes. Continue to identify and maintain evacuation routes to ensure adequate capacity, safety, and viability of those routes in the event of an emergency.

Policy S3.24: Road and access improvements. Identify existing public and private roadways in fire hazard severity zones and the wildland-urban interface (WUI) that are not in compliance with current fire safety regulations, including road standards for evacuation and emergency vehicle access, vegetation clearance, and other requirements of Sections 1273 and 1274 of the California Code of Regulations (Title 14, Division 1.5, Chapter 7, Articles 2 and 3), to the extent resources are available. Work at retrofitting Town-owned roadways as needed to meet current standards and require private property owners to do the same, to the extent feasible and given the absence of other site constraints.

b. Impact Analysis

Threshold 1: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Housing Element

Impact WFR-1 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD BE IN AND NEAR AN SRA OR VERY HIGH FHSZs. COMPLIANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS RELATING TO EVACUATION WOULD REDUCE THE EXTENT TO WHICH THE PROJECT WOULD IMPAIR EMERGENCY RESPONSE AND EVACUATION. NONETHELESS, THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Development facilitated by the Housing Element would accommodate future population growth that would incrementally increase traffic congestion, which could result in delays on evacuation routes in the Town, and into the cities of Lafayette and Orinda and to State Route 24. The Housing Opportunity Sites would be accessed by preexisting roadways and would generally rely on Moraga Way, Moraga Road, or St. Mary's Road for potential evacuation. Housing Opportunity Site B-14 may also rely on Canyon Road to Pinehurst Road for potential evacuation. The Town is not proposing changes to the zoning of Site B-14 as part of the project, and the site is already shown for residential use in the 2002 General Plan; however, the site is analyzed in this section because it is located within a very high fire hazard severity zone, and because the wildfire risks associated with cumulative development in Moraga are of substantial concern to the community (see Section 4.0, *Environmental Impact Analysis*, for further explanation). Population growth because of the Housing Element could also result in adverse effects related to the implementation of emergency plans due to burdened evacuation routes and other emergency response resources in the event of a wildfire.

Goals and policies in the proposed updated Safety Element would assist in coordination and preparedness for an emergency response. Proposed and amended Safety Element Policies S-1 through S-10, S1.13, and S1.14 outlined above, would ensure adoption and implementation of local hazard mitigation planning; coordination among federal, state, and local plans and agencies; adequate public and interagency communication during hazard events; evacuation assistance for those with limited mobility or lack of access to a vehicle for evacuation; and siting development away from high risk areas and moderate risk landslide areas. In addition, the Town would adopt Policy S-2, which incorporates the Contra Costa County Hazard Mitigation Plan and the Town of Moraga Annex into the proposed Safety Element, to ensure that emergency response and evacuation routes remain accessible throughout the Town. Implementation of Policy S2.2 would further support measures that help firefighting crews and emergency response teams respond to fire hazards.

The County's Emergency Operations Plan establishes the emergency management organization for emergency response, establishes operational concepts associated with emergency management, and provides a flexible platform for planning emergency response in the county. Development facilitated by the Housing Element would be constructed in accordance with federal, state, regional, and local requirements, which are intended to ensure the safety of county residents and structures to the extent feasible. Compliance with these standard regulations would be consistent with the Emergency Operations Plan's goals (Save Lives, Protect Property, Preserve the Environment, and Restore Essential Services) and objectives (Mitigate Hazards, Meet Basic Human Needs, Address

Needs of People with Disabilities and Others with Access and Functional Needs, and Support Community and Economic Recovery).

Development facilitated by the Housing Element would be reflected in the regular and required updates of emergency and evacuation plans applicable to the Town. In addition, the Town would review and approve projects to ensure that emergency access meets Town standards. Development facilitated by the Housing Element, as well as all development in the Town, must comply with road standards, and are reviewed by MOFD to ensure development would not interfere with evacuation routes and would not impede the effectiveness of evacuation plans.

Compliance with proposed policies would further minimize physical interference with evacuation or emergency response plans from development facilitated by the project and require site-specific evacuation studies and plans as appropriate. However, future development under the Housing Element may substantially impair an adopted emergency response plan or emergency evacuation plan. An impact to emergency operations and evacuations could occur from construction of future projects if they were to result in temporary road closures, potentially reducing available emergency evacuation routes. Construction of new development could involve temporary lane closures or otherwise block traffic that could impede the ability of emergency vehicles to access the area. This would be limited to the construction duration and only affect streets adjacent to the construction site. Additionally, any development facilitated by the project could further inhibit safe evacuation by introducing more residents to the area that would require evacuation on narrow roadways and incrementally increasing congestion during evacuation.

Impacts related to impairment of emergency response plan or emergency evacuation plan would be significant and mitigation measures would be required.

Mitigation Measure

WFR-1 Develop Wildfire Assessment Plan and Guidelines

The Town shall require a Wildfire Assessment Plan and Guidelines prior to approval of projects where deemed necessary to protect public safety. The Plan and Guidelines shall be developed for the project site, approved by MOFD, and shall address but shall not be limited to the following:

- Well-maintained, fire district approved landscape and vegetation management plan.
- Adequate roadway and driveway widths, designed to accommodate two-way traffic and large firefighting apparatus.
- Adequate water supply and water flow for firefighting efforts.
- Vegetation modification zones surrounding the community.
- Buildings are built to current Building Code standards, ignition-resistant eaves, ember resistant construction, defensible space, residential fire sprinklers, a Class A ignition-resistant roof, dual pane (one being tempered) glass windows, and chimneys with spark arrestors containing a minimum of 0.5-inch screen.

Significance After Mitigation

With implementation of Mitigation Measure WFR-1, a wildfire assessment plan and guidelines would be adopted and could reduce impairment of an adopted emergency evacuation plan. However, it is not possible to ensure that future development of Housing Opportunity Sites would

not substantially impair an adopted emergency response plan or emergency evacuation plan, despite implementation of mitigation. Thus, this impact would remain significant and unavoidable.

Bollinger Canyon Rezoning

Impact WFR-2 DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD NOT IMPAIR IMPLEMENTATION OF OR PHYSICALLY INTERFERE WITH AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN. COMPLIANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS RELATING TO EVACUATION WOULD REDUCE THE EXTENT TO WHICH THE PROJECT WOULD IMPAIR EMERGENCY RESPONSE AND EVACUATION. NONETHELESS, THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

The analysis in Impact WFR-1 applies to the Bollinger Canyon Study Area. The Bollinger Canyon Rezoning could impair implementation or physically interfere with evacuation or emergency response plans. Residential traffic from the Bollinger Canyon Study Area would rely on St. Mary's Road for potential evacuation. The impact related to emergency response and evacuation plans would be significant and mitigation measures would be required.

Mitigation Measures

Mitigation Measure WFR-1 (See Impact WFR-1).

Significance After Mitigation

With implementation of Mitigation Measure WFR-1, a wildfire assessment plan and guidelines would be adopted for projects in the Bollinger Canyon Study Area and could reduce impairment of an adopted emergency evacuation plan. However, it is not possible to ensure that future development from Bollinger Canyon Rezoning would not substantially impair an adopted emergency response plan or emergency evacuation plan, despite implementation of mitigation. Thus, this impact would remain significant and unavoidable.

- Threshold 2:** If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- Threshold 3:** If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- Threshold 4:** If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?
- Threshold 5:** Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Housing Element

Impact WFR-3 DEVELOPMENT FACILITATED BY THE HOUSING ELEMENT WOULD EXPOSE PROJECT OCCUPANTS AND STRUCTURES TO WILDFIRE RISKS FOR SITES LOCATED IN OR NEAR VERY HIGH FHSZS. WILDFIRE RISK WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Severe wildfires damage the forest or shrub canopy, the plants below, as well as the soil. In general, this can result in increased runoff after intense rainfall, which can put homes and other structures below a burned area at risk of localized floods and landslides. As discussed further in Section 4.6, *Geology and Soils*, the slopes in north-central Moraga on either side of Moraga Road and slopes at the southern portion of the Town adjacent to the Berkeley/Oakland Hills have a high susceptibility to landslides. However, the Moraga Center and Rheem Park areas, where Housing Opportunity Sites are concentrated, are not located in high-susceptibility landslide areas. If a fire were to occur in more flat and urbanized areas, such as the Rheem Park Area or Moraga Center, the risk of flooding or landslides afterward would be negligible because of the nearly flat topography and because little soil would be exposed due to the developed conditions. Therefore, development on Housing Opportunity Sites located in flatter or developed settings, including within the Rheem Park Area or Moraga Center, would not expose people or structures to significant risks, including downslope or downstream flooding or landslides.

As described in Section 4.16, *Utilities and Service Systems*, based on the availability of existing electrical infrastructure, it is not anticipated that the construction of new electrical transmission and distribution lines would be required, and all Housing Opportunity Sites would be able to connect to existing infrastructure. However, pursuant to Moraga Municipal Code Chapter 96-10, any new electric lines must be underground and cannot be built as above-ground transmission lines. Therefore, wildfire risk would not be exacerbated by the installation of additional electrical infrastructure.

The Housing Element and rezoning of key sites would facilitate the development of new housing units on various sites throughout the Plan Area. New construction would be subject to the MOFD Fire Code, which includes safety measures to minimize the threat of fire, including ignition-resistant construction with exterior walls of noncombustible or ignition resistant material from the surface of

the ground to the roof system, and sealing any gaps around doors, windows, eaves and vents to prevent intrusion by flame or embers. Fire sprinklers would be required in residential developments (with some exceptions) pursuant to the MOFD Fire Code. Construction would also be required to meet CBC requirements, including CCR Title 24, Part 2, which includes specific requirements related to exterior wildfire exposure. The Board of Forestry, via CCR Title 14, sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent loss of structures or life by reducing wildfire hazards. The risk of loss, injury, or death from wildfire for new residential development facilitated by the Housing Element would be reduced through compliance with existing fire codes and regulations but would not be eliminated.

Goals and policies in the updated Safety Element would mitigate the risk of loss of life, injury, and property loss from wildfires. Proposed new and amended Policies S3.2 through S3.4, S3.7, S.8, S3.13, S3.16, and S3.19 through S3.24 listed in the *Methodology* section would maintain MOFD fire protection standards, continue wildfire mitigation strategies such as fuel breaks in open spaces and fire access easements, require proposed development to have adequate access for fire and emergency services, and maintain evacuation routes in the event of an emergency.

