



PUBLIC REVIEW DRAFT

SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

June 23, 2020

SCH #2016042039





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Prepared for
City of Livermore

by

DYETT & BHATIA
Urban and Regional Planners

Table of Contents

Introduction and Purpose.....	ES-1
Executive Summary.....	ES-4
1 Introduction.....	1-1
2 Project Description.....	2-1
3 Introduction to Environmental Analysis.....	3-1
3.1 Air Quality	3.1-1
3.2 Traffic and Transportation.....	3.2-1
3.3 Energy, Greenhouse Gases, and Climate Change	3.3-1
3.4 Noise and Vibration	3.4-1
4 CEQA Required Conclusions	4-1
5 References.....	5-1
6 List of Preparers.....	6-1

Table of Tables

Table 2-1: Residential Land Use Designations.....	2-11
Table 2-2: Non-Residential Land Use Designations.....	2-12
Table 2-3. Estimated 2040 Net New Development	2-17
Table 3.1-1: Ambient Air Quality Monitoring Data from Livermore 793 Rincon Avenue Monitoring Station	3.1-5
Table 3.1-2: Health Risk Inventory for Stationary Sources in and within 1,000 Feet of the Planning Area.....	3.1-9
Table 3.1-3: Federal and State Attainment Status for Alameda County.....	3.1-10
Table 3.1-4: Federal and State Ambient Air Quality Standards	3.1-13
Table 3.1-5: Project-Level Emission Thresholds.....	3.1-18
Table 3.1-6: BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Project	3.1-25
Table 3.1-7: Estimated Maximum Daily Unmitigated Operational Emissions for the Proposed Project (pounds per day).....	3.1-41
Table 3.1-8: Estimated Maximum Daily Mitigated Operational Emissions for the Proposed Project (pounds per day).....	3.1-42
Table 3.1-9: Health Risks from Major Roadways (ADT >10,000) Located In and Within 1,000 Feet of the Planning Area In Excess of BAAQMD Project-Level Thresholds.....	3.1-47
Table 3.2-1: Intersection Level of Service, Existing Conditions.....	3.2-6
Table 3.2-2: Surrounding Transit Services, Existing	3.2-12
Table 3.2-3: Weekday Ridership, Existing	3.2-15
Table 3.2-4: Level of Service Criteria – Freeway Segments.....	3.2-25
Table 3.2-5: Level of Service Criteria – Signalized Intersections.....	3.2-26
Table 3.2-6: Level of Service Criteria – Unsignalized Intersections.....	3.2-26
Table 3.2-7: Daily Vehicle Trip Generation	3.2-29
Table 3.2-8: Daily Vehicle Miles Traveled	3.2-30
Table 3.2-9: 2028 Near Term No Project Intersection Level of Service	3.2-33
Table 3.2-10: 2040 Cumulative No Project Intersection Level of Service	3.2-37
Table 3.2-11: 2028 Near Term Plus Project Intersection Level of Service AM Peak Hour....	3.2-41
Table 3.2-12: 2028 Near Term Plus Project Intersection Level of Service PM Peak Hour	3.2-43
Table 3.2-13: 2040 Cumulative Plus Project Intersection Level of Service AM Peak Hour....	3.2-47
Table 3.2-14: 2040 Cumulative Plus Project Intersection Level of Service PM Peak Hour	3.2-49
Table 3.2-15: I-580 Lane Configuration in 2014 and 2028/2040, No Project Conditions.....	3.2-52
Table 3.2-16: I-580 Performance in AM, 2028 Near Term No Project Conditions.....	3.2-53
Table 3.2-17: I-580 Performance in PM, 2028 Near Term No Project Conditions.....	3.2-54
Table 3.2-18: I-580 Performance in AM, 2040 No Project Conditions	3.2-56
Table 3.2-19: I-580 Performance in PM, 2040 No Project Conditions.....	3.2-57

Table 3.2-20: I-580 General Purpose Freeway Level of Service, 2028 Near Term Conditions, AM Peak Hour	3.2-58
Table 3.2-21: I-580 General Purpose Freeway Level of Service, 2028 Near Term Conditions, PM Peak Hour	3.2-59
Table 3.2-22: I-580 General Purpose Freeway Level of Service, 2040 Cumulative Conditions, AM Peak Hour	3.2-61
Table 3.2-23: I-580 General Purpose Freeway Level of Service, 2040 Cumulative Conditions, PM Peak Hour	3.2-62
Table 3.2-24: I-580 HOV/Express Lane Freeway Level of Service, 2028 Near Term Conditions, AM Peak Hour	3.2-64
Table 3.2-25: I-580 HOV/Express Lane Freeway Level of Service, 2028 Near Term Conditions, PM Peak Hour	3.2-65
Table 3.2-26: I-580 HOV/Express Lane Freeway Level of Service, 2040 Cumulative Conditions, AM Peak Hour	3.2-66
Table 3.2-27: I-580 HOV/Express Lane Freeway Level of Service, 2040 Cumulative Conditions, PM Peak Hour	3.2-67
Table 3.2-28: 2028 Near Term Arterial CMP Segments	3.2-69
Table 3.2-29: 2040 Cumulative Arterial CMP Segments	3.2-71
Table 3.3-1: Alameda County Total and Per Capita Energy Consumption (2018)	3.3-3
Table 3.3-2: Atmospheric Lifetimes and Global Warming Potentials of Key Greenhouse Gases	3.3-5
Table 3.3-3: Global, National, and State GHG Emissions Inventories.....	3.3-6
Table 3.3-4: City of Livermore Community Greenhouse Gas Emissions Inventories and Forecast (metric tons CO ₂ e).....	3.3-6
Table 3.3-5. City of Livermore CAP Reduction Measures.....	3.3-14
Table 3.3-6. Operational GHG Thresholds/Substantial Progress Efficiency Metrics for BAAQMD	3.3-20
Table 3.3-7. Estimated Operational Energy Consumption for the Proposed Project	3.3-25
Table 3.3-8. Estimated Energy Consumption Efficiency for Existing and Proposed Project Conditions	3.3-26
Table 3.3-9. Estimated Unmitigated Proposed Project Operational GHG Emissions	3.3-34
Table 3.3-10. Estimated Mitigated Proposed Project Operational GHG Emissions	3.3-36
Table 3.3-11. Consistency of Proposed Project with CAP Measures	3.3-41
Table 3.3-12. Consistency of Proposed Project with 2017 Scoping Plan Policies	3.3-47
Table 3.4-1: Definition of Sound Measurements	3.4-3
Table 3.4-2: Typical A-weighted Sound Levels.....	3.4-4
Table 3.4-3: Typical Levels of Groundborne Vibration.....	3.4-7
Table 3.4-4: Vibration Source Levels for Construction Equipment.....	3.4-9
Table 3.4-5: Vibration Damage Potential Threshold Criteria Guidelines.....	3.4-9
Table 3.4-6: Vibration Annoyance Potential Criteria Guidelines.....	3.4-10

Table 3.4-7: Groundborne Vibration Impact Criteria.....	3.4-11
Table 3.4-8: City of Livermore General Plan Land Use Compatibility Guidelines for Exterior Noise	3.4-13
Table 3.4-9: Noise Levels of Key Construction Phases by Construction Type.....	19
Table 3.4-10: Roadway Segments with Project-related Traffic Noise Level Increases of 3 dB or More.....	3.4-25
Table 3.4-11: Roadway Segments with Project-related Traffic Noise Level Increases of 3 dB or More.....	3.4-28
Table 3.4-12: Vibration Source Levels for Construction Equipment.....	3.4-35
Table 3.4-13: Screening Distances for Operational Vibration Assessment.....	3.4-37
Table 3.4-14: Noise Compatibility Criteria for the Livermore Municipal Airport.....	3.4-42
Table 3.4-15: Airport Noise Compatibility for proposed 2020 INSP Land Uses.....	3.4-44
Table 4.1-1: Jobs to Employed Residents, in Planning Area, Existing and Projected	4-3
Table 4.2-1: Growth Projections Related to the Cumulative Context (2040)	4-5

Table of Figures

Figure 2-1: Regional Context	2-3
Figure 2-2: Planning Area.....	2-4
Figure 2-3: Land Use Diagram.....	2-9
Figure 2-4: Land Use Diagram Change Areas	2-10
Figure 3.1-2: Stationary and Roadway Sources.....	3.1-8
Figure 3.2-1 Study Area and Study Intersections	3.1-2
Figure 3.2-2 Freeway Study Segments.....	3.2-4
Figure 3.2-3 Existing Traffic Volumes – Weekday AM and PM Peak Hours.....	3.2-8
Figure 3.2-4: Bicycle Circulation.....	3.2-17
Figure 3.2-5: Pedestrian Circulation	3.2-18
Figure 3.2-6 2028 Near Term No Project Traffic Volumes – Weekday AM and PM Peak Hours	3.2-32
Figure 3.2-7 2040 Cumulative No Project Traffic Volumes – Weekday AM and PM Peak Hours	3.2-36
Figure 3.2-8 2028 Near Term Plus Project Traffic Volumes – Weekday AM and PM Peak Hours	3.2-40
Figure 3.2-9 Figure 3.2-9 2040 Cumulative Plus Project Traffic Volumes – Weekday AM and PM Peak Hours	3.2-46
Figure 3.4-1: Existing Airport Noise Contours.....	3.4-6
Figure 3.4-2: Future Noise Contours.....	3.4-21

Introduction and Purpose

BACKGROUND AND PURPOSE

The 2018 Isabel Neighborhood Specific Plan (INSP) and the accompanying Environmental Impact Report (EIR) (SCH #2016042039) were respectively adopted and certified by the Livermore City Council on May 14, 2018. The 2018 INSP was centered around the Bay Area Rapid Transit (BART) extension to Livermore that included a transit station at Isabel Avenue. The Livermore City Council adopted the 2018 INSP contingent upon extension of BART to Livermore.

Subsequent to the City Council's adoption of the 2018 INSP, the BART Board of Directors voted not to advance the BART to Livermore extension. Therefore, the approving actions were rescinded by City Council and the 2018 INSP has not gone into effect. Efforts on rail transit in the region are now centered on the Valley Link rail project, which is being studied by the Tri-Valley-San Joaquin Valley Regional Rail Authority (Authority). The Authority was established in 2018 through the enactment of Assembly Bill 758 by the State of California to plan and deliver cost-effective and responsive transit connectivity between the BART system in the Tri-Valley and the Altamont Corridor Express (ACE). Similar to the BART to Livermore extension, the proposed Valley Link rail system would include a transit station at Isabel Avenue in the Interstate-580 (I-580) median.

PRINCIPAL INSP CHANGES AND TOPICS EVALUATED IN SUPPLEMENTAL EIR

The update to the 2018 INSP principally consists of reflecting the Valley Link station rather than the BART station in the Planning Area. To account for change in the rail system which could result in different impacts—principally related to transportation, and ancillary impacts such as on noise and air quality—than evaluated in the previous EIR, this Supplemental EIR has been prepared.

In addition to the transit technology and design changes, proposed updates to the INSP include removal of the parking overlay to the north of I-580 that was previously proposed to accommodate potential overflow BART parking resulting from a large volume of riders driving to an end-of-the-line station. Lastly, while the 2020 INSP largely retains previous the land use designations, densities/intensities, proposed streets/street system, and other features of the 2018 INSP, two minor adjustments have been made to the land use map. One adjustment includes removing the residential designation from a property with existing office buildings that is no longer likely to be reused for residential uses, and designating an equivalent amount of land in its vicinity previously shown for office use for residential use. The second adjustment includes and swapping residential and open space land just west of the core to place the residential uses further away from I-580, and small adjustments to park sizes (with overall park acreage remaining the same as before). The 2020

INSP would result in approximately 100 more jobs than the 2018 INSP and the same number of housing units and non-residential building area in 2040.

In November 2019, the City prepared an Initial Study to understand how changes to the INSP may impact the environment. The Initial Study found that no new or more severe than already evaluated impacts would occur as a result of project changes for Land Use, Population, and Housing; Aesthetics; Biological Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Utilities and Service Systems; Public Services and Recreation; Geology and Soils; Cultural and Tribal Resources; and Agricultural Resources. The Initial Study determined that the Air Quality; Energy, Greenhouse Gases, and Climate Change; Noise; and Traffic and Transportation could potentially be affected by the changes to the INSP. These resource topic areas are analyzed as part of this Supplemental EIR.

Environmental impacts of the Valley Link rail project, including those related to design of stations, are being studied by the Authority in an Environmental Impact Report, details of which are available from the Authority's website: <https://www.valleylinkrail.com/environmental-ceqa>.

PUBLIC REVIEW

Copies of the Draft SEIR are now available for public review online at the following web link: www.cityoflivermore.net/insp. Due to the COVID-19 pandemic, printed copies are not available at the City of Livermore City Hall or Civic Center Library at this time.

Public comment on this SEIR is invited for a 45-day period extending from June 23, 2020 to August 7, 2020. Comments on this Draft SEIR can be submitted in writing or via email to:

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All comments received or postmarked by August 7, 2020 will be accepted.

A public hearing to receive comments on the Draft SEIR is scheduled for the Planning Commission meeting on July 7, 2020, at 7:00 p.m. In accordance with Executive Orders N-33-20 and N-29-20, this meeting will be conducted through videoconferencing without a physical location from which members of the public may observe and offer public comment. You may access the hearings through Zoom or a phone call. Due to changes related to COVID-19, please visit the City's website and view the agenda prior to the meeting to confirm meeting location and public comments option.

Visit <http://www.cityoflivermore.net/citygov/clerk/comms/pc/default.htm>, call (925) 960-4450, or email planning@cityoflivermore.net after 3:00 p.m. on Thursday, July 2, 2020 for a Zoom link and call-in information.

Public comments may be submitted through email or Zoom. Public comments submitted through email should be sent to planning@cityoflivermore.net no later than 12:00 pm on the day of the meeting to be provided to the Planning Commission the night of the meeting. Public comments submitted through Zoom should use the Question & Answer function through Zoom.

Executive Summary

This Supplemental EIR evaluates how changes associated with the 2020 INSP, including changing the rail system from BART to Valley Link and slight modifications to the proposed land use map, could result in different impacts to the environment than previously evaluated. As discussed in Chapter 3, there are no changes in the significance of any of impacts evaluated in the 2018 EIR for the topics evaluated in this Supplemental EIR – Air Quality; Traffic and Transportation; Energy, Greenhouse Gases, and Climate Change; and Noise. Compared to the 2018 INSP, the proposed Project would generate slightly lower operational emissions of criteria air pollutants with the implementation of Mitigation Measure GHG-1. The 2020 INSP would result in slightly lower vehicle miles traveled than under the 2018 INSP, and the 2020 INSP and 2018 INSP would result in identical impacts to three intersections, three freeway segments, and two roadway segments in the Planning Area. Energy consumption under the 2020 INSP would be slightly higher than under the 2018 INSP, while greenhouse gas emissions and per capita emissions would be notably lower. Noise levels under the 2020 INSP would be similar to noise associated with the 2018 INSP, though traffic noise under the 2020 INSP would impact an additional roadway segment.

Thus, there are no changes to the previously-published Executive Summary, with the exception of replacing the word BART with Valley Link.

Due to a slight change in policy numbering between the 2020 INSP and the 2018 INSP, Appendix A includes a summary table of the significant impacts of the 2020 INSP and proposed goals and policies that reduce these impacts. Detailed discussions of the impacts and proposed policies that would reduce impacts are in Chapter 3. Table ES-3 of the previous Draft EIR summarizes all impacts of the 2018 INSP.

1 Introduction

This Supplemental Environmental Impact Report (SEIR) has been prepared on behalf of the City of Livermore (City) in accordance with the California Environmental Quality Act (CEQA). This chapter outlines the purpose of and overall approach to the preparation of the SEIR on the proposed 2020 Isabel Neighborhood Specific Plan (proposed Project).

The 2018 Isabel Neighborhood Specific Plan (INSP) and the accompanying EIR (SCH #2016042039) were respectively adopted and certified by Livermore City Council on May 14, 2018. In 2018, the plan was centered around the Bay Area Rapid Transit (BART) extension to Livermore which included a transit station at Isabel Avenue. Implementation of the land uses in the INSP was made contingent by the City Council in its adopting resolution upon extension of BART to Livermore. Subsequent to City adoption of the 2018 INSP, the BART Board of Directors voted not to advance the BART to Livermore extension. Therefore, the approving actions were rescinded by City Council and the 2018 INSP has not gone into effect.

Efforts on rail transit in the region are now centered on Valley Link, which is being studied by the San Joaquin Valley Regional Rail Authority, established in 2018 through the enactment of Assembly Bill 758 by the State of California, to plan and deliver cost-effective and responsive transit connectivity between the BART system in the Tri-Valley and the Altamont Commuter Express. The proposed Valley Link rail system follows the same alignment in the Planning Area as BART with a station in the same location as the previously-proposed BART Station.

The 2020 INSP consists of goals, policies, standards, guidelines, and diagrams to guide the future development of the Isabel Neighborhood (see Chapter 2 for the detailed project description). The 2020 INSP will legally function as a Specific Plan for regulating land use and coordinating the provision of public services and infrastructure, including transportation facilities providing access to and from the Isabel Valley Link station.

The City is the lead agency responsible for ensuring that the planning process complies with CEQA.

1.1 Purpose and Intent

SEIR PURPOSE

This SEIR has three purposes:

1. Satisfy CEQA requirements for analysis of environmental impacts by including a complete and comprehensive programmatic evaluation of the physical impacts of the INSP Update.
2. Inform decision-makers and the public of the potential environmental impacts of the proposed Project prior to city decision-makers taking action on the proposed Project. The information presented in this SEIR will assist City officials in reviewing and adopting the INSP.
3. Provide a basis for the review of subsequent development projects and public improvements proposed within the Planning Area. Subsequent environmental documents may be tiered from the Final SEIR.

CEQA Guidelines Section 15163(b) states that a SEIR “need contain only the information necessary to make the previous EIR adequate for the project as revised.”

This SEIR analyzes the potential environmental impacts expected to result from implementation of the various policies, programs, and projects identified in the proposed changes to the 2018 INSP; specifically, it evaluates the physical changes from potential development that would occur with adoption and implementation of the proposed Project. Because the 2020 INSP retains the overall land uses, street layout, new open spaces and other features of the 2018 INSP, many of the impacts of the proposed Project will be the same or similar to those previously evaluated and do not require further study. This SEIR is intended to ascertain if environmental impacts for certain focused topics may be different than previously evaluated because of the different proposed rail system.

The 2018 EIR recommends goals, policies, and mitigation measures to mitigate less than significant and significant adverse impacts identified in the analysis of the 2018 INSP. Policies and mitigation measures are both requirements of the INSP. These goals, policies, and mitigation measures are incorporated into the 2018 EIR, the SEIR, and the 2020 INSP. The 2018 EIR also includes alternatives to the 2018 INSP.

This SEIR is based upon reasonable assumptions about the potential activities and projects that may be undertaken to implement the proposed Plan. This SEIR represents the best effort to evaluate the potential environmental effects of the proposed Project given its long-term planning horizons. It can be anticipated that conditions will change; however, the assumptions used are the best available at the time of preparation and reflect existing knowledge of patterns related to physical and economic development, travel, and technology.

SUPPLEMENTAL LEVEL OF ANALYSIS

As CEQA specifies, a SEIR is necessary if there is a change in the project or circumstances, or new information that was not known previously indicates the project will have a significant effect on the environment that wasn't covered in the previous EIR. In accordance with CEQA, a supplemental EIR may be prepared instead of a subsequent EIR to make minor additions or changes necessary to

make the previous EIR adequately apply to the project in the changed situation (CEQA Guidelines Section 15163). Refer to the 2018 Draft EIR for the INSP for a complete discussion of the program level of analysis employed in this SEIR.

TIERING AND STREAMLINING

Pursuant to CEQA Guidelines Sections 15162-15164, 15168, 15183 and 15183.5, the City may tier future program- and project-level environmental analyses from this SEIR. Tiering means that an agency may refer to analyses within an adopted environmental document to make a conclusion regarding the impacts of a subsequent action. This allows the agency to streamline the environmental review process, reducing redundancy in documentation and repetition in the process.

At the time subsequent projects or implementing actions are proposed, the City will evaluate the proposed activity for consistency with the proposed Plan and determine the level of review provided by the 2018 EIR and this SEIR. If the City finds that the project would not result in any new effects and that no new mitigation measures would be required other than those analyzed and/or required in the 2018 EIR and this SEIR, the City can approve the activity as being within the scope covered by the 2018 EIR and this SEIR, and no new environmental documentation would be required. If additional analysis is required, the City may streamline the review preparing a subsequent document that tiers from this SEIR.

The City intends to use the streamlining/tiering provisions of CEQA to the maximum extent feasible, as provided in CEQA Guidelines section 15152 and elsewhere. Specifically, CEQA Guidelines Section 15183 allows streamlined environmental review for projects that are consistent with the Specific Plan for which an EIR was certified, unless such a project would have environmental impacts peculiar or unique to the project or the project site. In addition, CEQA Guidelines Sections 15162-15164 allow for the preparation of a Subsequent (Mitigated) Negative Declaration, Supplemental or Subsequent EIR, and/or Addendum, respectively, to a certified EIR when certain conditions are satisfied. Moreover, California Government Code section 65457 and CEQA Guidelines section 15182 provide that once an EIR is certified and a specific plan adopted, any residential development project, including any subdivision or zoning change that implements and is consistent with the specific plan is generally exempt from additional CEQA review under certain circumstances. Public Resources Code section 21094.5 and CEQA Guidelines Section 15183.3 also provides for streamlining of certain qualified, infill projects. These are examples of possible streamlining/tiering mechanisms that the City may pursue and in no way limit future environmental review of specific projects.

The streamlining/tiering provisions apply to Lead Agencies, as well as Responsible and Trustee agencies. Therefore, other agencies may use this SEIR in the environmental review of implementing actions, as described under Legal Authority below.

PLAN IMPLEMENTATION

The INSP would be implemented through the following mechanisms that are described in Chapter 7: Implementation and Financing Strategies, of the Plan. Implementing actions include the following:

- General Plan Policy and Map Amendments;
- Development Code Amendment to reference the Plan;
- Rezoning and Zoning Map Amendments (including modifications to existing Planned Development Districts);
- Amendments to existing Development Agreements;
- Pre-zoning of unincorporated County land; and
- Airport Land Use Compatibility Plan (ALUCP) Policy Change

SUMMARY OF PROPOSED PROJECT ACTIONS

Discretionary actions are those actions taken by an agency that call for the exercise of judgment in deciding whether to approve, conditionally approve, or deny a project. The following discretionary actions comprise the project analyzed within this SEIR:

- Certification of the SEIR
- Adoption of the Isabel Neighborhood Specific Plan

1.2 Legal Authority

LEAD AGENCY

The City is the Lead Agency for the proposed Project pursuant to Article 4 (Sections 15050 and 15051) of the CEQA Guidelines. The Lead Agency, as defined by CEQA Guidelines Section 15367, is the public agency which has the principal responsibility and authority for carrying out or approving a project. On behalf of the Lead Agency, the City's Community Development Department conducted a preliminary review of the INSP Update and decided that an SEIR was required. The analysis and findings in this document reflect the independent, impartial conclusions of the City.

RESPONSIBLE AND TRUSTEE AGENCIES

State law requires that all EIRs be reviewed by Responsible and Trustee Agencies. A Responsible Agency, defined pursuant to State CEQA Guidelines Section 15381, includes all public agencies other than the Lead Agency which have discretionary approval power over actions taken as a result of implementing the proposed Project. A Trustee Agency is defined in Section 15386 of the CEQA Guidelines as a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California. Implementation of the proposed Project would require subsequent actions or consultation from Responsible or Trustee Agencies. A

brief description of some of the primary Responsible or Trustee Agencies that may have an interest in the proposed Project is provided below.

- Bay Area Air Quality Management District (BAAQMD). New development in the proposed Planning Area is subject to BAAQMD rules on air quality including compliance with construction, demolition, and renovation regulations.
- California Department of Transportation (Caltrans). The proposed Planning Area is transected by I-580 and State Highway 84 (Isabel Avenue south of the I-580 interchange). Modifications to freeway interchanges or Isabel Avenue would require Caltrans review and approval.
- California Department of Fish and Wildlife (CDFW). CDFW has the authority to reach an Agreement Regarding Proposed Stream or Lake Alteration (Streambed Alteration Agreement) with an agency or private party proposing to alter the bed, banks, or floor of any watercourse/stream, pursuant to Section 1600 et. seq. of the State Fish and Game Code. The purpose of code Sections 1600-1616 is to protect and conserve fish and wildlife resources that could be substantially adversely affected by a substantial diversion or obstruction of natural flow of, or substantial change or use of material from the bed, bank, or channel of, any river, stream, or lake. CDFW generally evaluates information gathered during preparation of the environmental documentation, and attempts to satisfy their permit concerns in these documents.
- Metropolitan Transportation Commission. The Metropolitan Transportation Commission is the metropolitan planning organization for the nine-county San Francisco Bay Area at the federal level and the regional transportation planning agency for the Bay Area at the state level.
- San Joaquin Valley Regional Rail Authority. The authority is the agency created by the State of California charged with the Valley Link rail project, and is also in charge of developing and implementing the Isabel Station and associated parking.
- San Francisco Bay Regional Water Quality Control Board (RWQCB). The RWQCB regulates water quality through the Section 401 certification process and oversees the National Pollutant Discharge Elimination System (NPDES) permitting process, which consists of wastewater discharge requirements.
- Zone 7 Water Agency. Zone 7 supplies treated drinking water to retailers in Livermore, including the City of Livermore Water Service. Zone 7 also owns land within and manages the flood control of waterways through the Planning Area. The Plan proposes several trails along waterways, some of which would be located on Zone 7 property.
- Alameda County. Alameda County Transportation Commission may use this document in their review of proposed transportation projects that fall under their jurisdiction such as those included in the countywide congestion management program or capital improvement plan. Alameda County has jurisdiction over 21 acres of land within the Planning Area that the City would need to annex in order to allow urban development under the proposed Plan. Lastly, the Airport Land Use Commission has review responsibilities over land use within the Planning Area, under the Livermore Airport Land Use Compatibility Plan (ALUCP). The proposed Plan includes an amendment to a policy

within the ALUCP. The Commission may use this document to provide CEQA clearance for that policy change, as well as to review the proposed Plan for consistency with the ALUCP.

- Local Agency Formation Commission (LAFCO). LAFCO is responsible for reviewing applications for boundary changes to cities and special districts. LAFCO has review and approval authority over the future annexation of a 21-acre parcel currently in unincorporated Alameda County into the City of Livermore.
- Las Positas College (Chabot-Las Positas Community College District). The college is located in the northeast portion of the Planning Area. The Community College District would be the Lead Agency for any physical changes to the college property.
- Federal agencies. The Federal Emergency Management Agency and the U.S. Army Corps of Engineers are responsible agencies with permitting authority over activities that affect waterways, and the U.S. Fish and Wildlife Service is a trustee agency with jurisdiction over natural resources. The Federal Transit Administration (FTA) or Federal Highway Administration (FHWA) may become the Lead Agency for the review of the Valley Link project under the National Environmental Policy Act (NEPA) and may refer to this document in the preparation of documents, such as an Environmental Impact Statement (EIS).
- Local agencies. The Livermore Area Recreation and Park District, Livermore Valley Joint Unified School District, and Livermore Amador Valley Transit Authority (LAVTA) provide services to the Isabel Neighborhood and would be responsible for implementing certain actions identified in the proposed Plan. The Alameda County Airport Land Use Commission would be responsible for ensuring that development under the proposed Plan is consistent with the Livermore Municipal Airport Land Use Compatibility Plan.
- Cal Water Service. While Cal Water is not a public agency, it is the water supplier for a portion of the Planning Area and is responsible for verifying the conclusions of the Water Supply Assessment.

1.3 Notice of Preparation and Scope

SCOPING

The scope of analysis for this SEIR was determined by the City as a result of initial project review and consideration of comments received in response to the Notice of Preparation (NOP). The City published a detailed Initial Study (IS) and NOP for this SEIR on November 20, 2019 and mailed the NOP to the State Clearinghouse for distribution to state agencies with possible interest in the project. The NOP publication initiated a 30-day public review period. During this time the City accepted written comments on the scope and content of the SEIR from the public and agencies. The City also held a public scoping meeting on December 17, 2019 to gather input. The City advertised the scoping meeting in the NOP, on the City's website and social media outlets, and via the email listserv established for this project. The NOP and comments received are included in Appendix B.

Pursuant to CEQA Guidelines Section 15163(b), an SEIR “need contain only the information necessary to make the previous EIR adequate for the project as revised.” Because the proposed Project retains the land uses of the 2018 INSP, many of impacts of the INSP will be the same or similar to those previously evaluated and do not require further study. An Initial Study that provides the basis for the topics to be evaluated is included in Appendix B. Based on the IS, the City and its consultants concluded that potentially significant impacts from the different proposed rail system could arise for the following topics:

- Air Quality
- Traffic and Transportation
- Energy, Greenhouse Gases, and Climate Change
- Noise and Vibration

COMMENTS ON THE NOP

The City received five comments on the NOP. The Native American Heritage Commission (NAHC) provided a brief summary of portions of Assembly Bill (AB) 52 and Senate Bill (SB) 18 as well as the NAHC’s recommendations for conducting cultural resources assessments. The Alameda County Flood Control District provided a copy of its comment letter on the 2018 Draft EIR, which identified plans and regulations that would need to be observed by future development and requested hydrologic and hydraulic analysis of geomorphic and flood impacts as well as an analysis of projected water requirements. Based on an examination of the analysis, findings, and conclusions of the 2018 EIR, the Initial Study found that implementation of the 2020 INSP Update would not substantially increase the severity of any impacts identified in the 2018 EIR, nor would it result in new significant impacts related to cultural and tribal resources, water utilities, or the quality and management of hydrological features and resources that were not identified in the 2018 EIR. Comments regarding issues addressed in this SEIR include those on the following topics:

Air Quality. There were two responses to the NOP that included comments related to air quality. Caltrans requested that the SEIR identify mitigation for significant impacts associated with construction and noise under the proposed Project. A member of the public requested that the EIR consider potential impacts of the proposed Project to air quality. The same individual asked if impacts to noise, air pollution, and the scenic corridor could be reduced by moving buildings further from I-580 under the proposed Project, as development constraints associated with BART would no longer apply.

Greenhouse Gas Emissions. There were two responses to the NOP that included comments related to GHG emissions. Caltrans stated that the proposed Project should, at minimum, retain its Transportation Demand Management (TDM) measures as described in the 2018 Draft EIR to reduce Vehicle Miles Traveled (VMT) and greenhouse gas emissions. A member of the public requested that the SEIR discuss potential impacts of the proposed Project on generation of GHGs.

Noise. There were three responses to the NOP that included comments related to noise generation. Caltrans requested that the SEIR identify mitigation for significant impacts associated with construction and noise under the proposed Project. A member of the public expressed concern that additional noise that may be generated as a result of the rail project and highway widening

associated with the proposed Project, and proposed addition of a sound wall or barrier to be built along the northern side of I-580 near the Sage community between Isabel Avenue and Portola Avenue. A second member of the public requested that the SEIR reevaluate noise and overflight impacts associated with the Livermore Municipal Airport, particularly in the evening. The same individual asked if impacts to noise, air pollution, and the scenic corridor could be reduced by moving buildings further from I-580 under the proposed Project, as development constraints associated with BART would no longer apply.

Traffic and Transportation. There were two responses to the NOP that included comments related to traffic and transportation. Caltrans requested that the SEIR include an updated travel demand analysis that provides a VMT analysis resulting from the proposed Project pursuant to guidelines created by the City of Livermore the Office of Planning and Research, utilizing a threshold of 15% below existing automobile VMT per capita to demonstrate significance. Caltrans stated that the proposed Project should, at minimum, retain its TDM measures as described in the 2018 Draft EIR to reduce VMT and greenhouse gas emissions. Caltrans also requested that appropriate coordination between the proposed Project and the Valley Link project take place, and that the proposed Project ensure that Valley Link connects with frequent transit services. Additionally, Caltrans requested that the SEIR address transportation impact fees, construction-related impacts to the State Right-of-Way (ROW), and encroachment onto the State ROW. A member of the public requested that the SEIR address impacts on traffic congestion, parking requirements, ridership, travel times, and fare costs associated with the proposed Valley Link station under the proposed Project. The same individual asked if impacts to traffic could be reduced by providing additional parking north of I-580 under the proposed Project, as development constraints associated with BART would no longer apply.

No comments were offered at the Scoping Meeting.

1.4 Format

ORGANIZATION

This Draft Supplemental EIR is organized into the following chapters and attachments:

- Chapter 1: Introduction. This chapter introduces the purpose for the SEIR, explains the SEIR process and intended uses of the SEIR, describes the assumptions and methodology critical to the environmental analysis, and describes the overall organization of this SEIR.
- Chapter 2: Project Description. This chapter includes a detailed description of the proposed Project, provides background information regarding the regional location and boundaries of the Planning Area, and describes the purpose, objectives, and components of the 2020 INSP Update.
- Chapter 3: Environmental Analysis. This chapter analyzes the potential environmental impacts that may occur as a result of implementation of the proposed Project. Impacts are organized by resource topic. Each topic area includes a description of the environmental and regulatory setting, significance criteria, methodology and assumptions, potential

impacts, and relevant 2018 INSP and 2020 INSP Update policies and mitigation measures, if any.

- Chapter 4: CEQA Required Conclusions. This chapter summarizes the potential growth-inducing impacts, cumulative impacts, significant unavoidable impacts, and irreversible effects associated with INSP Update implementation.
- Chapter 5: References. This chapter includes a list of documents used during preparation of the SEIR.
- List of Preparers. Identifies the consultants, persons, and organizations that contributed to preparation of the SEIR.
- Agencies Consulted. A list of individuals and agencies contacted during preparation of the SEIR.
- Technical Appendices. The appendices include the NOP and compilation of agency and public comments received on the NOP, and technical reports that were used as a basis for environmental analysis conducted in this SEIR. Where applicable, these reports have been summarized as part of the environmental analysis while noting their location in the appendices. All appended materials are listed in the Table of Contents. The technical appendices are available for review on the website for the proposed Plan: www.cityoflivermore.net/insp.

1.5 EIR Process

As the Lead Agency, the City is responsible for the preparation and review of the environmental documents under CEQA, including this SEIR. The SEIR review process occurs in three basic stages. The first stage is the scoping period, discussed above. The second stage is preparation and distribution of the Draft SEIR. The third stage includes preparation of a Final SEIR. Each stage offers the public the opportunity for review and comment.

DRAFT SEIR

The Draft SEIR is available for review to the public and interested and affected agencies for a period of 45 days. The purpose of the review period is to obtain comments “on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided and mitigated” (Section 15204, CEQA Guidelines). In accordance with Sections 15085 and 15087 (a) (1) of the CEQA Guidelines, upon completion of the Draft EIR, a Notice of Completion has been filed with the State Office of Planning and Research and Notice of Availability of the Draft SEIR issued in the Valley Times, a newspaper of general circulation in the area. The City has also notified the public about the review period via social media and email.

Copies of the Draft SEIR are now available for public review online at the following web link: www.cityoflivermore.net/insp. Due to the COVID-19 pandemic, printed copies are not available at the City of Livermore City Hall or Civic Center Library at this time.

Comments on this Draft SEIR should be submitted in writing to:

Ashley Vera, Associate Planner
asvera@cityoflivermore.net
City of Livermore; Planning Division
1052 South Livermore Avenue
Livermore, CA 94550

Phone: 925-960-4450
Fax: 925-960-4459

All comments received or postmarked by August 7, 2020 will be accepted.

A public hearing to receive comments on the Draft SEIR is scheduled for the Planning Commission meeting on July 7, 2020, at 7:00 p.m. In accordance with Executive Orders N-33-20 and N-29-20, this meeting will be conducted through videoconferencing without a physical location from which members of the public may observe and offer public comment. You may access the hearings through Zoom or a phone call. Due to changes related to COVID-19, please visit the City's website and view the agenda prior to the meeting to confirm meeting location and public comments option.

Visit <http://www.cityoflivermore.net/citygov/clerk/comms/pc/default.htm>, call (925) 960-4450, or email planning@cityoflivermore.net after 3:00 p.m. on Thursday, July 2, 2020 for a Zoom link and call-in information.

Public comments may be submitted through email or Zoom. Public comments submitted through email should be sent to planning@cityoflivermore.net no later than 12:00 pm on the day of the meeting to be provided to the Planning Commission the night of the meeting. Public comments submitted through Zoom should use the Question & Answer function through Zoom.

FINAL SEIR

Following the end of the public review period, the City will provide detailed responses to any comments received on the Draft SEIR per CEQA Guidelines Section 15088. The City will compile the written responses to the comments received into the Final SEIR.

This SEIR does not identify any additional significant impacts or changes to any of the mitigations from the previously (2018) certified EIR. Thus, no changes to the previously adopted Mitigation Monitoring and Reporting Program (MMRP) are needed. The culmination of this process is a public hearing where the City Council will determine whether to certify the SEIR as being complete and in accordance with CEQA. The Final SEIR will be available for public review at least 14 days before the public hearing in order to provide commenters the opportunity to review the written responses to their comment letters. Following certification of the SEIR and adoption of the proposed Project, the INSP would go into effect.

1.6 Relationship to Valley Link

INSP AND VALLEY LINK PROJECT BACKGROUND

In 2018, the INSP was prepared to guide future development of the area surrounding the BART station in the Interstate 580 (I-580) median at Isabel Avenue. The 2018 INSP included land use designations and zoning to replace those defined in the General Plan and Development Code, respectively. The 2018 INSP defined the Isabel Neighborhood, or Planning Area, and identified new residential areas both north and south of I-580, a range of employment-generating uses near the proposed Isabel Avenue BART station, neighborhood parks, and associated bicycle and trail improvements. A Program-level Environmental Impact Report (EIR) analyzed the potential environmental impacts associated with the adoption of the INSP.

Additionally, BART conducted a project-level EIR titled BART to Livermore Extension Project (SCH #2012082104). This report evaluated the construction of the BART rail extension, including the BART station at Isabel Avenue, associated parking, storage and maintenance facilities, and the operation of new BART and bus service. The BART to Livermore Extension project also included conceptual plans for alternatives to the proposed project: a No Project Alternative, a Diesel Municipal Unit (DMU) or Electric Multiple Unit (EMU) Alternative, an Express Bus/Bus Rapid Transit (BRT) Alternative, and an Enhanced Bus Alternative. The Draft EIR was released for public review on July 31, 2017, and the Final Environmental Impact Report was released on May 11, 2018.