Development facilitated by the Housing Element would not exacerbate existing environmental conditions; however, existing fire codes and regulations cannot fully prevent wildfires from damaging structures or occupants. Mitigation Measure WFR-2 would be required to reduce the risk of wildfire during project construction for future development. Mitigation Measure WFR-3, which includes project landscaping considerations, would also apply to development facilitated by the Housing Element.

Mitigation Measures

WFR-2 Construction Wildfire Risk Reduction

The Town of Moraga shall require the following measures during project construction:

1. Construction activities with potential to ignite wildfires shall be prohibited during red-flag warnings issued by the National Weather Service for the site. Example activities include welding and grinding outside of enclosed buildings.
2. Portable pumps shall be available onsite during project construction. Portable pumps shall be maintained to function according to manufacturer specifications. Construction personnel shall receive training on the proper methods of using a fire extinguisher.
3. Construction equipment powered by internal combustion engines shall be equipped with spark arresters. The spark arresters shall be maintained pursuant to manufacturer recommendations to ensure adequate performance.

At the Town's discretion, additional wildfire risk reduction requirements may be required during construction. The Town shall review and approve the project-specific methods to be employed prior to building permit approval.

WFR-3 Project Design Wildfire Risk Reduction

Project landscape plans shall include fire-resistant vegetation native to Contra Costa County and/or the local microclimate of the site and prohibit the use of fire-prone species, especially non-native, invasive species.

Significance After Mitigation

With implementation of Mitigation Measures WFR-2 and WFR-3, the risk of loss of structures and the risk of injury or death due to wildfires would be reduced. These measures would make structures more fire resistant and less vulnerable to loss in the event of a wildfire. These measures would also reduce the potential for construction to inadvertently ignite a wildfire. However, it is not possible to prevent a significant risk of wildfires or fully protect people and structures from the risks of wildfires, despite implementation of mitigation. Thus, this impact would remain significant and unavoidable.

Bollinger Canyon Rezoning

Impact WFR-4 THE BOLLINGER CANYON STUDY AREA IS LOCATED NEAR A VERY HIGH FHSZ. DEVELOPMENT FACILITATED BY THE BOLLINGER CANYON REZONING WOULD EXPOSE PROJECT OCCUPANTS AND STRUCTURES TO WILDFIRE RISKS. WILDFIRE RISK WOULD BE SIGNIFICANT AND UNAVOIDABLE.

As discussed under Impact WFR-3, severe wildfires damage the forest or shrub canopy, the plants below, as well as the soil. In general, this can result in increased runoff after intense rainfall, which can put residences and other structures below a burned area at risk of localized floods and landslides. As discussed further in Section 4.6, *Geology and Soils*, the slopes in the Bollinger Canyon Study Area have a high susceptibility to landslides. If a severe wildfire were to occur adjacent to the Bollinger Canyon Study Area, structures directly downslope (including existing and future development in this area) may be at risk of flooding or landslides and would expose project residents to wildfire pollutants. Therefore, development in the Bollinger Canyon Study Area could expose people or structures to significant risks, including downslope or downstream flooding or landslides.

As described in Section 4.16, *Utilities and Service Systems*, new electrical transmission and distribution lines would be required in the Bollinger Canyon Study Area. However, pursuant to Moraga Municipal Code Chapter 96-10, new electric lines must be underground and cannot be built as above-ground transmission lines. Therefore, wildfire risk would not be exacerbated by the installation of additional electrical infrastructure.

The rezoning of the Bollinger Canyon Study Area would facilitate the development of new housing units on various sites in the area. The Bollinger Canyon Study Area is predominantly undeveloped and in proximity to woodlands, shrublands, and chaparral with flammable vegetation. However, new construction would be subject to the MOFD Fire Code, which includes safety measures to minimize the threat of fire, including ignition-resistant construction with exterior walls of noncombustible or ignition resistant material from the surface of the ground to the roof system and sealing any gaps around doors, windows, eaves and vents to prevent intrusion by flame or embers. Fire sprinklers would be required in residential developments (with some exceptions) pursuant to the MOFD Fire Code. Construction would also be required to meet CBC requirements, including CCR Title 24, Part 2, which includes specific requirements related to exterior wildfire exposure. The Board of Forestry, via CCR Title 14, sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent loss of structures or life by reducing wildfire hazards. The risk of loss, injury, or death from wildfire for new residential development in the Bollinger Canyon Study Area would be reduced through compliance with existing fire codes and regulations but would not be eliminated.

Development facilitated from the Bollinger Canyon Rezoning would not exacerbate risk of wildfire ignition; however, existing fire codes and regulations cannot fully prevent wildfires from damaging structures or occupants. Therefore, Mitigation Measure WFR-2 would be required to reduce the risk of wildfire during project construction for future development within the Bollinger Canyon Study Area. Mitigation Measure WFR-3, which includes project landscaping considerations would also apply to development within the Bollinger Canyon Study Area. Due to significant and unavoidable impacts, any development would need to demonstrate compliance of mitigation measures and how those would be implemented once a project application is submitted.

Mitigation Measures

Mitigation Measures WFR-2 and WFR-3 (See Impact WFR-3).

Significance After Mitigation

With implementation of Mitigation Measures WFR-2 and WFR-3, the risk of loss of structures and the risk of injury or death due to wildfires would be reduced in the Bollinger Canyon Study Area. These measures would make structures more fire resistant and less vulnerable to loss in the event of a wildfire. These measures would also reduce the potential for construction to inadvertently ignite a wildfire. However, it is not possible to prevent a significant risk of wildfires or fully protect people and structures from the risks of wildfires, despite implementation of mitigation. Thus, this impact would remain significant and unavoidable.

4.18 Effects Found Not to be Significant

CEQA Guidelines Section 15128 requires an EIR to briefly describe possible effects that were determined not to be significant and therefore not discussed in detail. This section addresses the potential environmental effects of the Planning Initiative that were determined not to be significant. The topics listed below are drawn from the environmental checklist form included in *CEQA Guidelines* Appendix G. CEQA topics not addressed in this section are included in Sections 4.1 through 4.17 of this EIR. The analysis below for the Planning Initiative covers the impacts from both the Housing Element (i.e., rezoning of the Moraga Center area and Rheem Park area) and the Bollinger Canyon Rezoning.

4.18.1 Agriculture and Forestry Resources

The Planning Initiative would have a significant impact with respect to agricultural and forestry resources if it would:

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- b. Conflict with existing zoning for agricultural use or a Williamson Act contract;
- c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- d. Result in the loss of forest land or conversion of forest land to non-forest use; or
- 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.

The Town of Moraga is primarily classified as urban and built-up land, other land, or nonagricultural or natural vegetation in the California Department of Conservation's Farmland Mapping and Monitoring program (California Department of Conservation 2018). There are, however, 31.3 acres of unique farmland and 8.5 acres of prime farmland in the Town. This farmland acreage is contiguous and is associated with a former pear orchard (west of Laguna Creek) that has not been actively used for agricultural purposes in several years. Portions of this area are currently zoned for residential (R-20A) and mixed use (MCSP Mixed Retail-Residential and MCSP Mixed Office-Residential). The Planning Initiative would increase the allowable densities in some of this area from 20 dwelling units per acre to 24 dwelling units per acre. This change in density would not result in an increase to the environmental footprint that is already allowed under the current zoning, and for this reason would not result in additional impacts to farmland. No impact would occur on Important Farmlands due to the Planning Initiative.

There are no zoning designations for agriculture or Williamson Act contract lands in Moraga (DOC 2017). As such, the Planning Initiative would have no impact on areas zoned for agriculture Williamson Act contract lands. There is no land in the Plan Area that meets the definition of a forestry resource as defined by California Public Resources Code Section 12220(g). Additionally, there are no farmlands or forestlands adjacent to the town for which the Planning Initiative would

further the likelihood of conversion. Therefore, the Planning Initiative would not conflict with or cause rezoning of forest land or timberland nor result in the loss of forest land to non-forest use. No impact would occur.

4.18.2 Mineral Resources

The Planning Initiative would have a significant impact with respect to mineral resources if it would:

- 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, or
- 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.

The Town of Moraga does not have significant mineral resources or active mining sites within its boundaries (USGS 2022). Development facilitated by the Planning Initiative is not proposed on lands currently used for mineral extraction and would not result in the loss of availability of a known mineral resource that or result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan or other land use plan. Therefore, there would be no impacts on mineral resources.

4.18.3 Noise (Airport-Related)

The Planning Initiative would have a significant impact with respect to Threshold (3) under noise if it would:

- a. 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, expose people residing or working in the project area to excessive noise levels.

There are no airports within Moraga and the noise contours for the closest airports do not extend into Moraga. Accordingly, none of the Moraga Center area, Rheem Park area, or Bollinger Canyon Study Area is located within projected airport noise contours. There are also no private airstrips in Moraga. Therefore, no substantial noise exposure from airport noise would occur. There would be no impact.

5 Other CEQA Required Discussions

This section discusses growth-inducing impacts and irreversible environmental impacts that would be caused by the proposed project.

5.1 Growth Inducement

The California Environmental Quality Act (CEQA) Guidelines Section 15126(d) requires a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The proposed project's growth inducing potential is therefore considered significant if project-induced growth could result in significant physical effects in one or more environmental issue areas.

5.1.1 Population Growth

As discussed in Section 4.12, *Population and Housing*, development facilitated by the Planning Initiative could accommodate an estimated 5,067 new residents and 1,770 new housing units in the Plan Area. With this estimated growth, Moraga would have a total population of 23,115 persons and 7,702 housing units by 2040. This would result in a population that would exceed ABAG growth projections by 21.8 percent. However, as described in Section 4.12, *Population and Housing*, project projections represent a conservative level of buildout as a result of the Planning Initiative, whereby identified sites are developed to the maximum extent feasible. Actual housing units and subsequent population growth is anticipated to be lower than project projections.

Growth anticipated under the project is intended to meet regional housing needs, as it addresses State mandated housing goals. The project would be consistent with State requirements for the Regional Housing Needs Allocation (RHNA), which would result in increased population in the town. Although the project would facilitate development beyond what is forecast in ABAG's Plan Bay Area 2050, it would bring the forecasts for the Town's General Plan and Plan Bay Area into consistency since Plan Bay Area will be updated to reflect new forecasts for each city/town in the region.

The State requires that all local governments adequately plan to meet the housing needs of their communities (HCD 2021). Given that the State is currently in an ongoing housing crisis due to an insufficient housing supply, the additional units under the project would further assist in addressing the existing crisis and meeting the housing needs of the Town. Furthermore, the Housing Element Update (as part of the Planning Initiative) would first be submitted to HCD for review and approval to ensure that it would adequately address the housing needs and demands of the Town. Approval by the HCD would ensure that population and housing growth under the project would not be substantial or unplanned.