On May 14, 2018 the City Council approved the 2018 INSP contingent on the BART Board of Directors approval of an extension of conventional, or full, BART to Isabel Avenue. The City Council also certified the 2018 EIR (SCH #2016042039) for the project. At its May 24, 2018 Board meeting, the BART Board voted to certify the BART to Livermore Extension Project Final EIR, but to not advance the Proposed Conventional BART Extension to Livermore. The Board also voted to not advance the DMU/EMU Alternative, Express Bus/BRT Alternative, or the Enhanced Bus Alternative. Therefore, the approving actions were rescinded by City Council and the 2018 INSP has not gone into effect.

Since the BART Board's decision to not extend the system to Livermore, efforts have been underway on the Valley Link rail system, which will connect San Joaquin Valley to the Tri-Valley. This effort is being led by the Tri-Valley San Joaquin Valley Regional Rail Authority (Authority), established by Assembly Bill (AB) 758, which was signed by Governor Jerry Brown in October 2017. Valley Link is proposed as a fixed-rail service from the existing Dublin/Pleasanton BART Station to the approved Altamont Corridor Express (ACE) North Lathrop Station. The Valley Link rail system is undergoing its own environmental review separate from the 2020 INSP. More information on the Valley Link rail project is available at <https://www.valleylinkrail.com>.

PLAN BAY AREA

The Metropolitan Transportation Commission (MTC) administers federal funds through the Regional Transportation Planning (RTP) process, which occurs every four years. The RTP is now part of Plan Bay Area. Plan Bay Area is the regional blueprint for coordinating transportation investments with land use and open space decisions. Its primary goals are to reduce greenhouse gas emissions, improve mobility and housing affordability, and preserve open space. Plan Bay Area establishes performance targets, against which MTC and partner agencies evaluate major transportation projects. Projects that score well against the targets and have a high benefit-cost ratio are more likely to receive regional transportation funding, much of which comes from the federal government.

Plan Bay Area builds upon previous regional planning efforts aimed at focusing development near existing infrastructure and along major transit corridors – in Priority Development Areas (PDAs). A PDA designation qualifies the area for special funding opportunities. The City of Livermore voluntarily designated three PDAs: Downtown, East Side, and Isabel. The Planning Area for the proposed Isabel Neighborhood Specific Plan corresponds to the Isabel PDA boundaries.

2 Project Description

The project analyzed in this Draft Supplemental EIR is the Isabel Neighborhood Specific Plan (INSP) Update (proposed Project or 2020 INSP Update). In 2018, the INSP was centered around the Bay Area Rapid Transit (BART) extension to Livermore which included a transit station at Isabel Avenue. The Livermore City Council adopted the 2018 INSP contingent upon extension of BART to Livermore. Subsequent to City Council's adoption of the 2018 INSP, the BART Board of Directors voted not to advance the BART to Livermore extension. Therefore, the approving actions were rescinded by City Council and the INSP has not gone into effect.

The proposed Project incorporates a Valley Link rail station at the same location as the previously-proposed BART station. The Valley Link rail project is being carried out by the Tri-Valley-San Joaquin Valley Regional Rail Authority (Authority), established pursuant to Assembly Bill 758, to plan and deliver transit connectivity between the BART system in the Tri-Valley and the Altamont Corridor Express. A Project Feasibility Report was adopted by the Authority in October 2019, and that project is now undergoing further design and environmental review by the Authority.

The INSP is both a policy document and an implementation tool for the General Plan. It contains strategies, regulations, goals, and policies to guide future development within the Isabel Neighborhood, or Planning Area. The Specific Plan details the proposed land uses and their development standards, transportation, infrastructure improvements, environmental resources, design standards and guidelines, a financing strategy, and implementation tools. If adopted, the regulations set forth in this Plan would replace the existing zoning and General Plan designations that currently apply to the Planning Area.

The proposed Project includes modifications to the 2018 INSP policies and maps to incorporate the Valley Link rail system, and some minor land use map adjustments to better reflect existing development, without change in the overall development program. No changes are proposed to other features of the INSP, including land use classifications and densities/intensities, City General Plan policies and map, Development Code references, changes to zoning (including existing Planned Development districts and Development Agreements) and the zoning map, and pre-zoning of unincorporated County land, and Airport Land Use Compatibility Plan policy changes.

This chapter summarizes the key components of the INSP Update analyzed in this Supplemental EIR. Refer to the 2018 Draft EIR for the INSP for more detailed descriptions.

2.1 Project Location

REGIONAL CONTEXT

The City of Livermore is located in eastern Alameda County along the north and south sides of Interstate 580 (I-580), as shown in Figure 2-1: Regional Context. The City limits encompass approximately 25 square miles within the Livermore Valley; to the north, south, and east of Livermore are rolling hills, and to the west are the cities of Pleasanton and Dublin. The Livermore Valley, the San Ramon Valley to the north, and the Amador Valley to the west together comprise the Tri-Valley, a major population and employment area within the nine-county Bay Area region.

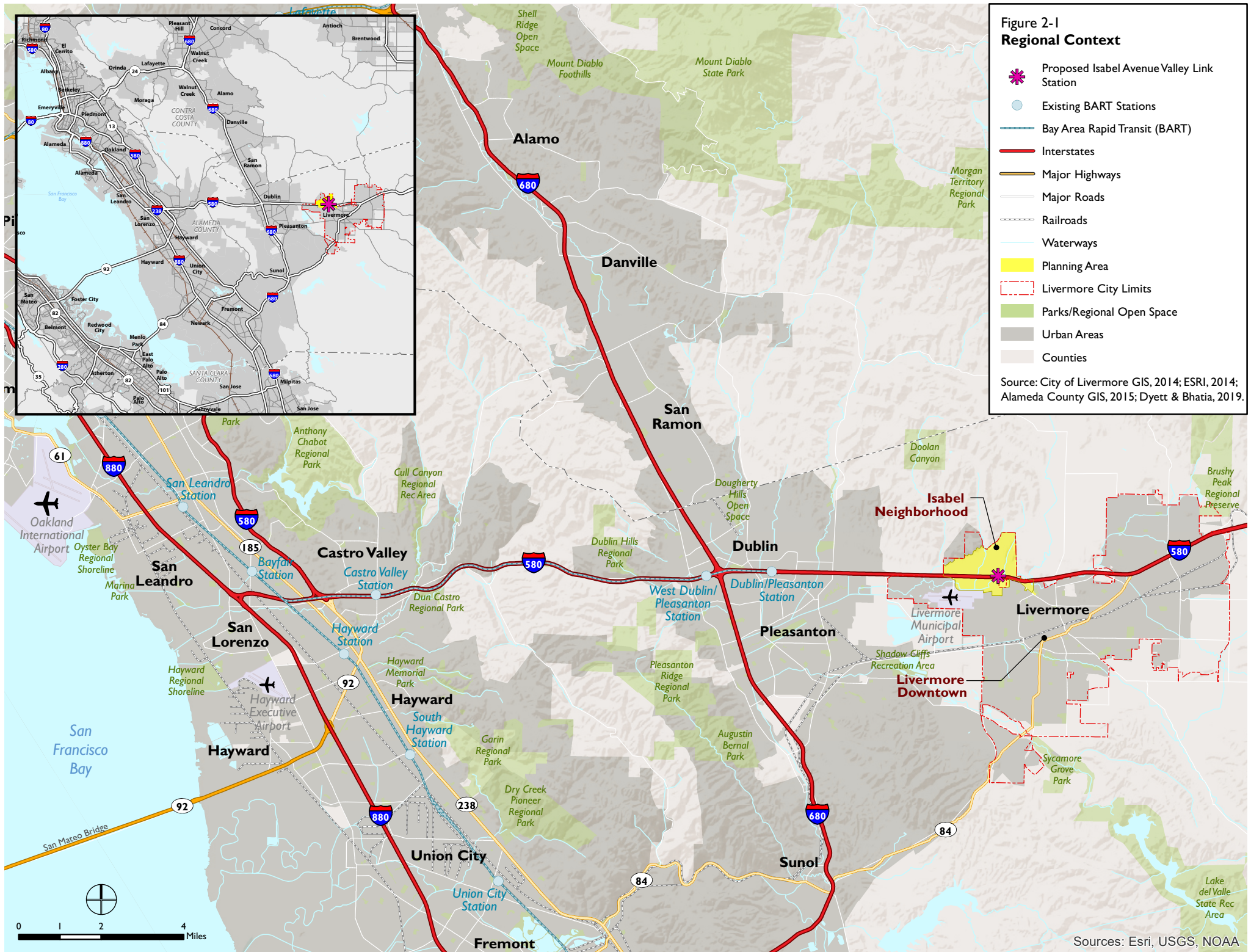
PLANNING AREA

The INSP Planning Area is shown in Figure 2-2 and covers approximately 1,138 acres, or about 6.6 percent of the City. It is located in northwest Livermore about 2.5 miles from the Downtown.

The northern edges of the Planning Area boundary are generally congruent with the Livermore City Limits and the Livermore Urban Growth Boundary (UGB). Areas that are outside of the City Limits include a 21-acre unincorporated County island in the southeast corner of the Planning Area. This area is within the UGB but outside of the City Limits.

The Planning Area is bisected by I-580. North Canyons Parkway-Portola Avenue, a major east-west street, runs through the northern part of the Planning Area. Isabel Avenue (State Route 84) runs north-south through the Planning Area as a state highway south of the I-580 interchange and a major city street north of the I-580 interchange.

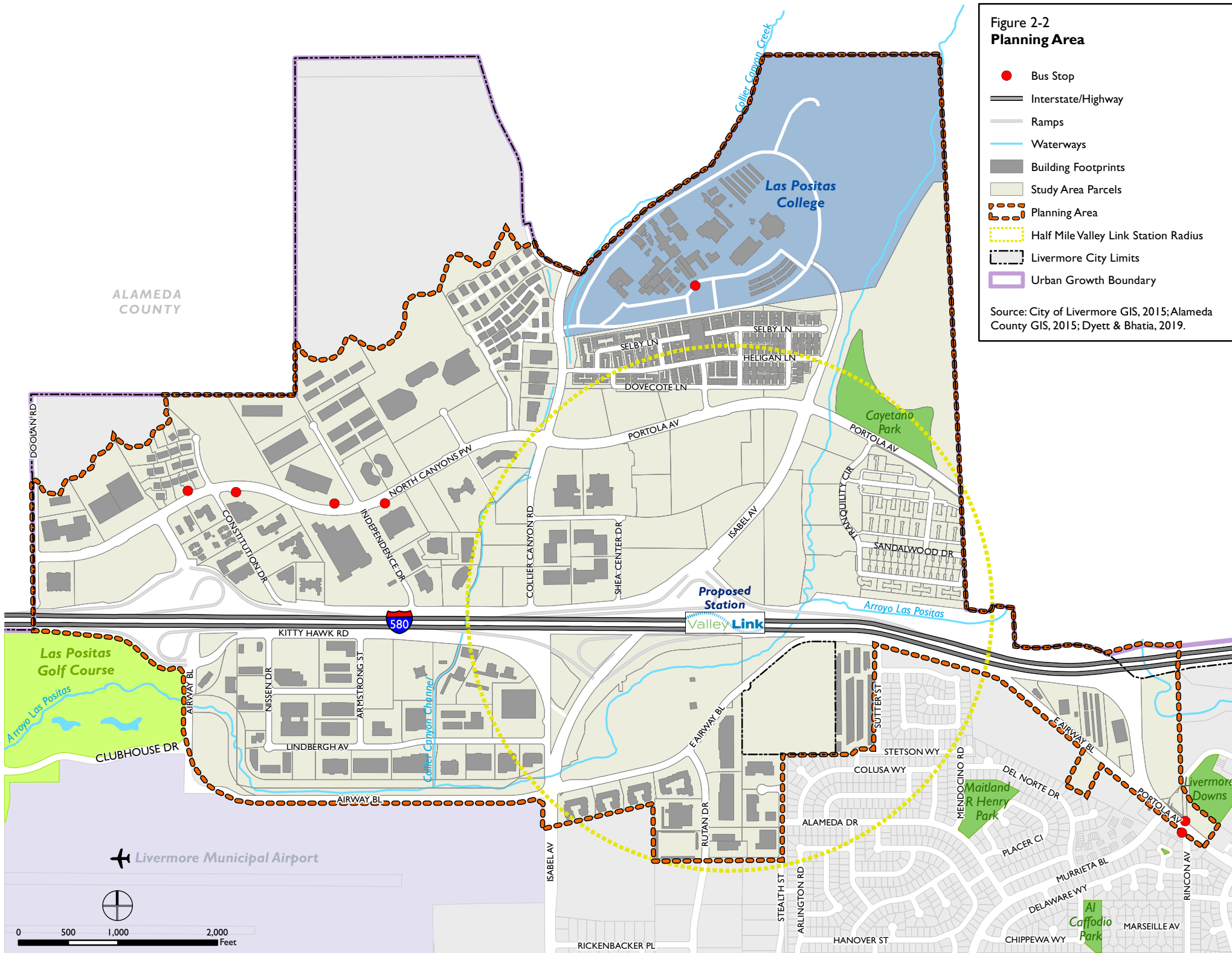
The proposed Isabel Valley Link Station is located within the I-580 median on the east side of the Isabel Avenue interchange. While the INSP addresses the entire 1,138 acres of the Planning Area, most of the proposed changes, analysis, and recommendations focus on the area within the one-half mile radius of the proposed Valley Link station location, which is represented by a yellow circle on Figure 2-2.



**Figure 2-2
Planning Area**

- Bus Stop
- Interstate/Highway
- Ramps
- Waterways
- Building Footprints
- Study Area Parcels
- Planning Area
- Half Mile Valley Link Station Radius
- Livermore City Limits
- Urban Growth Boundary

Source: City of Livermore GIS, 2015; Alameda County GIS, 2015; Dyett & Bhatia, 2019.



The Planning Area is currently developed primarily with industrial and commercial uses. About 257 acres, or 28 percent of the developable land within the Planning Area, is currently vacant or undeveloped. About 150 acres of the vacant/undeveloped land is within the half-mile radius of the proposed Valley Link station.

Established detached single-family residential neighborhoods abut the Planning Area to the southeast, while the Livermore Municipal Airport and the Las Positas Golf Course abut the Planning Area to the southwest.

2.2 Key Features of the Isabel Neighborhood Specific Plan

OBJECTIVES

The proposed Project establishes a regulatory framework for guiding private and public development within the Isabel Neighborhood over the next 20 years. The proposed Project's regulatory framework replaces the existing land use designations of the General Plan as well as the zoning regulations of the Livermore Development Code and various Planned Development zoning districts. The primary objectives of the proposed Project are to:

1. Create a safe, vibrant neighborhood.
 - The neighborhood should have a mix of housing, businesses, and community uses that generate activity throughout the day and week.
 - The neighborhood should provide sufficient housing to support a retail center with a grocery store.
 - The neighborhood should have spaces where people can gather, interact, and enjoy the outdoors such as parks, plazas, and trails. The neighborhood should be easy and safe to get around by walking and biking.
2. New development should be sensitive to adjacent residential areas and include design features should establish a unique sense of character and promote security.
3. Support citywide goals for increased transportation options, housing choices, and economic vitality.
4. Increase the diversity of housing stock to serve all economic segments of the community.
5. Increase the stock of rental and ownership housing in Livermore to address demand and reduce displacement due to lack of affordable housing options and congestion due to the regional jobs-housing imbalance.
6. Maximize opportunities for people to live in walkable neighborhoods with safe, convenient access to regional mass transit and bicycle facilities.
7. Provide sufficient opportunities for commercial and office development to support local businesses, neighborhood-serving uses, and living wage and high-paying jobs.

8. Support infill development and redevelopment to take advantage of existing infrastructure capacity and reduce pressure for greenfield development (help preserve open space).
9. Position the Valley Link project to qualify and compete for regional transportation funds.
10. Include transit-supportive features such as multi-modal street improvements, higher density land use designations, and pedestrian-friendly design guidelines.
11. Meet or exceed the minimum housing threshold under the Valley Link TOD Policy.
12. Maximize housing units, affordability, and density to make project perform high against criteria and rank well against other projects competing for funding.
13. Support regional goals to reduce Vehicle Miles Traveled (VMT) and the associated impacts on quality of life and the environment.
14. Promote compatibility with existing residential development and community character.
 - Establish land use regulations that provide a sensitive transition between new development and existing residences.
 - Minimize impacts on existing views of hills from the freeway (Scenic Corridor policy).
 - Require design that reflects Livermore's unique character and high standards.
 - Minimize traffic congestion impacts on existing intersections and in existing neighborhoods.
 - Minimize overflow parking in existing neighborhoods

The INSP Update will guide future development of the area surrounding the future Valley Link station in the I-580 median at Isabel Avenue. The Plan is a "Specific Plan," which has been an effective tool used by the City of Livermore to meet community goals for and guide the transformation of several specific areas within the City. In the Isabel Neighborhood area, the abundance of vacant land near the proposed Valley Link station is a major opportunity for shaping a new neighborhood for the City centered around a major transit hub. The INSP Update will guide private and public development over the next 20 years to achieve the community's shared vision for the Valley Link station area. All goals and policies are incorporated by reference into this project description and analyzed in this SEIR.

ORGANIZATION

The Isabel Neighborhood Specific Plan is organized as follows:

- Chapter 1: Introduction provides an overview of the Planning Area and regional context, along with the Plan's objectives and relationship to existing plans and programs. It summarizes the planning process and key findings from public outreach and stakeholder engagement, including the community-driven vision for the Isabel Neighborhood.
- Chapter 2: Land Use provides proposed land use designations and land use diagram; potential buildout of the Plan; and the Plan's affordable housing strategy. The chapter identifies goals and policies related to land use, as well as development standards for all development within the Planning Area.

- Chapter 3: Transportation describes the Neighborhood's streets and trails networks and its parking ratios and strategies. The chapter identifies goals and policies related to circulation and parking.
- Chapter 4: Parks, Public Facilities, and Infrastructure discusses improvements to the public facilities and services. The chapter identifies goals and policies related to parks, public services, and infrastructure.
- Chapter 5: Urban Design describes in detail the many features of the Neighborhood's public realm. This chapter also provides a comprehensive list of design standards and design guidelines for all development within the Isabel Neighborhood.
- Chapter 6: Environmental Resources addresses environmental and manmade hazards that may affect health and safety within the Planning Area. The chapter discusses the airport influence, noise, air quality, biological resources, hazards and flooding, cultural resources, agricultural resources, and geology and soils. The chapter identifies goals and policies related to these environmental resources.
- Chapter 7: Implementation and Financing Strategies discusses the public improvements financing strategy, and identifies implementation actions, responsible agencies, timeline, and cost.
- Chapter 8: Policy and Code Amendments identifies recommended/required changes to the Isabel Neighborhood Specific Plan, General Plan, Livermore Development Code, and the Airport Land Use Compatibility Plan.