As discussed in Section 4.2, *Air Quality*, and Section 4.7, *Greenhouse Gas Emissions*, development facilitated by the Planning Initiative would not generate air quality or greenhouse gas emissions that would result in a significant impact.

Finally, the Planning Initiative is intended specifically to guide growth and development in Moraga such that infill development would be prioritized and parks, recreational, and open space would be preserved and enhanced. Therefore, by its nature, the project is intended to reduce the potential

for uncontrolled growth and associated environmental impacts. Increased population as a result of the Planning Initiative would, however, result in significant impacts related to air quality, biological resources, greenhouse gas emissions, noise, transportation, utilities and service systems, and wildfire.

5.1.2 Economic Growth

The Planning Initiative would generate temporary employment opportunities during construction of development facilitated by the project. Because construction workers would be expected to be drawn from the existing regional work force, construction would not be growth-inducing from a temporary employment standpoint. The project would allow for mixed-use development in the Moraga Center and Rheem Park areas but would not increase overall commercial development. The Planning Initiative would not induce substantial economic expansion to the extent that direct physical environmental effects would result.

5.1.3 Removal of Obstacles to Growth

Although development of some vacant lands within the Planning Initiative Area, particularly in the Moraga Center or Rheem Park areas, would require new utility connections, development would occur primarily where existing roads, water, and sewer and other utilities are in place and in a manner that minimizes the impact of development on existing infrastructure and services, such as construction with existing rights-of-way. As described in Section 4.16 *Utilities and Service Systems* development in those areas would use existing facilities and major infrastructure extensions would not occur in or be designed to serve areas beyond the sites analyzed in this environmental impact report (EIR), the project would not removal obstacles to growth within the Moraga Center or Rheem Park areas.

As described Section 4.16, *Utilities and Service Systems*, rezoning of the Bollinger Canyon Study Area to facilitate residential development could eventually require the extension of water, wastewater, electricity, telecommunications and stormwater drainage infrastructure. The expansion or construction of new infrastructure facilities would remove an obstacle to growth in the Bollinger Canyon Study Area. However, development in the study area is estimated to be limited to approximately 51 residential units on the entire 270 acres as described in Section 2, *Project Description*, and no additional residential or other development would be allowed.

5.2 Irreversible Environmental Effects

The CEQA Guidelines require that EIRs contain a discussion of significant irreversible environmental changes. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the project.

5.2.1 Housing Element

The project would facilitate mostly infill residential development on developed and underdeveloped sites in the Town of Moraga. Construction and operation of development facilitated by the Housing Element in the Moraga Center area and Rheem Park area would involve an irreversible commitment of construction materials and non-renewable energy resources. Development would involve the use of building materials and energy, some of which are non-renewable resources, to construct new residential buildings and associated infrastructure and landscaping. Consumption of these resources would occur with any development in the region and are not unique to the project.

5.2.2 Bollinger Canyon Rezoning

In the Bollinger Canyon Study Area, open space is a primary resource. Access and service infrastructure to parcels with the updated Rural Residential zoning and development on parcels within the Study Area would result in an irreversible environmental change to this area of the town through the extension of services and construction of new residences.

Development facilitated by the project would also irreversibly increase local demand for non-renewable energy resources such as petroleum products and natural gas. However, increasingly efficient building design would offset this demand to some degree by reducing energy demands of the project. As described in Section 4.5, *Energy*, development facilitated by the Housing Element would be subject to the energy conservation requirements of the California Energy Code (Title 24, Part 6, of the California Code of Regulations, *California's Energy Efficiency Standards for Residential and Nonresidential Buildings*) and the California Green Building Standards Code (Title 24, Part 11 of the California Code of Regulations). The California Energy Code provides energy conservation standards for all new and renovated residential buildings, and the Green Building Standards Code requires solar access, natural ventilation, and stormwater capture. Consequently, development facilitated by the project would not use unusual amounts of energy or construction materials and impacts related to consumption of non-renewable and renewable resources would be less than significant. Consumption of these resources would occur with any development in the region and is not unique to the project.

Additional vehicle trips associated with the project would incrementally increase local traffic and regional air pollutant and greenhouse gas emissions. However, as discussed in Section 4.2, *Air Quality*, and Section 4.7, *Greenhouse Gas Emissions*, development and operation of development facilitated by the Housing Element would not generate air quality or greenhouse gas emissions that would result in a significant impact. In addition, Section 4.7, *Greenhouse Gas Emissions*, notes that additional greenhouse gas emissions may result in a significant impact without mitigation on a project-by-project basis. However, Section 4.14, *Transportation*, of this EIR concludes that long-term impacts associated with Housing Element would be significant and unavoidable based on Town and regional thresholds.

CEQA requires decision makers to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. The analysis contained in this EIR concludes that the project would result in a significant and unavoidable impact to air quality, biological resources, greenhouse gas emissions, noise, transportation, utilities and service systems, and wildfire.

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6 Alternatives

As required by *CEQA Guidelines* Section 15126.6, this environmental impact report (EIR) examines a range of reasonable alternatives to the Planning Initiative that would attain most of the basic project objectives but would avoid or substantially lessen the significant adverse impacts.

As discussed in Section 2, *Project Description*, the Planning Initiative objectives are as follows:

- A State-certified Housing Element for 2023-2031 that responds to local and regional needs.
- An internally-consistent, easy-to-use General Plan that is legally compliant and addresses emerging issues.
- Updated long-range planning policies and programs that respond to recent State legislation related to VMT, climate change and resilience, fire hazards, evacuation, and other pertinent topics.
- General Plan land use and zoning designations for the Bollinger Canyon Study Area.
- Rezoning consistent with the Housing Element to meet the Town's RHNA.
- Opportunities for meaningful public participation, including the unprecedented engagement of residents who have not historically participated in planning processes.
- New objective development standards consistent with state law.

Included in this analysis are three alternatives, including the CEQA-required "no project" alternative, that involve changes to the Planning Initiative that may reduce the project-related environmental impacts as identified in this EIR. Alternatives have been developed to provide a reasonable range of options to consider that would help decision makers and the public understand the general implications of revising or eliminating certain components of the Planning Initiative.

The following alternatives are evaluated in this EIR:

- Alternative 1: No Project
- Alternative 2: Employment-Focused Growth
- Alternative 3: Cluster Bollinger Canyon Study Area development

Table 6-1 provides a comparison of the buildout characteristics of the Planning Initiative and of each of the alternatives considered. More detailed descriptions of the alternatives are included in the impact analysis for each alternative. The potential environmental impacts of each alternative are compared with those of the proposed project in Sections 6.1 through 6.3. Each alternative incorporates components of the Planning Initiative and relies on the existing analysis to the extent those components are covered. Each alternative was chosen to reduce at least one significant impact that was associated with the Planning Initiative. Both Alternatives 2 and 3 reduce impacts to transportation. Both alternatives have lower levels of vehicle miles traveled (VMT) and thus also have reduced impacts related to air quality, greenhouse gas emissions (GHG), and noise.

Table 6-1 Comparison of Project Alternatives' Buildout Characteristics

	Planning Initiative	Alternative 1: No Project	Alternative 2: Employment-Focused Growth	Alternative 3: Cluster Bollinger Canyon Study Area Development
Total allowable dwelling units under alternative	1,830	1,365	1,357	1,830
Change in total maximum dwelling units compared to Planning Initiative	n/a	-465	-463	0
Total additional residents under alternative	5,202	3,880	3,857	5,202
Change in population potential compared to Planning Initiative (number of residents)	n/a	-1,322	-1,345	0

Alternative 2 provides an alternative mix of uses to the Housing Element (i.e., Moraga Center area and Rheem Park Area) and does not change the proposed Bollinger Canyon Rezoning. Alternative 2 provides an alternative type of development (i.e., clustering) for the Bollinger Canyon Rezoning and does not change the proposed Housing Element (i.e., Moraga Center area and Rheem Park area). Although these alternatives would only affect one component of the Planning Initiative (i.e., the Housing Element or Bollinger Canyon Rezoning), they still would be an alternative to the full Planning Initiative. As such, in the analysis below, the term “Planning Initiative” is used to compare the alternative to the project.

6.1 Alternative 1: No Project Alternative

6.1.1 Description

The No Project Alternative assumes there is no change in zoning or General Plan land use designations for the parcels identified by the Planning Initiative. Current uses on the sites would continue under this alternative, with buildout of the proposed Housing Opportunity Sites regulated by existing zoning and General Plan designations. No additional development would be assumed within the Bollinger Canyon Study Area since existing zoning and General Plan designations require a study to determine the appropriate number of units. Buildout of the proposed Housing Opportunity Sites under existing zoning would result in less residential development and reduced population growth than under the Planning Initiative (refer to Table 6-1). This alternative would not accomplish any of the project objectives.

6.1.2 Impact Analysis

a. Aesthetics

Under the No Project Alternative, buildout would be consistent with existing zoning and land use designations, such as the Town of Moraga Municipal Code, the Town’s Design Guidelines, and the 2002 General Plan goals and policies would be required for land use development projects and would minimize impacts to scenic vistas or existing visual character or quality of public views. Under

the No Project Alternative, light and glare from new development would increase when compared to existing conditions; however, all lighting and glare features would be subject to Moraga Municipal Code Sections 8.128 and 8.132, which govern glare in scenic corridors and designated ridgelines. Design Guidelines related to light source shielding and low impact lighting would further reduce impacts to light and glare. Additionally, design review of development would ensure that nighttime light pollution and off-site lighting and glare impacts would be minimized. However, Objective Design Standards proposed under the Planning Initiative to minimize aesthetics impacts in the Rheem Park area would not be adopted under the No Project Alternative.

No mitigation measures would apply to the No Project Alternative. Overall, the No Project Alternative would have fewer aesthetic impacts than the Planning Initiative because it would not result in additional development in the Bollinger Canyon Study Area and would result in less intense development throughout the remainder of the Plan Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

b. Air Quality

Under the No Project Alternative, temporary construction-related air quality impacts from grading and construction and long-term air quality impacts from building operation (energy usage, maintenance) would be lower than under the Planning Initiative. Operational air quality impacts from vehicle trips would be reduced since there would be no VMT generated by additional allowed development within the Bollinger Canyon Study Area. Individual project mitigation may be required to ensure compliance with BAAQMD's current recommended basic control measures to comply with standard permit conditions. Individual project mitigation may also be required under the No Project Alternative to reduce construction-related toxic air contaminant and particulate matter impacts. Under the No Project Alternative impacts caused by odor creation during construction and operation would be reduced in comparison to the Planning Initiative. The No Project Alternative may require individual project mitigation to reduce construction-related air quality pollutants. Overall, the No Project Alternative would have fewer air quality impacts than the Planning Initiative because it would result in less development, along with lower VMT and lower air pollutant emissions. Impacts would be less than significant and reduced compared to the Planning Initiative which was found to have significant and unavoidable impacts.

c. Biological Resources

Due to the potential for special status plant and wildlife species, riparian habitat, intermittent streams, other sensitive natural communities, and wildlife movement to occur within Plan Area, direct impacts to biological resources under the No Project Alternative would remain. However, since no new development potential would be added within the Bollinger Canyon Study Area impacts under the No Project Alternative would be reduced compared to the Planning Initiative. Fewer units would be developed on the same sites in the Moraga Center and Rheem Park areas; however, site-specific biological studies and individual mitigation measures may be required. For sites that are small (5 acres or less) and considered "infill," future projects could be exempt from CEQA and no mitigation measures would be required. Compliance with existing regulations, including the 2002 General Plan and Moraga Municipal Code, would reduce potential impacts to rare or endangered species, valuable wildlife habitats, riparian areas, and wildlife movement. The No Project Alternative would result in no biological resources impacts in the Bollinger Canyon Study Area, but future analyses would be required, and mitigation measures could be required based on those studies. Overall, the No Project Alternative would have fewer biological resources impacts

than the Planning Initiative because it would result in less development. Impacts would be less than significant and reduced compared to the Planning Initiative, which was found to have significant and unavoidable impacts.

d. Cultural Resources

The No Project Alternative would allow development consistent with existing zoning on the same sites within the Moraga Center and Rheem Park areas that could entail ground disturbance or excavation activities. This ground disturbance would have potential impacts to cultural resources and human remains. Potential impacts to cultural resources or human remains would be addressed by regulations including California Health and Safety Code Section 7050.5, California Public Resources Code Section 5097.98, the 2002 General Plan, and Moraga Municipal Code. However, eligible historic resources or those that come “of age” could be proposed for demolition or renovation under existing zoning. Impacts to historic resources would require environmental compliance and could be significant and unavoidable even with mitigation. No mitigation measures would apply to the No Project Alternative. Overall, the No Project Alternative would have fewer cultural resources impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would result in less intense development throughout the remainder of the Plan Area. Impacts would be greater compared to the Planning Initiative because impacts could be significant and unavoidable. The Planning Initiative was found to have less than significant impacts to cultural resources.

e. Energy

The No Project Alternative would entail the use of energy, but it would be reduced compared to buildout under the Planning Initiative because fewer units in the Moraga Center and Rheem Park areas would be built, as well as no additional development potential in the Bollinger Canyon Study Area. Potential impacts to energy use would be addressed by federal and State regulations and the 2002 General Plan.

No mitigation measures would apply to the No Project Alternative. Overall, the No Project Alternative would have fewer energy impacts than the Planning Initiative. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

f. Geology & Soils

The No Project Alternative would involve construction or ground disturbance that could expose and loosen soils and increase the potential for erosion. Impacts to soil erosion or loss of topsoil would be similar in comparison to the Planning Initiative due to potential construction and operation activities disturbing loose soils in the Moraga Center and Rheem Park areas. The Plan Area remains outside Alquist-Priolo fault zones, and future construction on development sites would be required to comply with California Building Code (CBC) requirements and implement 2002 General Plan goals and policies, ensuring the stability of new structures during seismic events or due to unstable or expansive soils. Similar to the Planning Initiative, development facilitated under the No Project Alternative could be subject to liquefaction as there are liquefaction zones in Moraga. Development would be subject to current seismic standards and would be in compliance with CBC engineering design and construction measures to reduce impacts induced by potential structural damage. Development allowed under existing zoning would occur within areas of potentially high paleontological sensitivity. Individual project mitigation may also be required under the No Project

Alternative to reduce impacts to paleontological resources. However, there is no guarantee that future projects would implement mitigation measures to reduce or avoid impacts to paleontological resources.

In addition to compliance with mandatory CBC requirements, the Town may require the preparation of an engineering geologist's investigation and/or a preliminary soil report based on submittal of plans. Development facilitated under the No Project Alternative would occur in urban areas where wastewater infrastructure exists, unlike under the Planning Initiative where development in the Bollinger Canyon Study Area would require construction or expansion of utilities. Thus, impacts to wastewater and septic systems under this alternative would be less than significant and would be decreased in comparison to the Planning Initiative as no major new infrastructure would be needed for the development of the No Project Alternative. However, impacts to paleontological resources could require environmental compliance and potentially mitigation measures. Therefore, the No Project Alternative would have greater geology and soils impacts than the Planning Initiative because future projects cannot be guaranteed to include mitigation measures to reduce or avoid paleontological impacts if they are found to be exempt from CEQA. Impacts would be greater than the Planning Initiative and potentially significant and unavoidable. Impacts from the Planning Initiative were found to be less than significant with mitigation.

g. Greenhouse Gas Emissions

Under the No Project Alternative, development would produce fewer temporary construction-related GHG emissions from grading and construction compared to the Planning Initiative. Also, long-term impacts resulting from building operation (energy use, maintenance, and traffic) would be reduced compared to the Planning Initiative, because it would involve development of fewer residential units. Operational GHG impacts from vehicle trips would be reduced since there would be no VMT generated by additional development potential within the Bollinger Canyon Study Area. Compliance with policies within the 2002 General Plan and Plan Bay Area 2050 would ensure that development facilitated by the No Project Alternative would not result in a substantial increase of GHG emissions. Overall, the No Project Alternative would have fewer GHG emissions impacts than the Planning Initiative because the No Project Alternative would result in less development, which would result in lower VMT. Impacts would be less than significant and reduced compared to the Planning Initiative, which was found to have significant and unavoidable impacts.

h. Hazards and Hazardous Materials

Under the No Project Alternative, the transport, storage, and use of hazardous materials associated with construction would be required to comply with existing hazardous material regulations, similar to the Planning Initiative. Sites containing existing or potential contamination would continue to require remediation and compliance with State and local regulations to allow for development under existing zoning. Development facilitated by the No Project Alternative would not result in a safety hazard for people residing or working in the area because there are no airports near or within the town. The No Project Alternative would involve development of sites already zoned for development, and thus would not increase the likelihood of wildland fires. Compliance with policies within the 2002 General Plan, the Contra Costa County Local Hazard Mitigation Plan, the Moraga Municipal Code, and applicable emergency response plans would ensure that development facilitated by the No Project Alternative would not increase risk of exposure to hazardous materials and would not impair or interfere with implementation of evacuation or emergency response plans. Overall, the No Project Alternative would have fewer hazards and hazardous materials impacts than

the Planning Initiative because it would involve less intense development throughout the remainder of the Plan Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

i. Hydrology and Water Quality

Development under the No Project Alternative would be required to comply with existing regulations related to water quality standards, waste discharge requirements, preservation of groundwater, and reducing alterations of drainage patterns or increased runoff. Hydrology and water quality impacts would occur to a lesser extent than under the Planning Initiative specifically due to the omission of additional development potential in the Bollinger Canyon Study Area and smaller increase in impervious surfaces throughout the rest of the Plan Area. Potential impacts to hydrology and water quality would be addressed by State regulations, the 2002 General Plan and the Moraga Municipal Code, and existing groundwater capacity and stormwater treatment capacity.

Overall, the No Project Alternative would have fewer hydrology and water quality impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would involve less intense development throughout the remainder of the Plan Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

j. Land Use and Planning

Development under the No Project Alternative would not alter connectivity with adjacent areas or divide established communities. Future development would be required to comply with regulatory goals and policies, similar to the Planning Initiative. The No Project Alternative would also result in less intensive development, and thus would not promote medium-density housing opportunities to the same extent as under Planning Initiative and as a result would be unlikely to meet the Town's regional housing needs allocation (RHNA) obligations. Under the No Project Alternative, consistency with Plan Bay Area 2050 and 2002 General Plan goals and policies that encourage the development of housing for all income levels would result in greater inconsistencies than the Planning Initiative given the less intensive residential development and mix of housing densities. The No Project Alternative also would not be consistent with the Town Council goal to rezone Bollinger Canyon.

Overall, the No Project Alternative would have slightly greater land use and planning impacts as compared to the Planning Initiative because it would not be as consistent with state housing and local goals. Impacts would be increased compared to the Planning Initiative but would still be less than significant, same as the Planning Initiative.

k. Noise

Under the No Project Alternative, there would be fewer impacts associated with temporary construction-related noise from grading and construction. Less intensive long-term noise impacts resulting from building operation and fewer vehicle trips would also occur. Individual project mitigation may be required to reduce project-specific noise and vibration impacts as a condition of approval and would be determined during individual project review. The No Project Alternative may require individual project mitigation to reduce impacts to noise and vibration. Overall, the No Project Alternative would have fewer noise impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would involve less intense development throughout the remainder of the Plan Area. Impacts would be reduced

compared to the Planning Initiative but would still be significant and unavoidable, same as the Planning Initiative.

l. Population and Housing

The No Project Alternative would not induce substantial population growth, as development allowed under existing zoning is accounted for in regional population and housing projections. As a result, the No Project Alternative would not contribute to unplanned growth and would not displace people or housing. The No Project Alternative would have no impacts to population and housing. Impacts under the No Project Alternative would be greater than the Planning Initiative since it would not meet the Town's RHNA. Overall, the No Project Alternative would have greater population and housing impacts as the Planning Initiative. Impacts would be less than significant, same as the Planning Initiative.

m. Public Services and Recreation

Development under the No Project Alternative would result in an increase in emergency calls to the area, and an increase in additional demand for schools, parks, libraries, recreational facilities, or other public services similar to the Planning Initiative. However, as described in Table 6-1, the No Project Alternative would result in 3,880 additional residents, which is 1,322 fewer residents than the Planning Initiative. Overall, the No Project Alternative would have fewer public services and recreation impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would induce less population growth in the remainder of the Plan Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

n. Transportation

Under the No Project Alternative, temporary construction-related traffic impacts from grading and construction of development allowed under existing zoning would continue to occur, similar to the Planning Initiative. The No Project Alternative would have a smaller increase in transit demand and would not result in increased interference with existing or planned transit facilities compared to the Planning Initiative, as population growth would be reduced in comparison. The No Project Alternative would result in similar VMT per service population compared to the Planning Initiative; while not allowing additional development potential within the Bollinger Canyon Study Area would reduce VMT per service population. Additional vehicles associated with development could increase delays for emergency response vehicles during peak commute hours. However, this impact would be reduced in comparison to the Planning Initiative. The No Project Alternative may require individual project mitigation to implement VMT reduction measures. Overall, the No Project Alternative would have fewer transportation impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would result in fewer new residents. Impacts would be reduced compared to the Planning Initiative but would still remain significant and unavoidable, same as the Planning Initiative.

o. Tribal Cultural Resources

The No Project Alternative would continue to allow development under existing zoning, which could entail ground disturbance or excavation activities that have the potential to impact previously unidentified tribal cultural resources. Compliance with existing regulations, such as Assembly Bill (AB) 52 consultation, during individual development review would reduce potential impacts to tribal

cultural resources. Overall, the No Project Alternative would have fewer tribal cultural resources impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would involve less intense development throughout the remainder of the Plan Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

p. Utilities and Service Systems

The No Project Alternative would result in an increase in demand for water, wastewater, electricity, natural gas, telecommunications, and solid waste services. However, this increase in demand would be reduced compared to the Planning Initiative due to the reduced development potential allowed under existing zoning. Under the Planning Initiative, water, wastewater, electric power, natural gas, and telecommunications infrastructure extensions to the Bollinger Canyon Study Area could cause significant environmental effects. The No Project Alternative would not include additional development potential in the Bollinger Canyon Study Area, and thus would have fewer impacts involving infrastructure connections.