LAND USE DIAGRAM

Figure 2-3: Land Use Diagram, shows proposed land use designations for the Planning Area under the Isabel Neighborhood Specific Plan. The Land Use Diagram shows new residential areas both north and south of I-580, as well as a range of employment-generating uses near the proposed Valley Link station. Key features include:

- A compact, mixed-use neighborhood core between Isabel Avenue and Collier Canyon Road north of I-580;
- A main street with active ground floor retail extending from a shopping center north through the Neighborhood core;
- A variety of housing types with building heights that step down from the Neighborhood core near the Valley Link station to the edges of the Planning Area, adjacent to existing residences;
- An Innovation Hub with a concentration of complementary office uses located within walking distance from the Isabel Valley Link Station, along with three other locations designated for office development to further support new businesses and local entrepreneurs;
- Three new neighborhood-serving parks and open space buffers along the creeks to provide recreational opportunities and access to natural areas; and

- Pedestrian streets with streetscape improvements that will create an attractive walking environment and help establish an identity for the Neighborhood (see Section 3.2 of the Isabel Neighborhood Specific Plan for detail).

Figure 2-4: Land Use Diagram Change Areas, highlights the areas where the Isabel Neighborhood Specific Plan envisions new development or redevelopment. These “Change Areas” include all vacant, developable parcels within the Planning Area. It also includes parcels with a new or intensified land use compared to the existing use or what is allowed currently under the General Plan. For example, the Office designation would allow the same general uses as are currently permitted on these sites but at a higher intensity of development (i.e., more floor area per parcel or larger lot coverage).

There are several locations designated for residential uses that have existing office or commercial buildings. Redevelopment of these sites would only occur if initiated by the property owner. In the interim, existing office and commercial businesses could continue to operate, and property owners could make site improvements in support of these existing uses.

The majority of Change Areas are located within a half-mile radius – or walking distance – of the future Valley Link station. The Change Areas encompass a total of 346 acres, or about 30 percent of the whole Planning Area. These changes in land use and development intensity will allow the Isabel Neighborhood to transform into a distinctive and walkable neighborhood, capitalizing on the proximity to Valley Link. The Plan is based upon market analysis and the potential for the transit investment to catalyze new development opportunities.

Figure 2-3: Land Use Diagram

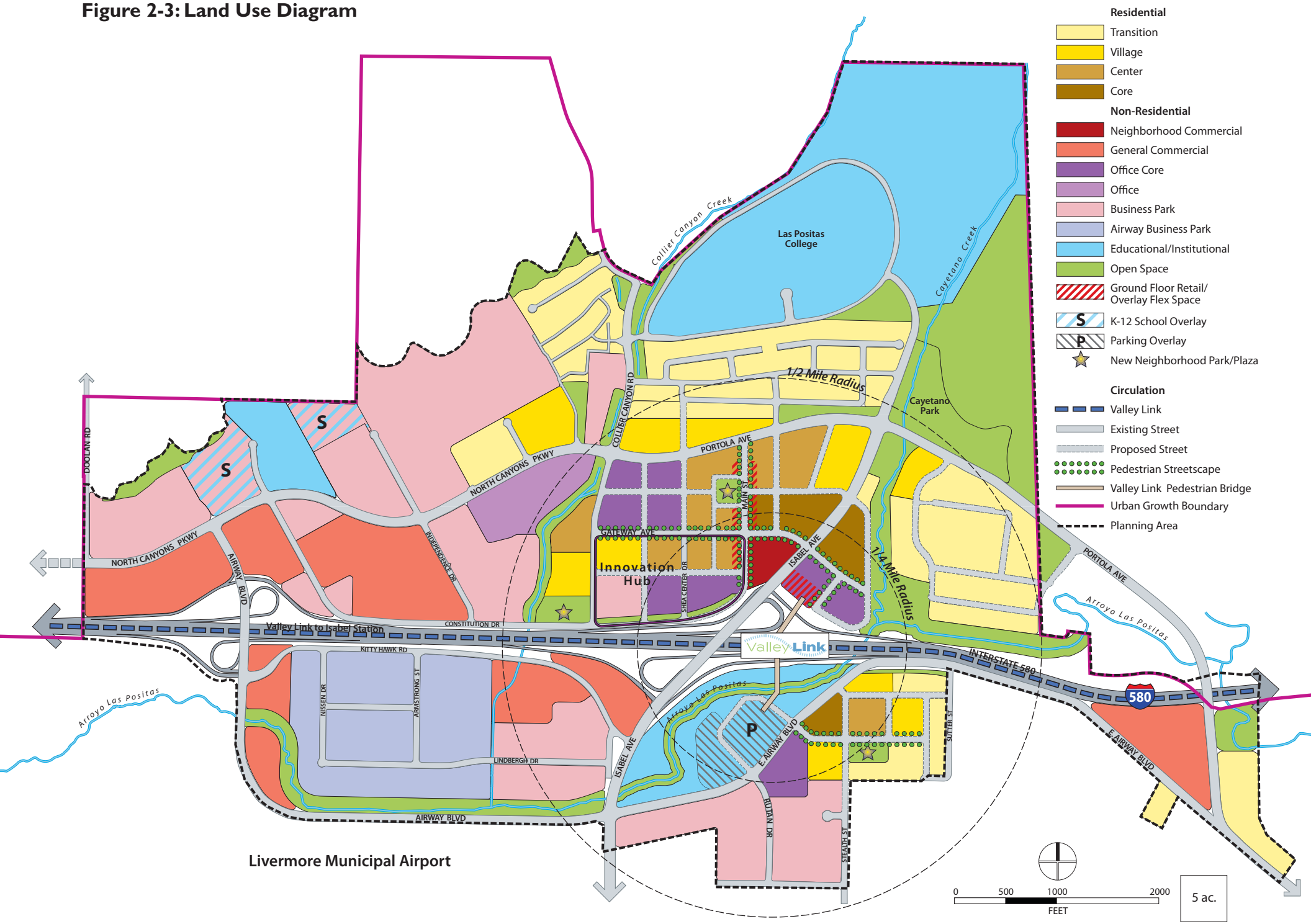
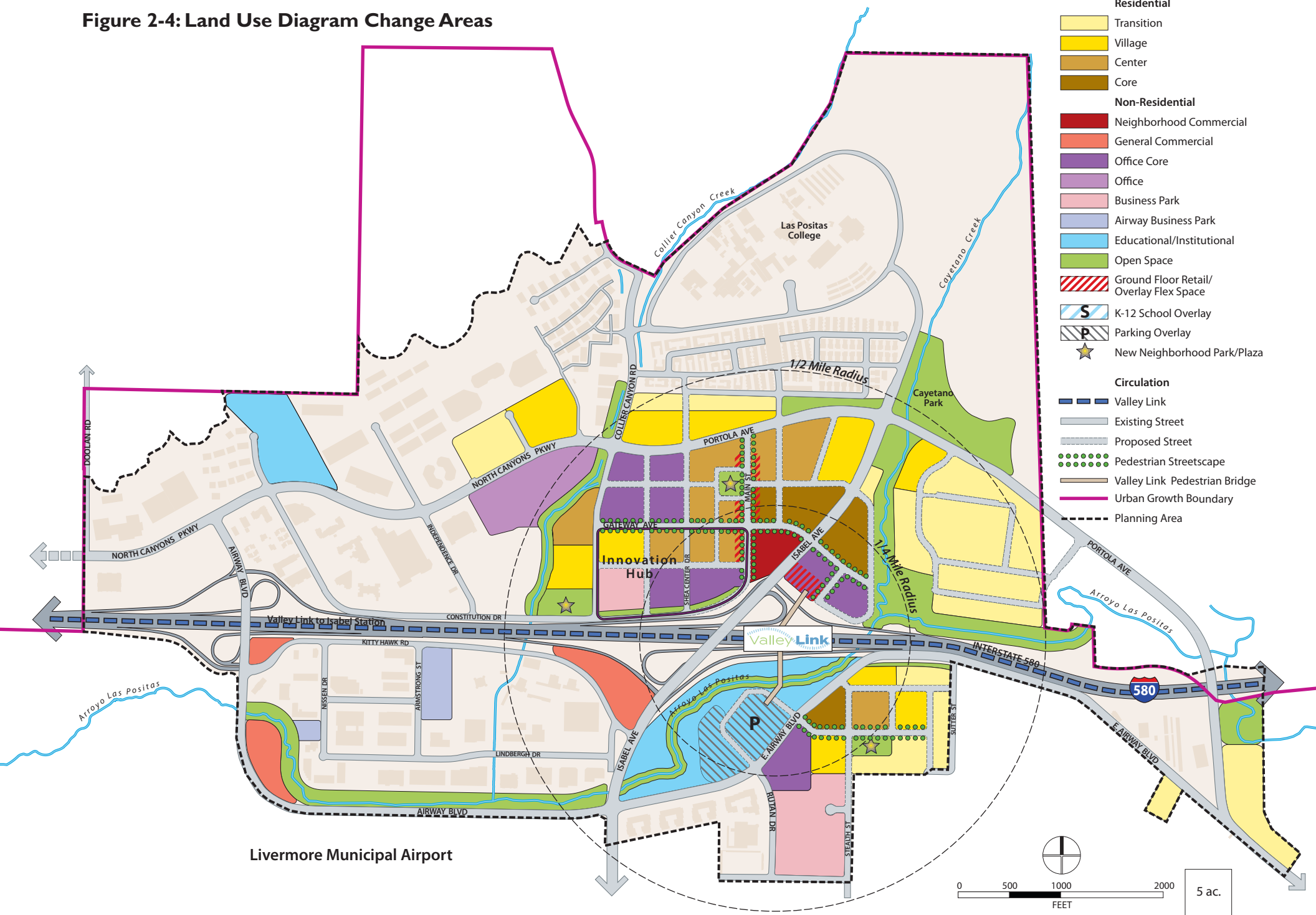


Figure 2-4: Land Use Diagram Change Areas



The remainder of the Planning Area has land use designations that are generally consistent with existing (as of 2019) land uses and General Plan designations. These sites are mostly outside of the half-mile radius from the Valley Link station. The overall development pattern in these areas is expected to stay relatively unchanged in terms of block size and land use. However, the Isabel Neighborhood Specific Plan designations would allow an incrementally greater intensity of development than previously permitted under the General Plan in certain cases. By replacing the various existing zoning districts with a more limited number of zoning districts, the Isabel Neighborhood Specific Plan is intended to help clarify the development review process and create a more cohesive identity for the area.

LAND USE DESIGNATIONS

The residential density and non-residential intensity standards established by the proposed Project are shown in Tables 2-1 and 2-2. These remain unchanged from the 2018 EIR.

Table 2-1: Residential Land Use Designations

<i>Designation</i>	<i>Density (du/ac)</i>	<i>Housing Types</i>
Transition	15-25	Single-family attached dwellings (townhomes), or low-rise garden apartments and condominiums
Village	25-40	Mid-rise condominiums and apartments, with some opportunity for townhomes
Center	40-60	Condominiums and apartments
Core	60-100	Condominiums and apartments

Table 2-2: Non-Residential Land Use Designations

<i>Designation</i>	<i>Use Types</i>	<i>Building Standard</i>
Neighborhood Commercial	Allows commercial uses with an emphasis on small-scale and neighborhood-serving uses such as grocery stores, restaurants/cafes, and personal services	FAR ¹ : 0.4 to 1.0
General Commercial	Allows commercial uses with an emphasis on regional-serving uses such as gas stations, car sales, lodging, and retail	Lot coverage: 50%
Office and Office Core	Allows a range of office, professional, technical, and commercial businesses	FAR: Office, 0.75-1.25 FAR: Office Core, 1.0-2.0
Business Park	Allows a variety of commercial and light industrial uses, including medical offices, professional services, research and development, light manufacturing, limited hotel, entertainment, community, and commercial uses	Lot coverage: 50%
Airway Business Park	Allows commercial and industrial development consistent with the intent of the General Plan Business and Commercial Park designation	Lot coverage: 45%
Open Space	Allows for community and neighborhood parks, passive and active recreation areas, landscaped trails or pathways, scenic buffers from I-580, and open space for environmental conservation	Lot coverage: 20%
Education/Institution	Allows government-owned and operated facilities such as schools, post offices, community centers, and fire stations, as well as religious facilities (i.e., churches, synagogues, etc.)	Lot coverage: 75%

Overlay

Ground Floor Retail/Flex Space. This overlay allows the ground level of buildings to have a range of retail uses such as retail, live/work, restaurants, cafés, markets, wine and beer tasting, personal services, and banks. Buildings along the new Main Street will be required to provide ground floor uses that are accessible to the general public and generate walk-in clientele, thus contributing to an active street life. Ground floor spaces should integrate outdoor seating and pedestrian-oriented design. On-street parking would serve these uses, with the possibility of shared parking with adjacent office uses.

¹ Floor Area Ratio

Parking Overlay. The Land Use Diagram includes a floating “P” over the Valley Link Station property to indicate the proposed location of Valley Link’s parking area. The Valley Link Station property is located within the Airport Land Use Compatibility Plan (ALUCP) Safety Zone 3, which restricts the types of land uses and development intensity allowed on the site. However, parking is a permitted use in this zone. The Valley Link parking area is discussed further in Section 3.2: Traffic and Transportation, of this EIR.

School Overlay. The Land Use Diagram includes a floating “S” over a portion of the former Charter school on Constitution Drive and Independence Drive. This portion of the Planning Area is within ALUCP Safety Zone 6 which prohibits any new schools from being built in this zone. The school Educational/Institutional overlay indicates the only location where a school is permitted in the Planning Area. In 2010, the City approved a Conditional Use Permit (CUP) for K-12 school facilities at this location. While the Charter school has since closed, a new public or private school serving any combination of grades K-12 may re-occupy this site if found to be consistent with the approved CUP (or with a CUP amendment). The maximum permitted density for a K-12 school is 300 people per acre (average) and 1,200 people per single acre. This overlay also permits public uses including Fire, Police, Library, parks, public recreation facilities, and school administration uses. Refer to Section 3.11: Public Services and Recreation of the previous Draft EIR for additional discussion on schools.

Park Overlay. The Land Use Diagram shows stars to indicate the general location of new neighborhood-serving parks. One new park would be north of I-580, between the freeway and new residential land uses, while the other two parks would be centrally located to the new residential areas on each side of the freeway. These parks would provide a variety of contexts for community gathering spaces and recreational amenities, as described in Section 3.11: Public Services and Recreation of the previous Draft EIR.

BUILDING HEIGHT LIMITS AND VIEW PROTECTION

Each parcel in the Planning Area will be subject to a maximum height limit, as shown on [Isabel Neighborhood Specific Plan] Figure 2-4: Isabel Neighborhood Scenic Corridor Amendment Areas, and in the Developments standards for each district. The height limits take into account several factors including: scenic views, compatibility in scale with adjacent uses, proximity to the airport, and proximity to the planned Isabel Valley Link station. The building height limits correlate with, but are not determined by, land use designation and height limits under the General Plan’s Scenic Corridor policy.

In general, maximum building heights are tallest near the planned Isabel Valley Link station and taper down to provide a transition with existing residential uses. The building height limits were adjusted in some locations within the Neighborhood’s core area, as defined in [Isabel Neighborhood Specific Plan] Figure 2-4, to preserve key view corridors. Outside of the core area, sites will be subject to existing height restrictions under the General Plan Scenic Corridor policy, with several exceptions to reflect actual driving conditions and views. Lastly, the height limits were verified for consistency with airport-related policies and regulations, including Federal Aviation Regulations Part 77.

Given that preserving views of hillsides is a top priority and site development often changes the existing grade, the maximum building heights are expressed in feet above mean sea level, rather than feet above existing grade. Therefore, [Isabel Neighborhood Specific Plan] Figure 2-4 is the authoritative height diagram for the Isabel Neighborhood combined with the development standards for each district.

SCENIC CORRIDOR POLICY

Outside of Isabel Neighborhood Plan “amendment areas,” Isabel Neighborhood development is subject to existing height restrictions and ground contour limits under existing Scenic Corridor policy, set forth in Section IV.C of the Community Character Element of the General Plan. This policy protects key views of hills from I-580 within the Planning Area. The stretch of freeway through Livermore is divided into subareas, each with a set of policies that limit building heights. Most subareas establish a “view angle” below which buildings must be located. The view angle runs perpendicular (90 degrees) from the freeway and starts four feet above the outermost lane of the I-580 freeway as of 2008. In addition to building height limits, the Scenic Corridor Policy also limits ground contour changes.

Most of the Planning Area is subject to a view angle height limit ranging from 2.2 to 4.0 degrees, although the southeastern portion of the Planning Area is subject to a flat height limit (Subpart 6C).² There is an exemption from the height limits under the Scenic Corridor policy for development within a 1,000-foot radius of the Isabel Avenue/I-580 interchange on the north side of the freeway.

Amendment Areas

The Isabel Neighborhood Specific Plan identifies three Scenic Corridor Amendment Areas: the Core, East Airway, and Portola areas. Within the Amendment Areas, development is subject to height limits as shown in [Isabel Neighborhood Specific Plan] Figure 2-4, rather than view angles. These amended height limits consider several factors including scenic views, compatibility in scale with adjacent uses, proximity to the airport, and proximity to the planned Isabel Valley Link station. In general, maximum building heights are tallest near the planned Isabel Valley Link station and taper down to provide a transition with existing residential uses.

The building height limits correlate with, but are not determined by, land use designation and height limits under the General Plan’s Scenic Corridor Policy. The height limits create new view corridors within the Neighborhood, along Shea Center Drive (see Isabel Neighborhood Specific Plan Figure 2-5) and along Main Street (see Isabel Neighborhood Specific Plan Figure 5-2). Lastly,

² According to the General Plan, Subpart 6C is almost fully developed with commercial and residential uses, and visual resources along this stretch of freeway are impacted by existing development and/or lower freeway elevations compared to adjacent parcels. To reduce effects on scenic views, building heights above existing grade are limited to 25 feet for residences and to 30 feet for the commercial parcels located on the north side of Portola Avenue opposite Murrieta Boulevard.

building height limits were verified for consistency with airport-related policies and regulations, including Federal Aviation Regulations Part 77 (refer to the 2018 Draft Environmental Impact Report Section 3.8, Hazards and Hazardous Materials for additional detail). Chapter 8: Policy and Code Amendments, provides specific amendments to the General Plan's Scenic Corridor Policy that will be necessary for Isabel Neighborhood Specific Plan adoption and implementation.

The proposed amendments to the Scenic Corridor Policy are outlined on [Isabel Neighborhood Specific Plan] Figure 2-4, and include the following:

- **Core:** New height limits in this area reflect the proximity to the Valley Link station and the density/intensity ranges necessary to meet the Plan's objectives for creating a vibrant neighborhood that supports a viable retail center and generates transit ridership. Views of the hills from I-580 along this stretch of the freeway are currently obscured by the Isabel Avenue interchange, and construction of the Valley Link facilities will further affect views. The land use diagram and height limits in this area were strategically developed to allow taller development where it will have the least impact on views, while limiting heights in other areas to preserve key view corridors (described further below).
- **East Airway:** As with the north side of the Isabel Avenue interchange, views of the hills looking south from I-580 are limited. In addition to the interchange itself, mature trees lining the creek and a sound wall allow few "windows" of hillside views. Therefore, locating taller buildings near the Valley Link station would not notably detract from existing views. The new height limits in this area are based primarily upon Livermore Airport airspace.
- **Portola:** Residential development in the Portola area in the southeastern portion of the Planning Area will continue to be subject to a flat height limit, but the new height limits would allow buildings farther from the freeway to reach 25, 35 or 40 feet in height. The height limit approach (rather than view angle) recognizes that views of distant hills along this stretch of freeway are impacted by existing development and/or lower freeway elevations. The site closest to the freeway within the Planning Area is only briefly visible when passing on the freeway due to a sound wall, Portola Avenue overpass, and vegetation. As buildings farther from the freeway have, in general, a lesser impact on views of distant ridgelines, new height limits in this area were developed to allow buildings to increase in height with distance from the freeway, while still reserving views of the ridgelines beyond. Compatibility with adjacent residential uses was also a consideration in setting height limits in this area.