Water, wastewater, and solid waste services are projected to be sufficient for population growth under the Planning Initiative. Considering that buildout under the No Project Alternative would consist of less development than the Planning Initiative, as described in Table 6-1, these utility services would also be sufficient to accommodate growth under the No Project Alternative. Overall, the No Project Alternative would have fewer utilities impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would involve less intense development throughout the remainder of the Plan Area. Impacts would be less than significant and reduced compared to the Planning Initiative, which was found to have significant and unavoidable impacts.

q. Wildfire

Under the No Project Alternative, development under existing zoning would be allowed on sites that are mapped within or near State Responsibility Areas and fire hazard zones. Population increases facilitated by the No Project Alternative would be anticipated by local and regional plans and would not impair adopted emergency response and emergency evacuation.

The No Project Alternative includes potential development on sites that are in or near Very High Fire Hazard Severity Zone (VHFHSZs). Development facilitated by the No Project Alternative would expose project occupants and structures to wildfire risks for sites located in or near fire hazard areas. Compliance with applicable fire code regulations, CBC requirements that pertain to wildfire exposure, and the County's Emergency Operations Plan would reduce the risk of loss, injury, or death from wildfire. Individual project level mitigation would be required to reduce impacts. Overall, the No Project Alternative would have fewer wildfire impacts than the Planning Initiative because it would not include additional development potential in the Bollinger Canyon Study Area and would result in less intense development throughout the remainder of the Plan Area. Impacts would be reduced compared to the Planning Initiative but would remain significant and unavoidable, same as the Planning Initiative.

6.2 Alternative 2: Employment-Focused Growth

6.2.1 Description

Alternative 2 assumes that nine of the Housing Opportunity Sites identified under the Planning Initiative would be developed for (or would remain as) office/retail uses instead of residential uses. Figure 6-1 depicts the Housing Opportunity Sites that would be used for office/retail uses under Alternative 2. These sites are vacant or currently used for office or commercial purposes, and are listed in Table 6-2. Development would occur within the Bollinger Canyon Study Area as envisioned in the Planning Initiative and described in Section 2, *Project Description*. The purpose of Alternative 2 is to achieve the Town's RHNA obligations while creating jobs and services in the vicinity of housing to reduce VMT. Buildout of Alternative 2 would result in fewer residential units and would generate less population than under the Planning Initiative (refer to Table 6-1) but would increase office/retail development by approximately 176,000 square feet and add 516 jobs to the town. Alternative 2 would accomplish all of the project objectives.

Figure 6-1 Alternative 2 Office/Retail Use Sites

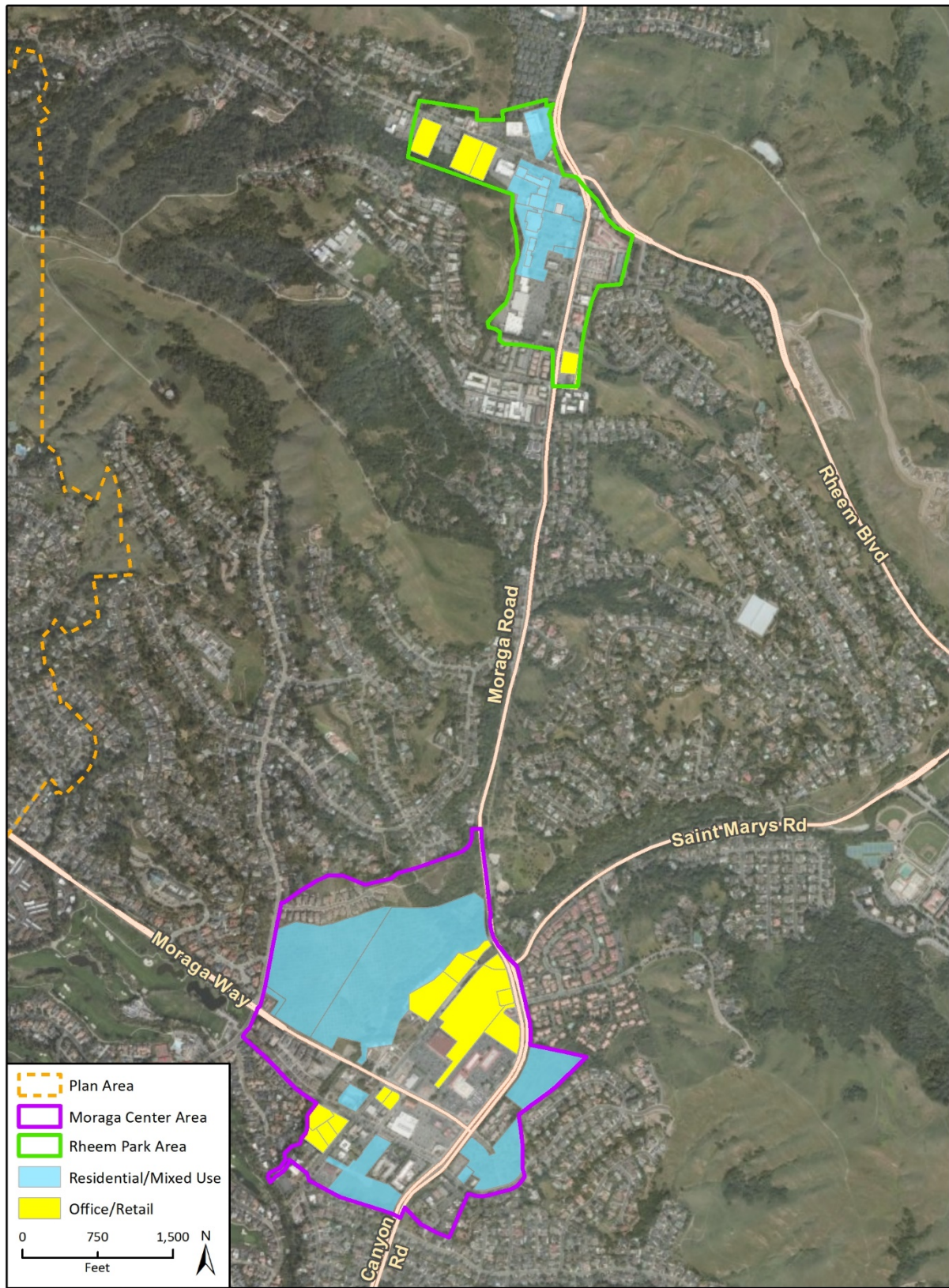


Table 6-2 Sites Identified for Office/Retail Use Under Alternative 2

Site ID	Location	Estimated Square Feet	Potential Use	Jobs
E4	SE corner Moraga Road and Lucas Drive	15,000	Retail	42
E3	West of Rheem Theater	19,200	Office	64
F5	346 Rheem Boulevard	N/A	Existing Office Building	N/A
F6	3500 Rheem Boulevard	N/A	Existing Office Building	N/A
F1	MSCP Area 11 – south side Moraga Way between School Street and Viader Drive	12,000	Office	40
E1	North end of School Street on west side; MCSP Area 2	50,000	Retail	142
E2	North end of School Street on east side. MSCP Area 8	80,000	Retail	228
F2	Former Moraga Garden Center, 1400 Moraga Road	N/A	Existing Office Building	N/A
F3	1600-1660 School Street	N/A	Existing Office Building	N/A

6.2.2 Impact Analysis

a. Aesthetics

Under Alternative 2, compliance with existing regulations such as the Moraga Municipal Code, the Town’s Design Guidelines, and the 2002 General Plan goals and policies would be required for development projects and would minimize impacts to scenic vistas or existing visual character or quality of public views, similar to the Planning Initiative. Also similar to the Planning Initiative, under Alternative 2 light and glare from new development would increase when compared to existing conditions; however, lighting and glare features would be subject to Moraga Municipal Code Sections 8.128 and 8.132, which govern glare in scenic corridors and designated ridgelines. Design Guidelines related to light source shielding and low impact lighting would further reduce impacts related to light and glare. Additionally, design review of development would ensure that nighttime light pollution and off-site lighting and glare impacts would be minimized. Objective Design Standards proposed under the Planning Initiative to minimize aesthetics impacts in the Rheem Park area would be adopted under Alternative 2, and would apply to office and retail development. Overall, Alternative 2 would have similar aesthetic impacts to the Planning Initiative. Impacts would be less than significant, same as the Planning Initiative.

b. Air Quality

Under Alternative 2, temporary construction-related air quality impacts from grading and construction and long-term air quality impacts from building operation (energy usage, maintenance) would be similar to the Planning Initiative. Mitigation Measure AQ-1 would also be required under Alternative 2 to reduce construction-related toxic air contaminant and particulate matter impacts, similar to the Planning Initiative. Under Alternative 2 impacts caused by odor creation during construction and operation would be similar in comparison to the Planning Initiative. Operational impacts would be reduced since residents would travel shorter distances to jobs and services, which would reduce air quality emissions from VMT. Overall, Alternative 2 would have fewer air quality impacts than the Planning Initiative because the No Project Alternative would result in lower VMT

and thus lower air pollutant emissions. Impacts would be reduced compared to the Planning Initiative but would remain significant and unavoidable, same as for the Planning Initiative.

c. Biological Resources

Under Alternative 2, the number and location of development sites would remain the same as under the Planning Initiative, except certain vacant sites or sites with existing office or retail uses that would be designated for office and retail use instead of being developed as residential. Alternative 2 includes the Bollinger Canyon rezoning, so the associated biological resource impacts identified for the Project would also occur with this alternative. Due to the potential for special status plant and wildlife species, riparian habitat, intermittent streams, other sensitive natural communities, and wildlife movement to occur within the Plan Area, direct impacts to biological resources under Alternative 2 would remain similar to those under the Planning Initiative. Development allowed under Alternative 2 would be the same in terms of number of sites developed and ground disturbed. Mitigation measures BIO-1 through BIO-7 would be required to ensure reduction in impacts to biological resources. Compliance with existing regulations, including the 2002 General Plan and Moraga Municipal Code, would reduce potential impacts to rare or endangered species, valuable wildlife habitats, riparian areas, and wildlife movement. Overall, Alternative 2 would have similar biological resources impacts to the Planning Initiative because it would result in the roughly the same physical development intensity. Impacts would be similar to the Planning Initiative and, because of the inclusion of Bollinger Canyon in this alternative, would remain significant and unavoidable, same as the Planning Initiative.

d. Cultural Resources

Under Alternative 2, ground disturbance would have the same potential impacts to cultural resources and human remains as the Planning Initiative. Potential impacts to cultural resources or human remains would be addressed by regulations including California Health and Safety Code Section 7050.5, California Public Resources Code Section 5097.98, the 2002 General Plan, and the Moraga Municipal Code. To further strengthen protection of cultural resources, General Plan policies CR-A through CR-D would be adopted under Alternative 2. Overall, Alternative 2 would have similar cultural resources impacts as the Planning Initiative because Alternative 2 would include a similar intensity of development. Impacts would be less than significant, same as the Planning Initiative.

e. Energy

Under Alternative 2, energy use would occur at a lower extent as under the Planning Initiative, since energy used to power personal vehicles would be reduced by placing jobs and services closer to residences, reducing VMT. Potential impacts to energy use would be addressed by federal and State regulations and the 2002 General Plan. Overall, Alternative 2 would have fewer energy impacts than the Planning Initiative because it would result in lower VMT. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

f. Geology & Soils

Under Alternative 2, construction or ground disturbance for development could expose and loosen soils and increase the potential for erosion. Impacts to soil erosion or loss of topsoil would be similar in comparison to the Planning Initiative due to potential construction and operation activities disturbing loose soils. The Plan Area is outside Alquist-Priolo fault zones, and construction on

development sites would be required to comply with CBC requirements and implement 2002 General Plan goals and policies, ensuring the stability of new structures during seismic events or due to unstable or expansive soils. Similar to the Planning Initiative, development facilitated under Alternative 2 could be subject to liquefaction as there are liquefaction zones in Moraga. Development would be subject to current seismic standards and would comply with CBC engineering design and construction measures to reduce impacts induced by potential structural damage. Development allowed under Alternative 2, similar to development facilitated by the Planning Initiative, would occur within areas of potentially high paleontological sensitivity. Impacts to paleontological resources would be less than significant after implementation of Mitigation Measure GEO-1 and would be similar in comparison to the Planning Initiative.

In addition to compliance with mandatory CBC requirements, the Town may require the preparation of an engineering geologist's investigation and/or a preliminary soil report based on submittal of plans. Development facilitated under Alternative 2 would occur in urban areas where wastewater infrastructure exists, except, like under the Planning Initiative, where development in the Bollinger Canyon Study Area would require expansion of utilities. Thus, impacts to wastewater and septic systems under Alternative 2 would be similar to the Planning Initiative. Overall, Alternative 2 would have similar geology and soils impacts to the Planning Initiative because it would have a similar amount of ground disturbance. Impacts would be less than significant, same as the Planning Initiative.

g. Greenhouse Gas Emissions

Under Alternative 2, temporary construction-related GHG emissions that result from grading and construction of new development would be similar to the Planning Initiative but long-term impacts resulting from building operation (energy use, maintenance, and traffic) would be lower than under the Planning Initiative, considering that proximity of jobs and services to existing and proposed housing would lower VMT and associated GHG emissions. Compliance with policies within the 2002 General Plan and Plan Bay Area 2050 would ensure that development facilitated by Alternative 2 would not result in a substantial increase of GHG emissions. Overall, Alternative 2 would have fewer GHG emissions impacts than the Planning Initiative because Alternative 2 would result in lower VMT. Impacts would be reduced compared to the Planning Initiative but would remain significant and unavoidable, same as the Planning Initiative.

h. Hazards and Hazardous Materials

Under Alternative 2, the transport, storage, and use of hazardous materials associated with construction of proposed development sites, and operation of residential and commercial uses, such as paints and solvents, would be required to comply with existing hazardous material regulations, similar to the Planning Initiative. Sites containing existing or potential contamination would continue to require remediation and compliance with State and local regulations to allow for development under existing zoning. Development facilitated by Alternative 2 would not result in a safety hazard for people residing or working in the area because there are no airports near or within the town. Compliance with policies within the 2002 General Plan, the Contra Costa County Local Hazard Mitigation Plan, the Moraga Municipal Code, and applicable emergency response plans would ensure that development facilitated by Alternative 2 would not increase risk of exposure to hazardous materials and would not impair or interfere with implementation of evacuation or emergency response plans. Overall, Alternative 2 would have similar hazards and hazardous

materials impacts as the Planning Initiative because it would have a similar intensity of physical development. Impacts would be less than significant, same as the Planning Initiative.

i. Hydrology and Water Quality

Under Alternative 2, development would require compliance with water quality standards, waste discharge requirements, preservation of groundwater, and reducing alterations of drainage patterns or increased runoff. Hydrology and water quality impacts would occur to a similar extent as under the Planning Initiative since a similar amount of development would occur. Potential impacts to hydrology and water quality would be addressed by State regulations, the 2002 General Plan and Moraga Municipal Code, and existing groundwater capacity and stormwater treatment capacity. Overall, Alternative 2 would have similar hydrology and water quality impacts as the Planning Initiative because it would induce similar intensities of development. Impacts would be less than significant, same as the Planning Initiative.

j. Land Use and Planning

Under Alternative 2, development would not alter connectivity with adjacent areas or divide established communities. Future development under Alternative 2 would be required to comply with regulatory goals and policies, similar to the Planning Initiative. Alternative 2 would also result in similarly intensive future development as under Planning Initiative and would meet the Town's RHNA obligations. Under Alternative 2, consistency with Plan Bay Area 2050 and 2002 General Plan goals and policies that encourage the development of housing for all income levels would result in greater inconsistencies than the Planning Initiative given the less intensive residential development. Overall, Alternative 2 would have slightly greater land use and planning impacts as compared to the Planning Initiative because it would not be as consistent with state housing goals. Impacts would be increased compared to the Planning Initiative but would still be less than significant, same as the Planning Initiative.

k. Noise

Alternative 2 would have similar impacts associated with temporary construction-related noise that would result from grading and construction of development as under the Planning Initiative. Less intensive long-term noise impacts resulting from fewer vehicle trips would occur, since residents would be in closer proximity to jobs and services under Alternative 2. Mitigation measures NOI-1 through NOI-3 would be required to reduce project-specific noise and vibration impacts. Overall, Alternative 2 would have fewer noise impacts than the Planning Initiative because it would reduce VMT and associated vehicle noise. Impacts would be reduced compared to the Planning Initiative and would remain significant and unavoidable, same as the Planning Initiative.

l. Population and Housing

Alternative 2 would not induce substantial population growth as compared to the Planning Initiative, as fewer sites would be developed for residential use. Like the Planning Initiative, Alternative 2 would not contribute to unplanned growth and would not displace people or housing. Impacts under Alternative 2 would be comparable compared to those under the Planning Initiative since it would not induce substantial unplanned population growth or displace a substantial number of people. Overall, Alternative 2 would have similar population and housing impacts as the Planning Initiative. Impacts would be less than significant, same as the Planning Initiative.

m. Public Services and Recreation

Alternative 2 would result in a similar increase to emergency calls within the town and a lower increase in additional demand for schools, parks, libraries, recreational facilities, or other public services compared to the Planning Initiative. Overall, Alternative 2 would have fewer public services and recreation impacts than the Planning Initiative because it would result in lower population growth and associated demand for public services and recreational facilities. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

n. Transportation

Under Alternative 2 temporary construction-related traffic impacts from grading and construction of development would be similar to the Planning Initiative since the same sites would be developed. Alternative 2 would have a similar increase in transit demand and would not result in increased interference with existing or planned transit facilities than the Planning Initiative, as population growth would likely be less than under the Planning Initiative, but job growth would be greater. Alternative 2 would result in somewhat lower residential VMT per resident, and somewhat lower total VMT per service population compared to the Planning Initiative since Alternative 2 would increase the proximity of jobs/services to existing and proposed housing. Home-work VMT per employee – a metric applied to employment uses – may exceed the relevant threshold. VMT reduction measures resulting from Mitigation Measure TRA-1 would be required. Additional vehicles associated with the new development sites could increase delays for emergency response vehicles during peak commute hours. However, this impact would be similar in comparison to the Planning Initiative. Overall, Alternative 2 would have fewer transportation impacts than the Planning Initiative. Impacts would be reduced compared to the Planning Initiative and would remain significant and unavoidable, same as the Planning Initiative.

o. Tribal Cultural Resources

Development under Alternative 2 could involve excavation that has the potential to impact previously unidentified tribal cultural resources. Compliance with existing regulations, such as AB 52, during individual development review would reduce potential impacts to tribal cultural resources. Policies TCR-A and TCR-B would further protect tribal cultural resources in the event of their discovery during ground disturbance. Overall, Alternative 2 would have similar tribal cultural resources impacts as the Planning Initiative because Alternative 2 would result in development on the same sites. Impacts would be less than significant, same as the Planning Initiative.

p. Utilities and Service Systems

Under Alternative 2, sites developed would result in an increase in demand for water, wastewater, electricity, natural gas, telecommunications, and solid waste services. This increase in demand would be similar to the Planning Initiative and would include utility extensions serving Bollinger Canyon. Water, wastewater, and solid waste services are projected to be sufficient for population growth under the Planning Initiative. Considering Alternative 2 would consist of less population growth but more employment growth as compared to the Planning Initiative, as described in Table 6-1, these utility services would also be sufficient to accommodate growth under Alternative 2. Overall, Alternative 2 would have similar utilities impacts as the Planning Initiative because Alternative 2 would induce less population growth but more employment growth, and require

similar utilities and service systems. Impacts would remain significant and unavoidable in the Bollinger Canyon Study Area, same as the Planning Initiative.

q. Wildfire

Under Alternative 2, development would be allowed on sites that are mapped within or near State Responsibility Areas and fire hazard zones. Population increases facilitated by Alternative 2 would be anticipated by local and regional plans and would not impair adopted emergency response and emergency evacuation.