Chapter 8: Policy and Code Amendments, of the Isabel Neighborhood Specific Plan provides specific amendments to the General Plan's Scenic Corridor Policy that will be necessary for Isabel Neighborhood Specific Plan adoption and implementation.

Key Views Preserved from along I-580

The land use diagram, street grid, development standards, and building height limits were strategically developed to preserve key view corridors. The regular street grid established by the Isabel Neighborhood Specific Plan will provide clear view corridors of the hills, particularly when looking to the north or south from within the core area. It will also create several view corridors when looking to the north at a 90 degree angle from the freeway. However, the Neighborhood is generally viewed from oblique (45 degree) angles by drivers and passengers entering the area from I-580. Therefore, various perspectives were considered when identifying the four key views to protect.

As described above, existing infrastructure obscures scenic views when passing through the Planning Area on I-580. The height limits in the exception areas allow the tallest buildings closest to the Valley Link station where scenic views will continue to be impacted by infrastructure, while locating shorter buildings around the edges to preserve views at oblique angles.

BUILDOUT

The term “buildout” refers to the future scenario in which the Plan is fully implemented. The buildout scenario provides estimates as to the number of new households, residents, and jobs in the Neighborhood, and serves as the overall capacity for new development under the Plan. The development potential was calculated by applying the development standards (including average densities for the residential categories) to the Change Areas shown on [Isabel Neighborhood Specific Plan] Figure 2-2. The City uses this estimate of potential population and employment growth to analyze environmental impacts and plan for the provision of infrastructure and public services over the long-term.

For these purposes, it is assumed buildout will occur by the year 2040, although it may take longer to fully realize the vision for the Isabel Neighborhood. Ultimately, private property owners are responsible for initiating development or redevelopment of their land, which often depends on market conditions.

Table 2-3 shows the estimated development levels under buildout under the INSP, which would remain the same under the proposed Project. Housing units are calculated based on the average densities for each residential category and average FARs and lot coverage for each non-residential category. This table accounts for existing development assumed to remain and existing development assumed to be replaced, in addition to development of vacant lands.

Table 2-3. Estimated 2040 Net New Development

	Within ½ mile radius of Valley Link station	Outside ½ mile radius	Planning Area Total
Residential (housing units)	3,525	570	4,095
Non-residential (square feet)			
Office	1,578,000 ¹	152,500	1,730,500
Business Park	73,590	106,800	180,390
Neighborhood Commercial	167,185 ²	0	167,185
General Commercial	107,200	189,100	296,300
General Industrial ³	(270,175)	0	(270,175)
Total	1,655,800	448,400	2,104,200
Jobs	8,000	1,200	9,200

Notes:

1. Includes existing LAM property
2. Includes Ground Floor Retail/Flex Space
3. As build out of the Planning Area occurs, General Industrial uses will be replaced with Office, Business Park, Neighborhood Commercial, and General Commercial uses.

Source: Dyett & Bhatia, 2020.

Similar to the 2018 INSP, the 2020 INSP estimates about 4,095 new housing units at buildout; actual development could be slightly higher or lower depending on development decisions by individual property owners. This level of residential development would result in approximately 9,800 new residents, assuming an average vacancy rate of five percent and an average household size of 2.52 persons. While Livermore currently has an average household size of 2.77, new housing units built through 2040 are projected to have an average household size of 2.85 (ABAG Projections, 2017). This average household size reflects a mix of multi-family and attached unit types (i.e., townhouses, apartments, and condominiums), as allowed under the Neighborhood Plan. Developers generally drive decisions on unit sizes, as well as the ownership structure (rental versus for-sale housing). In addition, the Plan proposes to increase the affordable housing requirement from 15 percent to 20 percent by including a mix of income level targets. A goal of 25 percent affordability is proposed for the overall Planning Area which could be met in a variety of ways including construction of a 100 percent affordable project(s) in the Planning Area.

The timing of development will be based on market conditions (driven by property owners and developers), and growth management policies (see below).

Key Public Improvements

Implementation of the INSP requires the construction of new infrastructure and upgrades to existing infrastructure. New infrastructure consists of:

- Approximately 34,000 lineal feet of public streets (including curbs, gutters, sidewalks, street trees and street lights);
- Utility connections in the public right-of-way (i.e., sanitary sewer, potable water, recycled water, storm drains, electric, gas, and cable);
- Approximately 5.1 linear miles of pedestrian and bicycle trails; and
- Three new neighborhood parks totaling about 6.5 acres.

PLAN IMPLEMENTATION

The INSP would be implemented through the following mechanisms that are described in Chapter 7: Implementation and Financing Strategies, of the Plan. Implementing actions include the following:

- General Plan Policy and Map Amendments;
- Development Code Amendment to reference the Plan;
- Rezoning and Zoning Map Amendments (including modifications to existing Planned Development Districts);
- Amendments to the Existing Development Agreements;
- Pre-zoning of unincorporated County land; and
- Airport Land Use Compatibility Plan (ALUCP) Policy Change.

Infrastructure Capacity

Every three years the City prepares a Community Infrastructure and Services Report to ensure that the capacity of infrastructure and services will keep up with demand generated by residential development and population growth. The City is currently updating the report for 2020. The City will evaluate the infrastructure needed to serve build out of the INSP. As development occurs the necessary infrastructure and public services will need to in place to adequately serve the area. This may be done through a combination of conditions of approval on private development or through public CIP projects.

2.3 Proposed Amendments to the INSP

The following key changes are proposed to the 2020 INSP:

- Change the transit system from BART to Valley Link. All previous references to BART have been changed to Valley Link.
- Parking Overlay Boundary Modification. The Land Use Diagram includes a floating “P” over the Valley Link Station property to indicate the proposed location of Valley Link’s parking area. The 2020 INSP removes the Parking Overlay designation in a small area north of the station (north of I-580 in the Core area) where parking structures as a result of BART parking overflow are an allowed use. Because the previously-planned BART station was an end-of-the-line station expected to draw an influx of drivers from San Joaquin Valley, an overflow station parking structure is no longer anticipated.
- Land Use Adjustments. Isabel Neighborhood Specific Plan Figure 2-1: Land Use Diagram is adjusted as follows:
 - Replacement of residential designation on the existing office buildings southwest of Portola Avenue/Shea Center Drive with Office Core, and replacement of Office Core designation on vacant land to the southeast of Gateway Avenue/Shea Center Drive property with residential uses;
 - To ensure the same land use balance/buildout as in the 2018 INSP, the Business Park designation has been removed from the site to the west of Collier Canyon Road immediately north of I-580 and replaced with Village Residential, and land uses now shown with open space adjacent to the freeway;
 - To ensure the same land use balance/buildout as in the 2018 INSP, the Core designation has been removed from the site at the southwest corner of Main Street and Gateway Avenue and replaced with the Center designation;
 - Small portion of land west of Isabel Avenue has changed from a Village Residential designation to a Center Residential designation; and
 - The western edge of the neighborhood park in the core has been adjusted so that it is no longer on the property at the southwest corner of Portola Avenue/Shea Center Drive, and the park shown slightly wider, so as to have the same acreage as before.

The 2020 INSP would result in approximately 100 more jobs than the 2018 INSP and the same number of housing units and non-residential building area in 2040.

- Phasing. Isabel Neighborhood Specific Plan Table 7-1 Phasing Program Summary and Figure 7-1: Phasing are proposed to be removed, pursuant to changes in State law since 2018.

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3 Introduction to Environmental Analysis

Overview

Sections 3.1 through 3.4 analyze the potential environmental impacts that may occur as a result of implementation of the proposed Project. The environmental issues subject to detailed analysis in the following sections include those that were identified by the City as potentially significant in response to the NOP. The City prepared an Initial Study to understand how changes in the 2020 Isabel Neighborhood Specific Plan may impact the environment. The Initial Study is included in Appendix B, and shows that no new or more severe than already evaluated impacts would occur as a result of project changes for Land Use, Population, and Housing; Aesthetics; Biological Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Utilities and Service Systems; Public Services and Recreation; Geology and Soils; Cultural and Tribal Resources; and Agricultural Resources. Four environmental topics would potentially be affected by the proposed Project, given the changed rail transportation system, and are addressed in the following sections:

- 3.1 Air Quality
- 3.2 Traffic and Transportation
- 3.3 Energy, Greenhouse Gases, and Climate Change
- 3.4 Noise and Vibration

Impacts Considered

According to the CEQA Guidelines, the following general types of environmental impacts must be considered in this supplemental program EIR:

- Direct or primary impacts, which are caused by the project and occur at the same time and place as the project.
- Indirect or secondary impacts, which are caused by the project and occur later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate, and related impacts on air and water and other natural systems, including ecosystems.
- Short-term impacts, which are those of a limited duration, such as the impacts that would occur during the construction phase of a project.

- Long-term impacts, which are those of greater duration, including those that would endure for the life of a project and beyond.
- Significant unavoidable impacts, which cannot be mitigated to a level that is less than significant.
- Irreversible environmental changes, which may include current or future irretrievable commitments to using non-renewable resources, or growth-inducing impacts that commit future generations to similar irretrievable commitments of resources. Also, irreversible change can result from risks of accidents and injury associated with the project. Such changes are addressed in Chapter 4: CEQA Required Conclusions.
- Cumulative impacts, which include two or more individual impacts that when considered together are considerable or which compound or increase other adverse environmental effects. The individual impacts may be changes resulting from a single project or a program of projects. The cumulative effect from several projects is the change in the environment that results from the incremental effect of the proposed Project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time. Cumulative impacts are addressed in Chapter 4: CEQA Required Conclusions.

Organization

Each section is formatted to include a summary of the existing physical and regulatory setting, the criteria for determination of significance for each impact, the methodology for evaluating each potential project impact, the impact analysis, and a conclusion of the impact significance.

ENVIRONMENTAL SETTING

Physical Setting

This subsection provides relevant information about the existing physical environment related to the particular environmental topic. In accordance with Section 15125 of the CEQA Guidelines, the discussion of the physical environment describes existing conditions within the Planning Area at the time the NOP was filed on November 20, 2019 for informational purposes, unless otherwise noted. The impact analysis, described below, establishes a baseline year of 2013 in order to remain consistent with the 2013 baseline used in the 2018 Draft EIR impact analysis.

Regulatory Setting

This subsection describes federal, State, regional, and local plans, policies, regulations, and laws that apply to the environmental topic under evaluation.

IMPACT ANALYSIS

Significance Criteria

This subsection provides the applicable significance criteria based on CEQA Guidelines Appendix G. These criteria are used to evaluate potential impacts of the proposed Project.

Methodology and Assumptions

This subsection describes the data sources reviewed to determine potential impacts resulting from implementation of the proposed Project.

Impacts

This subsection includes the analysis of potential environmental impacts of implementing the proposed Project described in Chapter 2: Project Description. All potential impacts in Chapter 3 are evaluated in relation to the thresholds of significance in Appendix G of the CEQA Guidelines and any applicable local, State, or federal standard. The methods used to conduct the impact analysis are also summarized. Following this is a more in-depth analysis of the potential environmental impacts, divided by impact significance criterion, presented in the following format:

Impact 3.X-X The impact statement briefly summarizes the findings of the impact discussion based on the identified threshold of significance. The level of significance is included at the end of the impact statement. Levels of significance listed in this EIR (as described below) are *(no impact, less than significant, less than significant with mitigation, or significant and unavoidable.)*

The impact discussion is contained in the paragraphs following the impact statement. The analysis compares implementation of the proposed Project to existing conditions. In addition, the effects of policies in the proposed Project that will reduce the impacts are discussed. Any existing or proposed policy that would reduce the impact is listed in the Impact Analysis. Any feasible mitigation measures that could reduce an impact to less than significant is provided. Where no mitigation measures have been identified that could reduce an impact to less than significant, no mitigation measures are listed.

Determining Level of Significance

For each potential environmental impact identified in this EIR, a statement of the level of significance of the impact is provided. Impacts are assessed as one of the following categories:

The term “no impact” is used when there is no change from existing conditions and the environmental resource being discussed would not be adversely affected by implementation of the proposed Project. This impact level does not require mitigation or policies to reduce the impact.

A “less than significant impact” would cause a minor change in the physical environment but the impact would not meet or exceed the significance threshold. Under CEQA, this impact level does not require mitigation, even if feasible.

A “less than significant with mitigation impact” would have a substantial adverse effect on the physical environment, but can be reduced to a less-than-significant level with mitigation. Under CEQA, mitigation measures must be provided, where feasible, to reduce the magnitude of significant or potentially significant impacts.

A “significant and unavoidable impact” would cause a substantial adverse effect on the environment, and no known feasible mitigation measures are available to reduce the impact to a less-than-significant level. Under CEQA, a project with significant and unavoidable impacts may be approved, but the lead agency (in this case, the City) must prepare a “statement of overriding considerations” in accordance with Section 15093 of the CEQA Guidelines, explaining how the benefits of the project outweigh the potential for significant impacts.

3.1 Air Quality

Environmental Setting

PHYSICAL SETTING

Climate and Meteorology

While the primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources, meteorological conditions and topography are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Unique geographic features throughout the state define fifteen air basins with distinctive regional climates. The air quality study area for the proposed Project is located in the Livermore Valley area of eastern Alameda County within the San Francisco Bay Area Air Basin (SFBAAB).

The Livermore Valley is a sheltered inland valley near the eastern border of SFBAAB. The western side of the valley is bordered by 1,000- to 1,500-foot hills with two gaps connecting the valley to the central SFBAAB, the Hayward Pass and Niles Canyon. The eastern side of the valley is also bordered by 1,000- to 1,500-foot hills with one major passage to the San Joaquin Valley called the Altamont Pass and several secondary passages. To the north lie the Black Hills and Mount Diablo. A northwest to southeast channel connects the Diablo Valley to the Livermore Valley. The south side of the Livermore Valley is bordered by mountains approximately 3,000 to 3,500 feet high.

During the summer months, when there is a strong inversion with a low ceiling, air movement is weak and pollutants become trapped and concentrated. Maximum summer temperatures in the Livermore Valley range from the high-80s to the low-90s, with extremes in the 100s. At other times in the summer, a strong Pacific high pressure cell from the west, coupled with hot inland temperatures causes a strong onshore pressure gradient which produces a strong, afternoon wind. With a weak temperature inversion, air moves over the hills with ease, dispersing pollutants.

In the winter, with the exception of an occasional storm moving through the area, air movement is often dictated by local conditions. At night and early morning, especially under clear, calm, and cold conditions, gravity drives cold air downward. The cold air drains off the hills and moves into the gaps and passes. On the eastern side of the Livermore Valley, the prevailing winds blow from north, northeast and east out of the Altamont Pass. Winds are light during the late night and early morning hours. Winter daytime winds sometimes flow from the south through the Altamont Pass to the San Joaquin Valley. Average winter maximum temperatures range from the high-50s to the

low-60s, while minimum temperatures are from the mid-to-high-30s, with extremes in the high teens and low-20s.

Air pollution potential is high in the Livermore Valley, especially for photochemical pollutants in the summer and fall. High temperatures increase the potential for ozone to build up. The valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa, and Santa Clara counties. On northeasterly wind flow days, most common in the early fall, ozone may be carried west from the San Joaquin Valley to the Livermore Valley.

During the winter, the sheltering effect of the Livermore Valley, its distance from moderating water bodies, and the presence of a strong high pressure system contribute to the development of strong, surface-based temperature inversions. Pollutants such as carbon monoxide and particulate matter, generated by motor vehicles, fireplaces, and agricultural burning, can become concentrated. Air pollution problems could intensify because of population growth and increased commuting to and through the subregion (Bay Area Air Quality Management District, 2017).

Pollutants of Concern

Criteria Air Pollutants

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and particulate matter (PM) are commonly used as indicators of ambient air quality conditions. These pollutants are known as “criteria pollutants” and are regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) through national and California ambient air quality standards (NAAQS and CAAQS), respectively. Ozone and NO₂ are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO₂, and lead are considered local pollutants that tend to accumulate in the air locally. PM₁₀ and PM_{2.5} are both regional and local pollutants.

The primary criteria pollutants of concern in the plan area are ozone (including its precursors, nitrogen oxides [NO_x] and reactive organic gases [ROG]¹), CO, and PM. Principal characteristics surrounding these pollutants are discussed below.

Ozone, or smog, is a photochemical oxidant that is formed when ROG and NO_x (both by-products of the internal combustion engine) react with sunlight. Ozone poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Additionally, ozone has been tied to crop damage, typically in the form of stunted growth and premature death. Ozone can also act as a corrosive, resulting in property damage such as the degradation of rubber products.

Reactive Organic Gases are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Negative effects

1 ROG is synonymous with volatile organic compounds (VOC), which is commonly used to describe compound limits for architectural coatings such as paint.

on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary pollutants such as ozone.

Nitrogen Oxides serve as integral participants in the process of photochemical smog production. The two major forms of NO_x are nitric oxide (NO) and NO₂. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen (O₂) when combustion takes place under high temperature and/or high pressure. NO₂ is a reddish-brown gas formed by the combination of NO and oxygen. NO_x acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Carbon Monoxide is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary negative health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Particulate Matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two categories of fine particulates are regularly measured – inhalable coarse particulate matter less than 10 microns in diameter, or PM₁₀, and inhalable fine particulate matter less than 2.5 microns diameter, or PM_{2.5}. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading. Both PM₁₀ and PM_{2.5} may negatively affect the human respiratory system, especially for those people who are naturally sensitive or susceptible to breathing problems. Diesel Particulate Matter (DPM) is the solid particulate matter in diesel exhaust emitted by the combustion of diesel fuel; more than 90 percent of DPM is less than one micron in diameter and so DPM is a subset of PM_{2.5}.

Toxic Air Contaminants

Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for toxic air contaminants (TACs). Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the ARB has consistently found no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. The California Office of Environmental Health Hazard Assessment (OEHHA) identifies TACs and studies their toxicity.

Air toxics are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as motor vehicles, diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Negative health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders.

The primary TACs of concern associated with the proposed Project are fine particulate matter (PM_{2.5}) and DPM. Exposure to these pollutants is strongly associated with mortality, respiratory diseases, and lung development in children, and other endpoints such as hospitalization for

cardiopulmonary disease (San Francisco Department of Public Health, 2008). ARB identified DPM as a TAC based on evidence demonstrating cancer effects in humans (ARB, 1998). The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the Planning Area, especially in the areas within a half-mile radius of the future Valley Link Station located in the Interstate 580 (I-580) median at Isabel Avenue.

Asbestos is also a TAC of concern, particularly in association with demolition of older buildings and structures. Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, including asbestosis and lung cancer, it is strictly regulated based on its natural widespread occurrence and its former use as a building material. Geological mapping in California does not indicate the presence of naturally occurring asbestos in the City of Livermore (California Department of Conservation, 2000).

Existing Air Quality Conditions

Local Criteria Pollutant Monitoring Data

A number of ambient air quality monitoring stations are located in SFBAAB to monitor progress toward air quality standards attainment of NAAQS and CAAQS. There are two monitoring stations in the City of Livermore: the Rincon Avenue and Patterson Pass monitoring stations. The Rincon Avenue monitoring station is located at 793 Rincon Avenue and is less than one mile from the southeastern boundary of the Planning Area. Recent air quality monitoring results from the Rincon Avenue station are summarized in Table 3.1-1. The data represent air quality monitoring for the last 3 years for which a complete dataset is available (2016 to 2018).

Table 3.3-1 in the 2018 EIR is replaced by Table 3.1-1 as follows.

Table 3.1-1. Ambient Air Quality Monitoring Data from Livermore 793 Rincon Avenue Monitoring Station^a

<i>Pollutant Standards</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
Ozone (O₃)			
Maximum 1-hour concentration (ppm)	0.102	0.109	0.099
Maximum 8-hour concentration (ppm)	0.085	0.086	0.078
Number of days standard exceeded ^b			
CAAQS 1-hour (>0.09 ppm)	2	5	2
CAAQS 8-hour (>0.070 ppm)	6	6	3
NAAQS 8-hour (>0.070 ppm)	4	6	3
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	1.2	1.7	1.9
Maximum 1-hour concentration (ppm)	0.9	1.3	1.6
Number of days standard exceeded ^b			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	-	-	-
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	-	-	-
Nitrogen Dioxide (NO₂)			
State maximum 1-hour concentration (ppb)	41	45	56
State second-highest 1-hour concentration (ppb)	37	45	55
Annual average concentration (ppb)	8	8	8
Number of days standard exceeded ^b			
CAAQS 1-hour (180 ppb)	0	0	0
Particulate Matter (PM₁₀)			
National ^c maximum 24-hour concentration (μg/m ³)	18.7	41.2	99.3
National ^c second-highest 24-hour concentration (μg/m ³)	18.6	29.9	31.9
State ^d maximum 24-hour concentration (μg/m ³)	19.0	41.0	105.0
State ^d second-highest 24-hour concentration (μg/m ³)	19.0	32.0	32.0
National annual average concentration (μg/m ³)	6.2	6.5	8.6
State annual average concentration (μg/m ³) ^e	11.5	*	16.2
Measured number of days standard exceeded ^{b,f}			
NAAQS 24-hour (>150 μg/m ³)	0	*	0
CAAQS 24-hour (>50 μg/m ³)	0	*	11.5
Particulate Matter (PM_{2.5})			
National ^g maximum 24-hour concentration (μg/m ³)	22.3	41.5	172.6
National ^g second-highest 24-hour concentration (μg/m ³)	19.6	37.6	136.2
State ^h maximum 24-hour concentration (μg/m ³)	22.3	41.5	172.6

Table 3.1-1. Ambient Air Quality Monitoring Data from Livermore 793 Rincon Avenue Monitoring Station^a

Pollutant Standards	2016	2017	2018
State ^h second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	19.6	37.6	136.2
National annual average concentration ($\mu\text{g}/\text{m}^3$)	7.4	8.4	11.2
State annual average concentration ($\mu\text{g}/\text{m}^3$)	7.4	8.3	11.2
Measured number of days standard exceeded ^b			
NAAQS 24-hour ($>35 \mu\text{g}/\text{m}^3$)	0	2	14.6

Notes:

Ppm = parts per million

NAAQS = National Ambient Air Quality Standards

CAAQS = California Ambient Air Quality Standards

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

mg/m^3 = milligrams per cubic meter

- = data not available

* = insufficient data available to determine the value

a Data for Carbon Monoxide (CO) and Particulate Matter (PM10) were unavailable from the Rincon Avenue Monitoring Station. Consequently, CO and PM10 monitored data presented are taken from the Concord Monitoring Station at 2956-A Treat Boulevard, which is the next nearest monitoring station located (approximately 20 miles north of the Planning Area in Contra Costa County) that monitors these two pollutants.

b An exceedance is not necessarily related to a violation of the standard.

c National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

d State statistics are based on approved local samplers and local conditions data.

e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

f Measurements usually are collected every 6 days.

g National statistics are based on samplers using federal reference or equivalent methods.

h State statistics are based on local approved samplers.

Source: California Air Resources Board, 2019; BAAQMD, 2020.

As indicated in Table 3.1-1, the Rincon Avenue monitoring station has experienced occasional violations of State and federal air quality standards during this time period. In particular, the 1-hour and 8-hour CAAQS for ozone were exceeded a total of 9 and 15 days, respectively, from 2016 to 2018, while the 8-hour NAAQS for ozone was exceeded a total of 13 days during this period. Also during this period, the 1-hour CAAQS for NO₂ was not exceeded and the 8-hour and 1-hour NAAQS were not exceeded for CO. Data was not available for the 8-hour and 1-hour CAAQS for CO during this period. The 24-hour NAAQS and 24-hour CAAQS for PM10 were not exceeded in 2016, and the 24-hour NAAQS for PM10 was not exceeded in 2018. The 24-hour CAAQS for PM10 was exceeded a total of 12 days in 2018. From 2017 to 2018, the 24-hour NAAQS for PM2.5 was exceeded a total of 17 days.

TAC Inventory

The Bay Area Air Quality Management District (BAAQMD) maintains an inventory of health risks associated with all permitted stationary sources within the SFBAAB. The inventory was last updated in 2020 with data from the 2018 California Emissions Inventory Development and Reporting System (CEIDARS) report and is publicly available in an online GIS map tool (Bay Area Air Quality Management District, 2020). Table 3.1-2 and Figure 3.1-1 summarize the stationary sources located in and within 1,000 feet of Planning Area boundary. Risk values presented in the table are measured from the source fenceline and would dissipate as a function of distance from the source. Some of the sources may be removed or relocated as a result of development supported by the proposed Project.

Aside from stationary sources, emissions of TACs in and around the Planning Area are also generated from mobile sources. BAAQMD considers roadways with greater than 10,000 average daily traffic (ADT) as “high volume roadways” and recommends they be included in the analysis of health risks. Currently, roadways that traverse the Planning Area that have ADT greater than 10,000 vehicles include I-580, Isabel Avenue, Airway Boulevard, Portola Avenue, and North Canyons Parkway. Of these roadways, the segment of I-580 that runs through the Planning Area represents the greatest mobile source of TACs (primarily DPM from diesel-powered vehicles) due to the high volume of vehicles that travel on the freeway on a daily basis. Within the Planning Area, the segments of I-580 located west and east of Junction Route 84 have annual average daily traffic volumes of 208,000 and 217,000, respectively (California Department of Transportation, 2017). According to BAAQMD’s screening tools, lifetime cancer risk 10 feet north of the segment of I-580 that traverses the Planning Area may exceed 389 cases per million as of 2011 (Bay Area Air Quality Management District, 2011; Lau pers. comm.).

Table 3.3-2 in the 2018 EIR is replaced by Table 3.1-2 as follows.

Figure 3.1-1: Stationary and Roadway Sources

Ambient Risks

- Stationary
- Roadway

Basemap

- Bus Stop
- Interstate/Highway
- Ramps
- Waterways
- Building Footprints
- Study Area Parcels
- Planning Area
- 1,000 ft Planning Area Buffer
- Half Mile Valley Link Station Radius
- Livermore City Limits
- Urban Growth Boundary

Source: BAAQMD, 2018; City of Livermore GIS, 2015; Alameda County GIS, 2015; Dyett & Bhatia, 2020.

 Urban Growth Boundary

Source: BAAQMD, 2018; City of Livermore GIS, 2015; Alameda County GIS, 2015; Dyett & Bhatia, 2020.

Table 3.1-2. Health Risk Inventory for Stationary Sources in and within 1,000 Feet of the Planning Area

Facility ID	Name	Address	Cancer (per million)	Hazard	PM2.5 (ug/m3)	Type
14802	Federal Aviation Administration	Livermore Airport	0.001	0	0	
15613	Operating Engineers Local Union #3 Federal Credit	250 N Canyons Parkway	13.591	0.004	0.017	Generator
17059	Livermore Municipal Water- Airway Pump Station	930 Airway Boulevard	3.713	0.001	0.005	Generator
18975	Lam Research Corporation	1 Portola Avenue	8.256	0.022	0.01	
19234	Comcast Cable	3077 Triad Drive	1.055	0	0.001	Generator
19550	Chabot Las Positas CC District	Las Positas College	2.115	0.001	0.003	Generator
19731	Comcast Cable	3011 Comcast Place	0.121	0.001	0	Generator
19899	Pearl Investment Co LLC	2333 Nissen Drive	40.199	0.011	0.051	Generator
20107	City of Livermore Police Department	3801 Doolan Road	0.99	0	0.001	Generator
21740	RH USA Inc	455 N Canyons Parkway, Suite B	ND	0	ND	
23525	Zone 7 Water Agency	100 N Canyons Parkway	0.235	0	0	Generator
100088	Costco Wholesale #146	2800 Independence Drive	13.899	0.061	ND	Gas Dispensing Facility
107856	Five Rivers Aviation	636 Terminal Circle	0.31	0.001	ND	Gas Dispensing Facility
108532	Bernard's Chevron	1051 Airway Boulevard	2.999	0.013	ND	Gas Dispensing Facility
108662	Las Positas Community College District	3033 Collier Canyon Road	0.008	0	ND	Gas Dispensing Facility
109998	Portola Food and Liquor	1037 E Airway Boulevard	0.45	0.002	ND	Gas Dispensing Facility
111696	Livermore Auto Group	2266 Kitty Hawk Road	0.056	0	ND	Gas Dispensing Facility

Note:

ND = No Data

Source: California Emissions Inventory Development and Reporting System, 2018; BAAQMD, 2020.

Attainment Status

Local monitoring data collected by the ambient air quality monitoring stations, such as the aforementioned Rincon Avenue station (Table 3.1-1), are used to designate areas as nonattainment, maintenance, attainment, or unclassified for NAAQS and CAAQS. The four designations are further defined as:

- **Nonattainment.** Assigned to areas where monitored pollutant concentrations violate the standard in question.
- **Maintenance.** Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- **Attainment.** Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- **Unclassified.** Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.1-3 summarizes the attainment status for Alameda County with regard to NAAQS and CAAQS.

Table 3.1-3. Federal and State Attainment Status for Alameda County

<i>Criteria Pollutant</i>	<i>Federal Designation</i>	<i>State Designation</i>
O ₃ (8-hour)	Marginal Nonattainment	Nonattainment
CO	Maintenance (P)	Attainment
PM ₁₀	Attainment	Nonattainment
PM _{2.5}	Attainment	Nonattainment
NO ₂	Attainment	Attainment
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No Federal Standard)	Attainment
Hydrogen Sulfide	(No Federal Standard)	Unclassified
Visibility Reducing Particles	(No Federal Standard)	Unclassified

Table 3.1-3. Federal and State Attainment Status for Alameda County

<i>Criteria Pollutant</i>	<i>Federal Designation</i>	<i>State Designation</i>
Notes:		
O ₃ =	ozone	
CO =	carbon monoxide	
PM ₁₀ =	particulate matter less than or equal to 10 microns	
PM _{2.5} =	particulate matter less than or equal to 2.5 microns	
NO ₂ =	nitrogen dioxide	
SO ₂ =	sulfur dioxide	
(P) =	designation applies to a portion of the county (the Livermore-portion of the County is considered a Maintenance area)	

Source: California Air Resources Board, 2020; U.S. Environmental Protection Agency, 2020.

Sensitive Receptors

The NAAQS and CAAQS apply at publicly accessible areas, regardless of whether those areas are populated. For the purposes of air quality analysis, sensitive land uses are defined as locations where human populations, especially children, seniors, and sick persons, are located, and where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards (e.g., 24-hour, 8-hour, and 1-hour). Typical sensitive receptors include residences, hospitals, and schools. Currently, the Planning Area is developed primarily with industrial and commercial uses, with the main existing sensitive uses consisting of the multi-family residential uses located in the northern portion of the Planning Area, north of Portola Avenue and west of Campus Hill Drive. The proposed Project would add additional sensitive receptors into the Planning Area, including 4,095 housing units. Of these housing units, approximately 86 percent would be located within a half-mile radius of the future Valley Link Station located in the I-580 median at Isabel Avenue.

State law restricts the siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles/day, unless dispersion modeling is performed that shows students will not be exposed to significant short- or long-term health risks. ARB has published advisory recommendations on siting new sensitive land uses, with the same guidelines as the State school limitation (California Air Resources Board, 2005).

REGULATORY SETTING

Air quality regulation in the United States is governed by the federal Clean Air Act (CAA). In addition to being subject to requirements of the CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). At the federal level, the CAA is administered by the EPA. In California, the CCAA is administered by the ARB and by air districts at regional and local levels. The CAA and CCAA set overall air quality standards that are achieved by various rules and regulations at the regional and local level. This section describes relevant federal, State, and local regulations applicable to the proposed Project.

Federal Regulations

Clean Air Act

The CAA, first enacted in 1963, has been amended numerous times (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that the State submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The SIPs must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA most applicable to the proposed Project are Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions).

Table 3.1-4 shows the NAAQS currently in effect for each criteria pollutant. The CAAQS (discussed below) are included for reference.

Table 3.1-4. Federal and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards ^a	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None ^b	None ^b
	8-hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate matter (PM10)	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual mean	20 µg/m ³	None	None
Fine particulate matter (PM2.5)	24-hour	None	35 µg/m ³	35 µg/m ³
	Annual mean	12 µg/m ³	12.0 µg/m ³	15 µg/m ³
Carbon monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur dioxide ^c	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.014 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 µg/m ³	None	None
	Calendar quarter	None	1.5 µg/m ³	1.5 µg/m ³
	3-month average	None	0.15 µg/m ³	0.15 µg/m ³
Sulfates	24-hour	25 µg/m ³	None	None
Visibility reducing particles	8-hour	— ^d	None	None
Hydrogen sulfide	1-hour	0.03 ppm	None	None
Vinyl chloride	24-hour	0.01 ppm	None	None

Notes:

Ppm = parts per million.

µg/m³ = micrograms per cubic meter.

a National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

b The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.

c The annual and 24-hour NAAQS for SO₂ only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual NAAQS.

d CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

Source: California Air Resources Board 2016b.

State Regulations

California Clean Air Act

In 1988, the State legislature adopted the CCAA, which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS standards are listed together in Table 3.1-4.

ARB and the local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. ARB has traditionally established State air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures (TCMs).

State Tailpipe Emission Standards

ARB established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft. New construction equipment used for future development under the proposed Project, including heavy duty trucks and off-road construction equipment, would be required to comply with the standards.

Toxic Air Contaminant Regulations

California regulates TACs (equivalent to hazardous air pollutants at the federal level) primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 ("Hot Spots" Act). In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce exposure to air toxics. The "Hot Spots" Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, ARB identified DPM from diesel-fueled engines as TACs. In September 2000, ARB approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM (respirable

particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identifies 14 measures that ARB will implement over the next several years. Future development under the proposed Project would be required to comply with applicable diesel control measures.

Local Regulations

Air quality districts have local responsibility in overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and State air quality laws and for ensuring that NAAQS and CAAQS are met.

The air quality study area falls under the jurisdiction of the BAAQMD. Under the CCAA, BAAQMD is required to develop an air quality plan for nonattainment criteria pollutants in the air district. The 2001 San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard was prepared to address ROG and NO_x emissions following the region's nonattainment designation for the 1-hour ozone NAAQS. The Bay Area 2017 Clean Air Plan, adopted by BAAQMD on April 19, 2017, provides an integrated control strategy to reduce ozone, PM, TACs, and greenhouse gas (GHG) emissions in a manner that is consistent with federal and State air quality programs and regulations. BAAQMD also adopted a redesignation plan for CO in 1994. The redesignation plan includes strategies to ensure the continuing attainment of NAAQS for CO in SFBAAB.

The BAAQMD's CEQA Guidelines document provides guidance to assist lead agencies in determining the level of significance of project-related emissions, and contain thresholds of significance for ozone, CO, PM₁₀, PM_{2.5}, TACs, and odors (BAAQMD, 2017). According to BAAQMD's CEQA Guidelines, project emissions that exceed the recommended threshold levels are considered potentially significant and should be mitigated where feasible. BAAQMD guidance also indicates that the potential air quality effects of long range plans, including general and specific plans, should be evaluated based on the plan's consistency with the District's most current air quality plan, which is the recently adopted 2017 Bay Area Clean Air Plan. The analysis should consider whether the long range plan supports the primary goals of the applicable air quality plan, including applicable control measures from the air quality plan, or hinders attainment of any of the air quality plan's control measures (BAAQMD, 2017). Although BAAQMD's CEQA Guidelines are intended to help lead agencies navigate through the CEQA process, the BAAQMD indicates that the guidelines for implementation of its significance thresholds are advisory only and should be followed by local governments at their own discretion. Nonetheless, BAAQMD's proposed thresholds are supported by substantial evidence and are well-grounded in air quality regulations, scientific evidence, and scientific reasoning concerning air quality and GHG emissions. BAAQMD's 2010 Justification Report, found in Appendix D of BAAQMD's May 2017 CEQA Guidelines, explains the agency's reasoning and provides substantial evidence for developing and adopting their thresholds.

Future development under the proposed Project may be subject to one or more of the following district rules, depending on the specific components of the individual project. These rules have been adopted by BAAQMD to reduce emissions throughout the area.

- Regulation 2, Rule 2 (New Source Review). This regulation contains requirements for Best Available Control Technology and emission offsets.
- Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants). This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- Regulation 6, Rule 1 (Particulate Matter). This regulation restricts emissions of PM darker than No. 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour.
- Regulation 6, Rule 3 (Wood Burning Devices). This regulation restricts wood burning devices in all new development constructed after November 1, 2016.
- Regulation 7 (Odorous Substances). This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds.
- Regulation 8 (Organic Compounds). This regulation limits the quantity of organic compounds (e.g., ROG) from various applications and process, including in architectural coatings and commercial cooking equipment and at gasoline dispensing facilities. The regulation outlines 53 rules based on the source type.
- Regulation 9 (Inorganic Gaseous Pollutants). This regulation limits emissions of inorganic gaseous pollutants (e.g., NO_x) generated by various sources, including natural gas-fired boilers and stationary internal combustion engines. The regulation outlines 14 rules based on the source type.
- Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing). This rule controls emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establishes appropriate waste disposal procedures.

City of Livermore General Plan

The Open Space and Conservation Element of the City of Livermore General Plan addresses air quality as a natural resource and identifies policies to protect and improve this resource (City of Livermore, 2004). It includes a goal and accompanying objective and policies to protect and improve Livermore's air quality by minimizing air pollutant emissions through controlling construction-period air pollution, prohibiting the location of sensitive receptors in the vicinity of toxic emissions generators and vice versa, reducing commuting rates, and promoting mass transit.

Impact Analysis

SIGNIFICANCE CRITERIA

Implementation of the proposed Project would have a potentially significant adverse impact if it would:

- Criterion 1: Conflict with or obstruct implementation of the applicable air quality plan.
- Criterion 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Criterion 3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Criterion 4: Expose sensitive receptors to substantial pollutant concentrations.
- Criterion 5: Create objectionable odors affecting a substantial number of people.

Supplemental Criteria Pollutant Guidance

As discussed above, BAAQMD has provided guidance to assist lead agencies in determining the significance of criteria pollutant emissions. This analysis evaluates the impacts of the proposed Project using a two-tiered approach that considers both project- and plan-level guidance recommended by BAAQMD in their CEQA Guidelines (2017).