Alternative 2 includes potential development on sites that are in or near VHFHSZs. Development facilitated by Alternative 2 would expose project occupants and structures to wildfire risks for sites located in or near fire hazard areas. Compliance with applicable fire code regulations, CBC requirements that pertain to wildfire exposure, and the County's Emergency Operations Plan would reduce the risk of loss, injury, or death from wildfire. Mitigation Measures WFR-1 through WFR-3 would be required to reduce impacts. Overall, Alternative 2 would have similar wildfire impacts as the Planning Initiative because it would induce a similar intensity of development. Impacts would be significant and unavoidable, same as the Planning Initiative.

6.3 Alternative 3: Clustered Bollinger Canyon Development

6.3.1 Description

Alternative 3 assumes that buildout would be the same as proposed under the Planning Initiative, except development within the Bollinger Canyon Study Area would be required to be clustered. The exact location of clustered development is not specified under Alternative 3, but development would likely cluster adjacent to existing residential development west of the Bollinger Canyon Study Area or near Bollinger Canyon Road. The purpose of Alternative 3 is to reduce impacts to biological resources, cultural resources, geology and soils, hydrology and water quality, tribal cultural resources, and utilities by minimizing ground disturbance and maximizing remaining contiguous open space within the Study Area. Buildout of Alternative 3 would result in the same number of residential units and level of population growth as under the Planning Initiative (refer to Table 6-1). Alternative 3 would accomplish all of the project objectives.

6.3.2 Impact Analysis

a. Aesthetics

Under Alternative 3, development would be the same as under the Planning Initiative except that development in Bollinger Canyon would be clustered. Overall, Alternative 3 would have similar aesthetic impacts to the Planning Initiative, although reduced in the Bollinger Canyon area because more contiguous undeveloped land would be retained. Although future residences could be more visible if clustered near public roads, existing foreground vegetation, topography, and high speed of travel (over 35 miles per hour) which would limit the duration of public views. Impacts would be slightly less than those of the Planning Initiative and, similar to the Planning Initiative, would be less than significant.

b. Air Quality

Under Alternative 3, temporary construction-related air quality impacts from grading and construction and long-term air quality impacts from building operation (energy usage, maintenance), would be similar to the Planning Initiative. Mitigation Measure AQ-1 would be required to ensure compliance with BAAQMD's current recommended basic control measures to comply with standard permit conditions. Under Alternative 3 impacts caused by odor creation during construction and operation would be similar in comparison to the Planning Initiative. Overall, Alternative 3 would have lower air quality impacts as the Planning Initiative due to reduced VMT. Impacts would be significant and unavoidable, same as the Planning Initiative.

c. Biological Resources

Under Alternative 3 there would be potential for special status plant and wildlife species, riparian habitat, intermittent streams, other sensitive natural communities, and wildlife movement to occur within Plan Area and direct impacts to biological resources would remain similar to the Planning Initiative. However, clustered development under Alternative 3 within the Bollinger Canyon Study Area would disturb a smaller area and thus have less potential to significantly impact biological resources. Mitigation measures BIO-1 through BIO-7 would be required to reduce impacts to biological resources. Compliance with existing regulations, including the Town of Moraga General Plan and Moraga Municipal Code, would reduce potential impacts to rare or endangered species, valuable wildlife habitats, riparian areas, and wildlife movement. Overall, Alternative 3 would have fewer biological resources impacts as the Planning Initiative because Alternative 3 would result in less ground disturbance in the Bollinger Canyon Study Area. Impacts would be substantially reduced compared to the Planning Initiative but would remain significant and unavoidable, same as the Planning Initiative.

d. Cultural Resources

Under Alternative 3 development would entail ground disturbance or excavation activities. This ground disturbance would have potential impacts to cultural resources and human remains to a substantially lesser extent than under the Planning Initiative since clustered development under Alternative 3 within the Bollinger Canyon Study Area would disturb a smaller area. Potential impacts to cultural resources or human remains would be addressed by regulations including California Health and Safety Code Section 7050.5, California Public Resources Code Section 5097.98, the Town's General Plan, and the Town's Municipal Code. To further strengthen protection of cultural resources, General Plan policies CR-A through CR-D would be adopted under Alternative 2. Overall, Alternative 3 would have fewer cultural resources impacts than the Planning Initiative because Alternative 3 would result in less ground disturbance in the Bollinger Canyon Study Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

e. Energy

Under Alternative 3, development would entail the use of energy, which would occur at a similar extent as under the Planning Initiative, since the same number of residential units would be developed. Potential impacts to energy use would be addressed by federal and State regulations and the Town's General Plan. Overall, Alternative 3 would have lower energy impacts than the Planning Initiative because it would require less energy to power utilities and result in marginally lower VMT. Impacts would be less than significant, same as the Planning Initiative.

f. Geology & Soils

Under Alternative 3 development would involve construction or ground disturbance that could expose and loosen soils and increase the potential for erosion. Impacts to soil erosion or loss of topsoil would remain due to potential construction and operation activities disturbing loose soils but would be lesser in comparison to the Planning Initiative since clustered development within the Bollinger Canyon Study Area would entail less ground disturbance for roads, utilities and other infrastructure. The Plan Area remains outside Alquist-Priolo fault zones, and future construction on development sites would be required to comply with California Building Code requirements and implement General Plan goals and policies, ensuring the stability of new structures during seismic events or due to unstable or expansive soils. Similar to the Planning Initiative, development facilitated under Alternative 3 could be subject to liquefaction as there are liquefaction zones in Moraga. Development would be subject to all current seismic standards and would comply with CBC engineering design and construction measures in order to reduce impacts induced by potential structural damage. Development allowed under Alternative 3, similar to development facilitated by the Planning Initiative, would occur within areas of potentially high paleontological sensitivity. Impacts to paleontological resources would be less than significant after implementation of Mitigation Measure GEO-1 but would be reduced in comparison to the Planning Initiative since clustered development within the Bollinger Canyon Study Area would entail less ground disturbance.

In addition to compliance with mandatory CBC requirements, the Town may require the preparation of an engineering geologist's investigation and/or a preliminary soil report based on submittal of plans. Development facilitated under Alternative 3 would occur in urban areas where wastewater infrastructure exists, except, like under the Planning Initiative, where development in the Bollinger Canyon Study Area would require new utilities. However, impacts to wastewater and septic systems under Alternative 3 would be less than under the Planning Initiative since clustered development within the Bollinger Canyon Study Area would require less extensive build out of wastewater facilities. Overall, Alternative 3 would have fewer geology and soils impacts as the Planning Initiative because Alternative 3 would result in less ground disturbance and potential for development in areas with geologic hazards, such as landslides, liquefaction, and seismicity. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

g. Greenhouse Gas Emissions

Under Alternative 3 development would result in temporary construction-related GHG emissions that result from grading and construction of new development and long-term impacts resulting from building operation (energy use, maintenance, and traffic) would similar to the Planning Initiative. Compliance with policies within the Moraga General Plan and Plan Bay Area 2050 would ensure that development facilitated by Alternative 2 would not result in a substantial increase of GHG emissions. Overall, Alternative 3 would have lower GHG emissions impacts than the Planning Initiative because it would result in lower VMT, as described in Transportation below, and energy use from utilities. However, impacts would remain significant and unavoidable, same as the Planning Initiative.

h. Hazards and Hazardous Materials

Under the Alternative 3, the transport, storage, and use of hazardous materials associated with construction of proposed development sites, and operation of residential and commercial uses,

such as paints and solvents, would be required to comply with existing hazardous material regulations, similar to the Planning Initiative. Sites containing existing or potential contamination would continue to require remediation and compliance with State and local regulations to allow for development under existing zoning. Development facilitated by Alternative 3 would not result in a safety hazard for people residing or working in the area because there are no airports near or within the town. Compliance with policies within the 2002 General Plan, the Contra Costa County Local Hazard Mitigation Plan, the Moraga Municipal Code, and applicable emergency response plans would ensure that development facilitated by Alternative 3 would not increase risk of exposure to hazardous materials and would not impair or interfere with implementation of evacuation or emergency response plans. Overall, Alternative 3 would have similar hazards and hazardous materials impacts as the Planning Initiative because it would have a similar magnitude of development. Impacts would be less than significant, same as the Planning Initiative.

i. Hydrology and Water Quality

Development under Alternative 3 development would be required to comply with existing regulations related to water quality standards, waste discharge requirements, preservation of groundwater, and reducing alterations of drainage patterns or increased runoff. Hydrology and water quality impacts would occur to a lesser extent than under the Planning Initiative since less ground disturbance would occur within the Bollinger Canyon Study Area. Potential impacts to hydrology and water quality would be addressed by State regulations, the Town's General Plan and Municipal Code, and existing groundwater capacity and stormwater treatment capacity. Overall, Alternative 3 would have fewer hydrology and water quality impacts as the Planning Initiative because it would result in less ground disturbance in the Bollinger Canyon Study Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

j. Land Use and Planning

Alternative 3 would not alter connectivity with adjacent areas or divide established communities. Future development under Alternative 3 would be required to comply with regulatory goals and policies, similar to the Planning Initiative. Alternative 3 would also result in similarly intensive future development as under Planning Initiative. Under Alternative 3, consistency with Plan Bay Area 2050 and General Plan goals and policies that encourage the development of housing for all income levels would result in similar consistencies as the Planning Initiative. Overall, Alternative 3 would have reduced land use and planning impacts as compared to the Planning Initiative because it would be consistent with Land Use Policy 1.11 to cluster housing to protect open space. Impacts would be less than significant, same as the Planning Initiative.

k. Noise

Alternative 3 would have similar impacts associated with temporary construction-related noise that would result from grading and construction of development and operational noise impacts as under the Planning Initiative. Mitigation measures NOI-1 through NOI-3 would be required to reduce project-specific noise and vibration impacts. Overall, Alternative 3 would have marginally increased noise impacts as the Planning Initiative because construction would occur closer to residences. Impacts would be significant and unavoidable, same as the Planning Initiative.

l. Population and Housing

Alternative 3 would induce the same population growth as compared to the Planning Initiative, as it would provide for the same number of new residential units. Like the Planning Initiative, Alternative 3 would not contribute to unplanned growth and would not displace people or housing and would have less than significant impacts. Alternative 3 would provide the same benefits associated with the provision of housing that would occur under the Planning Initiative. Overall, Alternative 3 would have similar population and housing impacts as the Planning Initiative. Impacts would be less than significant, same as the Planning Initiative.