First, this analysis considers whether the proposed Project would conflict with the most recent air quality plan (2017 Clean Air Plan), consistent with BAAQMD Guidance (2017). The analysis evaluates whether the proposed Project supports the primary goals of the 2017 Clean Air Plan, including applicable control measures from the 2017 Clean Air Plan, and whether it would disrupt or hinder implementation of any 2017 Clean Air Plan control measure.

Second, calculated criteria pollutant emissions are compared to BAAQMD's project-level thresholds. The ROG, NO_x, and PM thresholds are based on emissions levels identified under the New Source Review (NSR) program. The NSR program is a permitting program that was established by Congress as part of the CAA Amendments to ensure that air quality is not significantly degraded by new sources of emissions. The NSR program requires stationary sources receive permits before starting construction or use of the equipment. By permitting large stationary sources, the NSR program assures that new emissions would not slow regional progress toward attaining NAAQS. BAAQMD has concluded that the stationary pollutants described under the NSR program are equally significant to those pollutants generated with land use projects. BAAQMD's thresholds identified in Table 3.1-5 were set as the total emission thresholds associated within the NSR program to help attain NAAQS (Bay Area Air Quality Management District, 2017).

Table 3.1-5. Project-Level Emission Thresholds

Analysis	BAAQMD
Regional Criteria Pollutants (Construction)	ROG: 54 lbs/day NO _x : 54 lbs/day PM10: 82 lbs/day (exhaust only) PM2.5: 54 lbs/day (exhaust only)
Regional Criteria Pollutants (Operations)	ROG: Same as construction NO _x : Same as construction PM10: 82 lbs/day PM2.5: 54 lbs/day

Notes:

ROG = reactive organic gases

Lbs = pounds

NO_x = nitrogen oxide

PM10 = particulate matter that is 10 microns in diameter and smaller

PM2.5 = particulate matter that is 2.5 microns in diameter and smaller

Source: Bay Area Air Quality Management District, 2017

According to the BAAQMD, projects with emissions in excess of the thresholds shown in Table 3.1-5 would be expected to have a significant impact on air quality because an exceedance of the thresholds is anticipated to contribute to CAAQS and NAAQS violations.

It should be noted that the BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project, and thus do not lend well to an evaluation of emissions from a land use plan being evaluated at a programmatic level. Large-scale land use plans that consist of numerous individual projects will, by their nature, produce more criteria pollutants than single projects, even if the plans include efficiency measures to reduce future emissions. Use of the project-level thresholds to evaluate land use plans may therefore unfairly penalize the plans, yielding a significant and unavoidable conclusion simply due to scale. However, because a comparison to the project-level thresholds is informative to the analysis of the proposed Project's impacts to air quality, this analysis accounts for both sets of thresholds.

Supplemental Health Risk Guidance

As discussed in the Environmental Setting section above, all criteria pollutants are associated with some form of health risk (e.g., asthma, asphyxiation). Negative health effects associated with criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, ozone precursors (ROG and NO_x) affect air quality on a regional scale. Health effects related to ozone, therefore, are the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and as such, translating project-generated criteria pollutants to specific health effects would produce meaningless results. In other words, minor increases in regional air pollution from project-generated ROG and NO_x would have nominal or negligible impacts on human health.

Because localized pollutants generated by a project that could result from implementation of the proposed Project can directly affect adjacent sensitive receptors, the analysis of impacts to human health focuses only on those localized pollutants with the greatest potential to result in a significant, material impact on human health. This analysis is consistent with the current state-of-practice and published guidance by BAAQMD (2017), California Air Pollution Control Officers Association (CAPCOA) (2009), OEHHA (2015), and ARB (2000). The pollutants of concern include (1) TACs and (2) localized CO. BAAQMD guidance and thresholds for each pollutant are identified below. A discussion of potential health effects from regional criteria pollutants is included under Impact 3.1-4 for informational purposes.

Toxic Air Contaminants

Potential health risks from development supported by the proposed Project are assessed based on BAAQMD's plan-level guidance. BAAQMD (2017) requires that overlay zones be established around all existing and planned sources of TACs, including stationary sources, high-traffic roadways, and railways. The overlay zones must identify goals, policies, and objectives to minimize potential TAC impacts to existing and future receptors.

BAAQMD has established project-level thresholds for cancer and non-cancer health hazards from TAC.² The health risk thresholds defined by BAAQMD are the probability of contracting cancer for the maximally exposed individual (MEI) exceeding 10.0 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in a hazard index (HI) greater than 1.0 for the MEI. BAAQMD has also adopted an incremental concentration-based significance threshold to evaluate receptor exposure to PM_{2.5} exhaust, where a "substantial" contribution is defined as PM_{2.5} exhaust (diesel and gasoline) concentrations exceeding 0.3 µg/m³.

With respect to asbestos, which is a TAC, there are no quantitative thresholds related to receptor exposure. However, BAAQMD requires the demolition or renovation of asbestos containing building materials to comply with the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations.

Localized Carbon Monoxide

BAAQMD considers localized CO emissions to result in significant impacts if concentrations exceed CAAQS (Table 3.1-4). The air district has adopted screening criteria that provide a conservative indication of whether project-generated traffic will cause a potential CO hot spot. BAAQMD (2017) indicates that if the screening criteria are not met, a quantitative analysis through site-specific dispersion modeling of project-related CO concentrations would not be necessary and the project would not cause localized exceedances of CO CAAQS.

² DPM is the primary TAC of concern for mobile sources; of all controlled TACs, emissions of DPM are estimated to be responsible for approximately 70 percent of the total ambient TAC risk (California Air Resources Board 2000). Given the risks associated with DPM, tools and factors for evaluating human health impacts from project-generated DPM have been developed and are readily available. Conversely, tools and techniques for assessing project-specific health outcomes as a result of exposure to other TACs (e.g., benzene) remain limited. These limitations impede the ability to evaluate and precisely quantify potential public health risks posed by TAC exposure.

Screening criteria adopted by BAAQMD include quantitative criteria based on the number of additional vehicles added to affected intersections. These quantitative metrics were established based on local modeling and provide a conservative estimate for the maximum number of vehicles that can be added to an intersection without an exceedance of the CO CAAQS. BAAQMD CO screening criteria are summarized below.

The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

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

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

Supplemental Odor Guidance

BAAQMD (2017) and ARB (2005) have identified several types of land uses as being commonly associated with odors, such as landfills, wastewater treatment facilities, and animal processing centers. BAAQMD's CEQA Guidelines recommend that plan-level analyses identify the location of existing and planned odor sources and include policies to reduce potential odors impacts in the plan area.

METHODOLOGY AND ASSUMPTIONS

This analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed Project. Air pollutant emissions associated with the proposed Project would result from operation of future land uses that would be developed in the Planning Area and from traffic volumes generated by these new developments. These emissions would not occur at once but over the course of the proposed Project's buildout period. Construction activities would also generate air pollutant emissions within the Planning Area and on roadways resulting from construction-related traffic. For this analysis, impacts of the proposed Project's criteria pollutant emissions on air quality from construction were assessed qualitatively, while emissions from the proposed Project's operations were assessed quantitatively using standard and accepted software tools, techniques, and emission factors. The primary assumptions and key methods used to quantify emissions and estimate potential impacts are described below. Model inputs and calculation files are provided in Appendix C: Air Quality and Greenhouse Gas Data.

This analysis provides a program-level overview of construction and operational emissions that could occur with buildout of the proposed Project. Subsequent project-level environmental review, including quantification of construction criteria pollutant emissions, would be required during the processing of individual applications for future projects associated with the proposed Project.

Construction Emissions

Land uses that could be developed under the proposed Project would generate construction-related emissions from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, dust from land clearing, and application of architectural coatings. However, the specific size, location, and construction techniques and scheduling that would be utilized for each individual development project occurring within the Planning Area from implementation of the proposed Project is not currently known. With an anticipated buildout year of 2040, development of the various land uses associated with the proposed Project would occur over an extended period of time and would depend on factors such as local economic conditions, market demand, and other financing considerations. As such, without specific project-level details it is not possible to develop a refined construction inventory.³ Consequently, the determination of construction air quality impacts for each individual development project, or a combination of these projects, would require the City to speculate regarding such potential future project-level environmental impacts. Thus, in the absence of the necessary construction information required to provide an informative and meaningful analysis, the evaluation of potential construction-related impacts resulting from implementation of the proposed Project is conducted qualitatively in this EIR. The analysis discusses the potential for future individual developments in the Planning Area to generate construction emissions that exceed BAAQMD's project-level thresholds and, where necessary, mitigation measures that are available to reduce those emissions.

Operational Emissions

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were quantified for the proposed Project using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Mass mobile-source emissions were modeled based on the daily vehicle trips and vehicle miles traveled (VMT) data provided by Kittelson & Associates, the proposed Project's traffic engineers, for the existing (2013) and proposed Project buildout year (2040) conditions. VMT data for the proposed Project account for trip reductions achieved by proposed policies that increase proximity to transit and mixed-use design.

Area and energy (natural gas) emissions were modeled according to the amount (i.e., square footage or number of dwelling units) and type of land uses proposed. Area sources account for direct sources of air emissions, and includes those generated from hearth (e.g., natural gas fireplaces) usage, consumer product use, landscape maintenance equipment, and architectural coatings used for the repainting of buildings. Energy sources account for emissions associated with the combustion of natural gas for building heating and hot water. Emissions were quantified for existing (2013) and proposed Project buildout (2040) conditions based on current and anticipated land uses. CalEEMod defaults were assumed, with the exception of wood burning stoves and fireplaces, which were assumed to be prohibited for all new development under the proposed Project per BAAQMD Regulation 6, Rule 3. Land use assumptions and CalEEMod output files can be found in Appendix C.

³ Project-level information includes details such as the size and scale of the project to be constructed, construction schedule, equipment fleet, construction worker crew estimates, and demolition and grading quantities.

To evaluate the proposed Project's potential operational air quality impacts, the increase in criteria pollutant emissions resulting from its implementation in the Planning Area over existing conditions is assessed against BAAQMD's project-level thresholds.

Carbon Monoxide Hot-Spots

Increased traffic in the Planning Area may contribute to localized increases in CO, known as CO "hot-spots." As discussed above, BAAQMD has adopted screening criteria that provide a conservative indication of whether traffic volumes will cause a potential CO hot-spot. Traffic data provided by the project engineers indicates that no intersections in the Planning Area would exceed BAAQMD's screening level of 24,000 vehicles per hour. Consistency with Alameda County Transportation Commission's Congestion Management Plan is assessed under Impact 3.1-5.

IMPACTS

Impact 3.1-1 Implementation of the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. *(Less than significant)*

The CAA requires that a SIP or an air quality control plan be prepared for areas with air quality violating the NAAQS. The SIP sets forth the strategies and pollution control measures that states will use to attain the NAAQS. The CCAA requires attainment plans to demonstrate a five percent per year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air quality attainment plans (AQAPs) outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date. The current AQAP for the SFBAAB is BAAQMD's 2017 Clean Air Plan, which provides an integrated strategy to control ozone, PM, TACs, and GHG emissions. This and other previous AQAPs estimate future emissions in the SFBAAB and determine strategies necessary for emissions reductions through regulatory controls. Emissions projections are based on population, vehicle, and land use trends typically developed by BAAQMD, the Metropolitan Transportation Commission, and ABAG. As the proposed Project would establish a new regulatory framework that would replace the existing land use designations of the City's existing General Plan as well as the zoning regulations of the Livermore Development Code to guide private and public development within the Planning Area over the next 20 to 25 years, the population and employment growth that would occur in the Planning Area could potentially be inconsistent with the growth estimates used in formulating the emissions limits and control measures of the 2017 Clean Air Plan.

According to BAAQMD's (2017) CEQA Guidelines, the determination of AQAP consistency should consider the following for plan-level analyses:

1. Does the plan support the primary goals of the air quality plan?
2. Does the plan include applicable control measures from the air quality plan?
3. Does the plan disrupt or hinder implementation of any air quality plan control measures?

Support of 2017 Clean Air Plan Goals

The primary goals of the 2017 Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health in the Bay Area, and reduce GHG emissions and protect the climate. In line with the Clean Air Plan, one of the primary objectives of the proposed Project is to position the Valley Link Station project to qualify and compete for regional transportation funds through supporting transit ridership. In support of this objective, implementation of the proposed Project is intended to support regional goals of integrating transit and land use policies to create opportunities for transit-oriented development around the proposed Valley Link station and other transit nodes throughout Livermore; alleviate traffic congestion on I-580; improve air quality; and reduce GHGs and other emissions associated with automobile use. Through implementation of specific policies in line with these objectives and goals, the proposed Project would reduce emissions and support regional attainment of the CAAQS and NAAQS.

The Valley Link project is aimed at providing a transit alternative for the 98,500 Bay Area workers commuting from San Joaquin Valley every day as of 2019 (Tri-Valley San Joaquin Valley Regional Rail Authority, 2019). The Valley Link Project Feasibility Report estimates that by 2040, commute traffic on I-580 will increase by 75 percent and truck traffic will increase by 58 percent. The Feasibility Report estimates that Valley Link could accommodate 28,000 riders by 2040, reducing VMT by 99.4 million. The Isabel Avenue Station is planned as the penultimate Valley Link stop before connection with BART at the Dublin/Pleasanton Station. Implementation of the proposed Project would position the Valley Link project to connect commuters as far east as North Lathrop and Stockton to Livermore, a major city and job center in the Bay Area, as well as other Bay Area cities served by BART. Implementation of the proposed Project would therefore reduce emissions associated with regional traffic and support regional attainment of the CAAQS and NAAQS.

The proposed Project also identifies environmental sustainability as a key design guideline that would be applied to all projects in the Planning Area. It stipulates that the defining characteristics of development in the Planning Area should include environmentally-sensitive design that incorporates green building techniques and protects natural resources. Some of the various environmentally-sensitive design guidelines and standards include maximizing natural cooling and passive solar heating through building placement and orientation, orienting building windows and balconies to maximize solar access, using vegetation to shade buildings to limit direct solar gain and glare, using plantings on building exteriors to insulate and cool interiors, installing solar panels and/or solar hot water systems to reduce energy demands, selecting sustainable building and paving materials, and using building materials and products that minimize exposure to VOCs and other known toxins to support healthy indoor air quality.

With implementation of the proposed Project, per capita emissions in the Planning Area in 2040 would be lower than forecasted for the Planning Area under the 2017 Clean Air Plan without the proposed Project, as the 2017 Clean Air Plan would not have assumed the sustainability policies and transit-oriented development patterns that would be implemented under the proposed Project. Reductions in per capita emissions would further help the region attain the ambient air quality standards.

Based on the above analysis, the proposed Project would support the primary goals of the 2017 Clean Air Plan. All relevant proposed Project policies that would support the 2017 Clean Air Plan goals are provided further below.

Applicable Control Measures

The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollution in the SFBAAB from a wide variety of emission sources. The control measures are classified for the following nine general sectors: (1) Stationary Sources; (2) Transportation; (3) Energy; (4) buildings; (5) Agriculture; (6) Natural and Working Lands; (7) Waste Management; (8) Water; and (9) Super-GHG Pollutants. Table 3.1-6 presents the control measures of the 2017 Clean Air Plan that are applicable to the proposed Project and how the proposed Project complies with each of the measures.

As shown in Table 3.1-6, the proposed Project includes policies and design standards that incorporate the primary purpose of each control measure from the 2017 Clean Air Plan.

As discussed above, the proposed Project includes numerous policies that promote mixed-use and transit-oriented development along with sustainable, environmentally-sensitive design. The proposed Project would not cause the disruption, delay, or otherwise hinder implementation of any applicable control measure from the 2017 Clean Air Plan. Rather, as shown in Table 3.1-6, the proposed Project has incorporated many of the control measures identified in the 2017 Clean Air Plan related to the transportation, building, energy, waste, and water sectors into its policies for implementation. Accordingly, development under the proposed Project would not fundamentally conflict with the 2017 Clean Air Plan and would result in a less-than-significant air quality impact.

Table 3.1-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Project

Clean Air Plan Control Measures		Incorporation into Proposed Project Policies
Stationary Source		
SS20	Air Toxics Risk Cap and Reduction from Existing Facilities	Policies P-ENV-11 and P-ENV-12 outline requirements for projects within certain distances of existing stationary and roadway sources to install indoor air quality equipment, such as enhanced air filters or equivalent mechanisms, to minimize health risks to future residents.
SS25	Coatings, Solvents, Lubricants, Sealants and Adhesives	Design guideline DG-20 requires the selection of sustainable building materials, including non-toxic low-VOC (volatile organic compound) glues and paints. Policy P-ENV-16 requires the use of low VOC interior/exterior paints to reduce pollutant emissions.
SS26	Surface Prep and Cleaning Solvent	See above for SS25.
SS30	Residential Fan Type Furnaces	The Urban Design Chapter includes guidelines for sustainable and environmentally-sensitive building design. Design guideline DG-15 would maximize natural cooling and passive solar heating through building placement and orientation, which would reduce use of indoor cooling/heating equipment and their associated emissions.
SS31	General Particulate Matter Emission Limitation	Policy P-ENV-14 ensures construction activities would implement applicable BAAQMD BMPs to minimize air quality impacts. The support and promotion of transit-oriented development near the future Valley Link station and the numerous policies in the circulation element designed to reduce VMT would reduce re-entrained road dust.
SS36	PM from Trackout	Policy P-ENV-14 ensures construction activities would implement applicable BAAQMD BMPs, including the removal of all visible mud or dirt track-out into adjacent public roads, to minimize air quality impacts.
Transportation		
TR1	Clean Air Teleworking Initiative	Policy P-TRA-24 requires businesses within a half-mile of the Valley Link station to implement at least two TDM programs, which could include flexible work schedules, shortened work weeks, or options to telecommute.
TR2	Trip Reduction Programs	Support for transit-oriented development around the proposed Valley Link station and other transit nodes throughout Livermore, along with numerous policies that promote mixed-use development and the provision of a street network consisting of trails, bike lanes, pedestrian crossings, and other facilities that supports a walkable street grid within proximity of the future Valley Link station, would result in reduced vehicle trips.

Table 3.1-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Project

<i>Clean Air Plan Control Measures</i>		<i>Incorporation into Proposed Project Policies</i>
TR3	Local and Regional Bus Service	The Valley Link station area will be well-served by buses, with routes to destinations throughout Livermore, including Las Positas College, Downtown, national labs, and the Altamont Corridor Express (ACE) stations. Additionally, Policy P-TRA-22 calls for the formation of a Transportation Management Association (TMA) for the Isabel Neighborhood that would work with LAVTA and the Tri-Valley San Joaquin Valley Regional Rail Authority to alter or add bus routes and/or provide free shuttle service between the Valley Link station and major destinations such as Las Positas College.
TR5	Transit Efficiency and Use	The majority of new development or redevelopment in the Planning Area are designated to occur within the half-mile radius – or walking distance – of the future Valley Link station. To reduce dependency on vehicle travel and congestion on neighborhood, Policy P-TRA-21 requires the establishment of partnerships with transit operators, developers, technology providers, corporate shuttles, Transportation Network Companies, bike share operators, and other entities to enhance transit efficiency.
TR8	Ridesharing, Last-Mile Connection	Following opening of the future Valley Link station, Policy P-TRA-24 requires businesses within a half-mile of the Valley Link station to implement at least two of the following TDM programs, one of which could be carpool and vanpool ride-matching services.
TR9	Bicycle and Pedestrian Access and Facilities	Policies in the Circulation, Access, and Parking Chapter support the provision of a street network consisting of trails, bike lanes, pedestrian crossings, and other facilities that supports a walkable street grid within proximity of the future Valley Link station that is safe and efficient for pedestrians and bicyclists.
TR10	Land Use Strategies	The project is intended to support regional goals of integrating transit and land use policies to create opportunities for transit-oriented development around the proposed Valley Link station and other transit nodes throughout Livermore, which would reduce pollutant and GHG emissions.
TR13	Parking Policies	Circulation policies include implementation of TDM strategies, which include parking management. The management of parking supply would entail tracking parking demands and sizing parking to match demand while also considering the price, location, and design of parking facilities.
TR22	Construction, Freight and Farming Equipment	Policy P-ENV-15 requires the use of Tier 4 engines in off-road equipment, which would reduce pollutant emissions.