m. Public Services and Recreation

Under Alternative 3, development would result in a similar increase to emergency calls and additional demand for schools, parks, libraries, recreational facilities, or other public services compared to the Planning Initiative. As described in Table 6-1, Alternative 3 would result in the same number of additional residents as the Planning Initiative. Overall, Alternative 3 would have reduced public services and recreation impacts as the Planning Initiative because clustered development near existing neighborhoods would facilitate easier access and shorter response times for emergency services. Impacts would be less than significant, same as the Planning Initiative.

n. Transportation

Under Alternative 3 temporary construction-related traffic impacts from grading and construction of development would be similar to the Planning Initiative since the same sites would be developed. Alternative 3 would have a similar increase in transit demand and would not result in increased interference with existing or planned transit facilities than the Planning Initiative, as population growth would be the same as under the Planning Initiative. Clustered development would be anticipated to reduce VMT per service population slightly, since residences would be closer to arterials that lead to jobs, goods, and services; however, primary access to the Bollinger Canyon Study Area would occur via personal vehicles even with clustered development. Mitigation Measure TRA-1 would be required to reduce VMT. Additional vehicles associated with the new development sites could increase delays for emergency response vehicles during peak commute hours. However, this impact would be similar in comparison to the Planning Initiative. Overall, Alternative 3 would have reduced transportation impacts compared to the Planning Initiative. Impacts would be significant and unavoidable, same as the Planning Initiative.

o. Tribal Cultural Resources

Under Alternative 3, development would entail ground disturbance or excavation activities that has the potential to impact previously unidentified tribal cultural resources. However, impacts would be reduced under Alternative 3 compared to the Planning Initiative since clustered development in the Bollinger Canyon Study Area would involve less ground disturbance. Compliance with existing regulations, such as AB 52, during individual development review would reduce potential impacts to tribal cultural resources. Overall, Alternative 3 would have lower tribal cultural resources impacts than the Planning Initiative because it would result in less ground disturbance in the Bollinger Canyon Study Area. Impacts would be reduced compared to the Planning Initiative and would be less than significant, same as the Planning Initiative.

p. Utilities and Service Systems

Under Alternative 3, development would result in an increase in demand for water, wastewater, electricity, natural gas, telecommunications, and solid waste services. This increase in demand would be similar to the Planning Initiative; however, due to clustered development in the Bollinger Canyon Study Area, impacts related to the provision of new utilities would be substantially reduced under Alternative 3. Water, wastewater, and solid waste services are projected to be sufficient for population growth under the Planning Initiative. Considering Alternative 3 would consist of the same population growth as compared to the Planning Initiative, as described in Table 6-1, these utility services would also be sufficient to accommodate growth under Alternative 3. Overall, Alternative 3 would have substantially reduced utilities impacts compared to the Planning Initiative because it would require less expansion of utilities to connect to development in the Bollinger Canyon Study Area. Impacts would be substantially reduced compared to the Planning Initiative but would remain significant and unavoidable, same as the Planning Initiative.

q. Wildfire

Under Alternative 3, development would be allowed on sites that are mapped within or near State Responsibility Areas and fire hazard zones. Population increases facilitated by Alternative 3 would be anticipated by local and regional plans and would not impair adopted emergency response and emergency evacuation.

Alternative 3 includes potential development on sites that are in or VHFHSZs. Development facilitated by Alternative 3 would expose project occupants and structures to wildfire risks for sites located in or near fire hazard areas. Compliance with applicable fire code regulations, CBC requirements that pertain to wildfire exposure, and the County's Emergency Operations Plan would reduce the risk of loss, injury, or death from wildfire. Mitigation measures WFR-1 through WFR-3 would be required to reduce impacts. Overall, Alternative 3 would have fewer wildfire impacts as the Planning Initiative because it would cluster Bollinger Canyon Study Area development, increasing defensible space and reducing wildland-urban interfaces. Impacts would be reduced compared to the Planning Initiative but would remain significant and unavoidable, same as the Planning Initiative.

6.4 Alternatives Considered but Rejected

This section summarizes those alternatives considered, but ultimately rejected for inclusion in the analysis as they would not meet most of the project objectives, would not substantially reduce impacts compared to the proposed project, or were determined to be infeasible.

The Town considered an alternative that would include development on the Bollinger Canyon Study Area with greater intensity, such that zoning and General Plan designations would allow for approximately 120 to 180 units. With this larger number of units, several impacts would be exacerbated due to greater ground disturbance and greater impacts on air quality, GHG, noise, transportation, and utilities. Therefore, this scenario was rejected from further consideration.

The Town also considered several measures to reduce noise impacts as described herein. One measure would require special roadway paving as a mitigation measure since notable reductions in tire noise have been achieved via the implementation of special paving materials, such as rubberized asphalt or open-grade asphalt concrete overlays. For example, the California Department of Transportation conducted a study of pavement noise along Interstate 80 in Davis

(Caltrans 2011) and found an average improvement of 6-7 dBA compared to conventional asphalt overlay. Although this amount of noise reduction from rubberized/special asphalt materials would be sufficient to avoid the predicted noise increase due to traffic in some cases, the potential up-front and ongoing maintenance costs are such that the cost versus benefits ratio may not be feasible and reasonable. In addition, the study found that noise levels increased over time due to pavement raveling, with the chance of noise level increases higher after a 10-year period.

Another measure would require sound barrier walls for affected homes that are on private property. However, this measure would be outside of the control of project developers, and the costs compared to the small number of affected sensitive receivers would be high.

A final measure considered was the requirement to install sound insulation for existing residences and sensitive receivers. The exterior-to-interior noise reductions would depend on the materials used, the design of the homes, and their conditions. To determine what upgrades would be needed, a noise study would be required for each house to measure exterior-to-interior noise reduction. Sound insulation may require upgraded windows, upgraded doors, and a means of mechanical ventilation to allow for a “windows closed” condition. There are no funding mechanisms and procedures that would guarantee that the implementation of sound insulation features at each affected home would offset the increase in traffic noise to interior areas and ensure that the State 45 dBA CNEL standard for residences would be achieved. Therefore, the Town rejected all of these noise reducing measures from further consideration.

6.5 Environmentally Superior Alternative

CEQA requires identification of the environmentally superior alternative among the alternatives to the proposed project. The environmentally superior alternative must be an alternative that reduces some of the project’s environmental impacts, regardless of the financial costs associated. Identification of the environmentally superior alternative is an informational procedure and the alternative identified as the environmentally superior alternative may not be that which best meets the goals or needs of the proposed project. Table 6-3 indicates whether each alternative’s environmental impact is greater than (in red), less than (in green), or similar to that of the Planning Initiative for each of the issue areas studied.

Based on the analysis of alternatives in this section, the No Project Alternative is the environmentally superior alternative as it would lessen the severity of almost every impact of the Planning Initiative besides geology and soils, and land use and planning. However, this alternative would not meet the project objectives, as it would not result in a certified Housing Element, not result in the Town meeting its RHNA obligation, updated General Plan in response to recent State legislation, create a land use and zoning designation for the Bollinger Canyon Study Area, generate opportunities for meaningful public participation, or create new objective development standards.

If the No Project Alternative is determined to avoid or reduce more impacts than any other alternative, CEQA requires that the EIR identify an environmentally superior alternative among the other alternatives (*CEQA Guidelines* Section 15126.6[e]). Of the other alternatives evaluated in this EIR, Alternative 3 would be the environmentally superior alternative. Alternative 2 would also reduce impacts compared to the Planning Initiative, but fewer impacts than Alternative 3.

Second to the No Project Alternative, Alternative 3 is the environmentally superior alternative as it would reduce the severity of 12 impacts (air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hydrology and water quality, land use and planning, public

services and recreation, transportation, tribal cultural resources, and utilities and service systems) compared to the Planning Initiative and would only increase construction noise impacts. Alternative 3 would meet the project objectives identified in Section 2, *Project Description*, as it would meet the Town’s RHNA obligations, bring the General Plan into conformance with recently enacted State law, create a land use and zoning designation for the Bollinger Canyon Study Area, generate opportunities for meaningful public participation, and create new objective development standards. Alternative 3 would have reduced or similar impacts compared to the Planning Initiative for all impacts areas, except noise.

Like Alternative 3, Alternative 2 would generally result in similar or incrementally decreased environmental impacts compared to the Planning Initiative and meet all project objectives. While Alternative 2 would reduce the severity of six impacts (air quality, energy, GHG emissions, noise, public services and recreation, and transportation) by reducing VMT per capita, it would have greater land use and planning impacts.

Table 6-3 Impact Comparison of Alternatives

Issue	Planning Initiative	Alternative 1: No Project	Alternative 2: Employment-Focused Growth	Alternative 3: Cluster Bollinger Canyon Study Area Development
Aesthetics	LTS	LTS (+)	LTS (=)	LTS (=)
Air Quality	SU	LTS (+)	SU (+)	SU (+)
Biological Resources	SU	LTS (+)	SU (-)	SU (+)
Cultural Resources	LTS	SU (-)	LTS (=)	LTS (+)
Energy	LTS	LTS (+)	LTS (+)	LTS (+)
Geology and Soils	LTSM	SU (-)	LTSM (=)	LTSM (+)
Greenhouse Gas Emissions	SU	LTS (+)	SU (+)	SU (+)
Hazards and Hazardous Materials	LTS	LTS (+)	LTS (=)	LTS (=)
Hydrology and Water Quality	LTS	LTS (+)	LTS (=)	LTS (+)
Land Use and Planning	LTS	LTS (-)	LTS (-)	LTS (+)
Noise	SU	SU (+)	SU (+)	SU (-)
Population and Housing	LTS	LTS (-)	LTS (=)	LTS (=)
Public Services and Recreation	LTS	LTS (+)	LTS (+)	LTS (+)
Transportation	SU	SU (+)	SU (+)	SU (+)
Tribal Cultural Resources	LTS	LTS (+)	LTS (=)	LTS (+)
Utilities and Service Systems	SU	LTS (+)	SU (=)	SU (+)
Wildfire	SU	SU (+)	SU (=)	SU (=)

NI = No Impact; LTS = Less than Significant; LTSM = Less than Significant with Mitigation; SU = Significant and Unavoidable
 Green: + Superior to the proposed project (reduced level of impact)
 Red: - Inferior to the proposed project (increased level of impact)
 No color: = Similar level of impact to the Planning Initiative

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