Table 3.1-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Project

Clean Air Plan Control Measures		Incorporation into Proposed Project Policies
Energy		
EN1	Decarbonize Electricity Production	The Urban Design Chapter identifies some of the various environmentally-sensitive design guidelines and standards that would be used for new development in the Planning Area, which include maximizing natural cooling and passive solar heating through building placement and orientation, orienting building windows and balconies to maximize solar access, using vegetation to shade buildings to limit direct solar gain and glare, using plantings on building exteriors to insulate and cool interiors, and installing solar panels and/or solar hot water systems. These design guidelines and standards would reduce energy demands.
EN2	Decrease Electricity Demand	See above for EN1.
Building		
BL1	Green Buildings	See above for EN1. New development in the Planning Area would include environmentally-sensitive design that incorporates green building techniques.
BL2	Decarbonize Buildings	See above for EN1.
BL4	Urban Heat Island Mitigation	As part of the environmentally-sensitive design guidelines and standards that would be used for new development in the Planning Area, design guideline DG-21 calls for the incorporation of green roofs to manage storm water runoff and reduce energy consumption through insulation.
Natural and Working Lands		
NW2	Urban Tree Planting	Policy P-ENV-19 would promote the healthy growth of trees and control the removal of trees within the Planning Area through the City's Tree Protection Ordinance. Additionally, design guideline DG-22 would promote the minimizing of paved area and other barriers to root growth to support the development of large healthy trees and tree canopies, consistent with the City's Standard Specifications on tree planting.
Waste Management		
WA1	Landfills	Policy P-PF-30 would require all new development in the Planning Area to participate in all City, County, and State diversion programs and construction regulations in effect at the time of issuance of building permits. Additionally, Policy P-PF-31 would require new development in the Planning Area to exceed the City's 75 percent waste diversion goal. Methods to achieve this goal include:

Table 3.1-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Project

<i>Clean Air Plan Control Measures</i>		<i>Incorporation into Proposed Project Policies</i>
		Design new development to make recycling, composting, and organic material collection as convenient as possible for residents, employees, and visitors. Reduce the amount of solid waste that must be processed through implementation of recycling programs, composting, source reduction (such as packaging), purchasing policies, and manufacturing processes. Continue to implement educational and outreach programs on available diversion programs and best practices. Encourage businesses to participate in the Bay Area's Green Business Program. Support the expansion of organics capacity in Alameda County and statewide.
WA2	Composting and Anaerobic Digesters	See above for WA1.
WA3	Green Waste Diversion	See above for WA1.
WA4	Recycling and Waste Reduction	See above for WA1.
Water		
WR2	Support Water Conservation	Various policies included in the Parks, Public Services, and Infrastructure Chapter, including Policies P-PF-35, P-PF-36, P-PF-37, P-PF-38, P-PF-39, and P-PF-40, would support water conservation by new development in the Planning Area.
Super-GHG		
SL1	Short-Lived Climate Pollutants	The promotion of transit-oriented development around the proposed Valley Link Station would serve to reduce mobile-source emissions of GHGs. Policies that promote mixed-use development and the diversion of solid waste to landfills along with environmentally-sensitive design guidelines and standards that would be incorporated into new development in the Planning Area would reduce GHG emissions.

Proposed Project Goals and Policies that Reduce the Impact

Land Use Chapter

- P-LU-1: Establish a new Main Street through the center of the Planning Area that accommodates neighborhood-serving businesses and places for social gathering, and that helps create a sense of place for the Isabel Neighborhood.
- P-LU-2: Require buildings on Main Street between Constitution Drive and Portola Avenue to provide active ground floor uses facing Main Street that are publicly accessible and that generate walk-in clientele.
- P-LU-3: Establish a neighborhood-serving retail center anchored by a grocery store. This center shall:
- Be visible and accessible from the Valley Link station and Main Street; and
 - Incorporate a major public space such as a plaza or park.
- P-LU-9: The location of the Ground Floor Retail/Flex Space Overlay on the BART property north of I-580 is diagrammatic only on Figure 2-1. As the Plan is implemented, the Overlay shall apply to all building frontages along the Isabel Path between the north end of the Valley Link pedestrian bridge and Isabel Avenue.
- P-LU-36: Pursue grant opportunities funds for transit-oriented development such as those using cap and trade.
- P-LU-43: Help connect businesses to the Valley Link station through existing and emerging transportation technologies.

Transportation Chapter

- P-TRA-1: Create a walkable street grid within a half-mile radius of the Valley Link station (Neighborhood core area).
- Block sizes within this area should range from 300-400 feet, with a maximum length of 600 feet. Where block lengths exceed 400 feet, mid-block crossings shall be installed.*
- P-TRA-3: Connect existing uses, new development, the Main Street, Valley Link station, bus stops, parks, natural areas, Las Positas College, and other key destinations with sidewalks, pedestrian and bicycle trails, and bicycle facilities.
- P-TRA-4: Create a continuous trail loop within the Isabel Neighborhood and links to the regional trail network outside of the Planning Area.
- Partner with LARPD and East Bay Regional Parks District and Alameda County to identify funding opportunities.

- Advocate for a pedestrian and bicycle trail as the top priority for the bicycle connection along the future North Canyons Parkway/Dublin Boulevard extension, followed by a buffered bike lane as a second priority (as opposed to a traditional Class II facility).

P-TRA-6: Provide pedestrian bridges and undercrossings to enhance the connectivity of the trail network and provide direct access to the Valley Link station.

- Orient pedestrian bridges to be as short, direct, and visually unobstructed as possible.

P-TRA-7: Provide multiple safe bicycle and pedestrian crossings of I-580 within the Isabel neighborhood.

- Prioritize the construction of the I-580 crossing along Collier Canyon Creek.
- Ensure that the Valley Link station pedestrian bridges are available for non-Valley Link patron use when the station is open.

P-TRA-10: Provide bike parking areas at trailheads and major destinations and bicycle-signals at major intersections.

P-TRA-11: Incorporate traffic calming measures to slow vehicle speeds and increase the visibility of pedestrian crossings.

P-TRA-13: Require development to meet the on-site bicycle parking requirements listed in Table 3-3. Development applications shall show bicycle parking on site plans, including spaces to be provided within garages of individual dwelling units. Bicycle stalls shall meet the following requirements:

- Stalls shall be capable of supporting a bicycle in an upright or hanging position and enable a user to lock his bicycle to such a device.
- The areas containing stalls shall be surfaced with hardscape or paving.
- When located within a parking area, stalls shall be protected by curbs, fences, planter areas, bumpers, or similar barriers for the mutual protection of bikes, automobiles and pedestrians, unless deemed by the City to be unnecessary.
- Where required, “secured, covered” bicycle parking may include garages, lockers, storage rooms, or fenced areas with restricted access.
- Publicly accessible bicycle parking may include uncovered racks.

P-TRA-14: Encourage Valley Link station infrastructure to be integrated into the Neighborhood’s circulation and land use networks.

P-TRA-15: Prioritize pedestrian safety when designing roadways serving the Valley Link station.

P-TRA-16: Support direct, comfortable, shaded, safe, visible, and well-lit walking paths between the Valley Link platform and surrounding development.

P-TRA-17: Support the research, piloting, and deployment of emerging technologies and new services such as real-time parking availability signage, real-time bus arrival updates, and rideshare matching.

P-TRA-19: Employ a range of Transportation Demand Management (TDM) strategies to help make alternative modes of transportation as convenient, affordable, and safe as solo driving. Strategies include sponsored transit passes, parking cash-out programs, sponsored rideshare programs, bicycle commuter tax reimbursement, and bikeshare programs.

P-TRA-20: Design the street network to minimize cut-through vehicle traffic in residential areas.

P-TRA-21: Establish partnerships with transit operators, developers, technology providers, corporate shuttles, Transportation Network Companies, bike share operators, and other entities.

P-TRA-22: With the exception of Business Park users outside of the Core, require property owners, residents, and tenants to form a Transportation Management Association (TMA) for the Isabel Neighborhood. Required actions shall be determined by the TMA and may include but are not limited to the following:

- Monitor and manage the vehicular and bicycle parking supply for all retail uses north of I-580, rather than on a project or site basis.
- Work with LAVTA and Valley Link to alter or add bus routes and/or provide free shuttle service between the Valley Link station and major destinations such as Las Positas College.
- Establish neighborhood-wide car-sharing and/or bike sharing programs.
- Implement programs for streetscape maintenance and beautification projects along Main Street, Pedestrian Streets, and Bike Streets.
- Implement informational campaigns using brochures, boards/kiosks, or other communication outlets.
- Provide technical support to businesses and homeowner associations in the implementation of TDM measures.
- Implement a wayfinding signage program for motorists, bicyclists, and pedestrians prior to construction of Phase 1.

P-TRA-23: Require Office and Business Park projects exceeding 15,000 square feet within a half-mile of the Valley Link station to implement the following site design measures:

- Integration of passenger loading zones near the main building entrance on large sites;
- Access to electrical vehicle charging stations for 10 percent of residential parking spaces and two percent of commercial or industrial parking spaces;
- On-site showers and lockers for employees; and

- Preferential parking for carpools, vanpools, and low emission vehicles.

P-TRA-24: Following station opening, require businesses within a half-mile of the Valley Link station to participate in the TMA and implement at least two of the following TDM programs (to be implemented through the initial Site Plan Design Review process for new development or through the Zoning Clearance process after construction):

- Parking cash-out for employees that do not drive to work.
- Transit passes (such as the Clipper Card) for employees.
- Car-sharing or bike-sharing program.
- Carpool and vanpool ride-matching services.
- Guaranteed ride home for transit users and car/vanpoolers.
- Flexible work schedules, shortened work weeks, or options to telecommute.

Parks, Public Facilities, and Infrastructure Chapter

P-PF-30: Require all new development to participate in all City, County, and State diversion programs and construction regulations in effect at the time of issuance of building permits.

P-PF-31: Work with residents, businesses, LARPD, and the City's franchise hauler to exceed the City's 75 percent waste diversion goal in the Isabel Neighborhood.

- Design new development to make recycling, composting, and organic material collection as convenient as possible for residents, employees, and visitors.
- Reduce the amount of solid waste that must be processed through implementation of recycling programs, composting, source reduction (such as packaging), purchasing policies, and manufacturing processes.
- Continue to implement educational and outreach programs on available diversion programs and best practices.
- Encourage businesses to participate in the Bay Area's Green Business Program.
- Support the expansion of organics capacity in Alameda County and statewide.

P-PF-36: Require new development to install water efficient appliances and fixtures such as low-flow faucets and toilets.

P-PF-37: Require new development to comply with State and City's mandatory water efficient landscape ordinance (WELO).

P-PF-38: Require new development within the Municipal Water service area to connect to the recycled water system and to use recycled water for landscape irrigation, if economically feasible.

P-PF-39: Allow the use of rainwater harvesting systems, consistent with regional permit requirements.

- P-PF-40: Restaurants and other uses that discharge grease into the wastewater treatment system shall be required to reduce impacts through individual or collective pretreatment facilities.
- P-PF-41: Design new streetscape and landscaped areas in the public right-of-way for stormwater management and the efficient use of water through:
- The installation of low-maintenance, drought-resistant plant palettes;
 - Use of large retention basins;
 - Use of low-flow irrigation systems; and/or
 - Use of bioswales and rain gardens in planting areas, curb extensions, and other green infrastructure.
- P-PF-42: Require new development to incorporate low impact landscape design, such as natural drainage systems and groundwater recharge features, consistent with stormwater permit requirements.

Environmental Resources Chapter

- P-ENV-11: Require new residential projects and other new sensitive receptors such as schools, child daycares, nursing and retirement homes located within 500 feet of I-580 to install indoor air quality equipment, such as high-efficiency particulate HEPA filters or equivalent mechanisms to minimize health risks for future residents.
- P-ENV-12: Require proponents of projects within areas surrounding existing hazardous sites, roadways, or TAC sources to assess health risks at the location in question and to incorporate feasible design-related risk mitigation measures, such as high-efficiency particulate air filters (HEPA filters) or equivalent indoor air quality equipment mechanisms, as appropriate and determined in consultation with the City.
- P-ENV-13: Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.
- P-ENV-14: Require construction projects to implement the following measures recommended by the BAAQMD, as applicable:
- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;
 - All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
 - All visible mud or dirt 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;
 - All vehicle speeds on unpaved roads shall be limited to 15 mph;

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator; and
- A publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints shall be posted. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

P-ENV-15: Require that applicants proposing development of projects within the Planning Area require contractors, as a condition of contract, to reduce construction-related exhaust emissions by ensuring that all off-road equipment greater than 50 horsepower (hp) shall operate on an EPA-approved Tier 4 or newer engine. Exemptions can be made for specialized equipment where Tier 4 engines are not commercially available within 200 miles of the project construction site. The construction contractor must identify these pieces of equipment, document their unavailability from at least two construction equipment rental firms, and ensure that they operate on no less than an EPA-approved Tier 3 engine.

P-ENV-16: Require that applicants proposing development of projects within the Planning Area require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the use of low-VOC coatings to BAAQMD prior to the start of construction.

Urban Design Chapter

DS-7: Traffic-calming measures, such as zebra striping for crosswalks, speed tables, and bulb-outs shall be employed along the bus loop north of I-580.

DS-8: A pedestrian- and bicycle-only pathway shall be provided between the north end of the Valley Link pedestrian bridge and the corner of Gateway Avenue and Main Street, crossing Isabel Avenue and passing through the Retail Center block (see Isabel Neighborhood Plan figures 5-4, 5-5, and 5-9 for a conceptual route of the "Isabel Path" and the applicable dimensions).

- DS-9: The Isabel Path shall be designed to be as direct, flat, and visually unobstructed as possible to maximize accessibility and reduce the walking distance to and from the Valley Link Station.
- DS-10: The City shall coordinate with Valley Link and the property owner/developer of the Retail Center block for crossing Isabel Avenue along the Isabel Path. Considerations may include: grading, pedestrian safety, directness, utility relocation.
- DS-12: The following pedestrian amenities shall be provided along the Isabel Path:
- Seating such as benches and terraced steps;
 - Public art;
 - Lighting;
 - Drinking fountains;
 - Trash/recycling receptacles; and
 - Additional/specialty landscaping.
- DS-28: Buildings shall be oriented such that frontages and entrances are visible and accessible from the public right-of-way, on-site common areas, pedestrian pathways, parks, and/or plazas.
- DS-29: Site plans shall establish well-defined, accessible, direct, and well-lit pedestrian links between buildings, sidewalks, parking areas, trails, and any on-site or nearby public spaces such as bus stops and the Valley Link station.
- DS-30: Large-scale developments (that is, development on any site larger than half acre in area) shall be broken up by pedestrian paths that connect to the street grid.
- DS-54: Windows shall be operable to the extent possible, to allow natural ventilation and potentially eliminate the need for mechanical ventilation.
- DS-77: A variety of site furnishings shall be considered and incorporated into site plans to promote a sense of comfortable outdoor living space for the pedestrian realm. Examples of such features include but are not limited to seating, freestanding planters, ornamental trash/recycling containers, cigarette ash receptacles, drinking fountains including pet basins, fountains or other water features, bollards, kiosks for information or artwork, sculptures, bicycle racks, and/or newspaper racks.

Mitigation Measures

None required.

Impact 3.1-2 Implementation of the proposed Project would violate an air quality standard and contribute substantially to an existing or projected air quality violation during construction. (*Less than Significant with Mitigation*)

Construction associated with new land use developments under the proposed Project would result in the temporary generation of ozone precursors (ROG, NO_x), CO, and particulate matter emissions that could result in short-term impacts on ambient air quality in the Planning Area. Emissions would originate from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, land clearing, demolition, architectural coatings, and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

By its nature as a specific plan, the proposed Project does not propose any specific development projects. Rather, construction of new land use developments allowable under the Plan would occur intermittently in the Planning Area throughout the course of the buildout period. As the timing and intensity of future development projects is not known at this time, the precise effects of construction activities associated with buildout of the Planning Area cannot be accurately quantified at this time. While the details of future development within the Planning Area are currently unknown, since development would be driven by market forces and private applicants, it is known that implementation of the proposed Project ultimately would result in the net new development of 4,095 multi-family residential dwelling units, and 2,104,200 square feet of non-residential development at buildout in 2040. As such, it is anticipated that in any given year, multiple land use development projects would be constructed within the Planning Area.

As noted previously, the BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project. While the construction emission impacts associated with each new individual development would be short-term in nature (relative to the buildout year) and limited to the period of time when construction activity is taking place for that particular development, the concurrent construction of a multitude of individual development projects that could occur at any one time in the Planning Area under the proposed Project would generate combined criteria pollutant emissions on a daily basis that would exceed BAAQMD's project-level thresholds. Additionally, depending on the size and scale of an individual development project, along with its construction schedule and other parameters, there may also be instances where the daily construction emissions generated by a single development project in the Planning Area could also exceed BAAQMD's criteria pollutant thresholds. As such, construction emissions generated in the Planning Area by implementation of the proposed Project would result in a potentially significant impact on air quality.

During construction of a development project, the activity that typically generates the highest NO_x and PM exhaust emissions is the operation of off-road equipment, whereas the activity that typically generates the highest ROG emissions is the application of architectural coatings. Under Policy P-ENV-15 of the proposed Project, the use of Tier 4 engines for off-road equipment to reduce NO_x and PM exhaust emission levels and use of low-VOC paints to reduce ROG emission levels would be required during construction activities in the Planning Area. Additionally, while the BAAQMD considers fugitive PM₁₀ and PM_{2.5} dust emissions significant without the application of standard

best management practices (BMPs), Policy P-ENV-14 of the proposed Project would require construction projects in the Planning Area to implement BMPs as recommended by the BAAQMD to reduce these fugitive dust emissions. Thus, the implementation of BMPs under Policies P-ENV-14 and P-ENV-15 for each development project in the Planning Area would reduce fugitive PM₁₀ and PM_{2.5} emissions to less-than-significant levels for the proposed Project.

However, with respect to ROG, NO_x and PM₁₀ and PM_{2.5} exhaust emissions, there could be foreseeable conditions under the proposed Project where the amount of construction activity for an individual development project, or a combination of these projects, could result in the generation of these pollutant emissions that exceed their respective BAAQMD significance thresholds (54 pounds/day for ROG and NO_x, 82 pounds per day for exhaust PM₁₀, and 54 pounds/day for exhaust PM_{2.5}). As such, Mitigation Measures AQ-1 and AQ2, which require off-road equipment to utilize renewable diesel and for all on-road diesel trucks used for construction activities to have 2010 model year or newer engines, respectively, are recommended to further reduce NO_x and other criteria pollutant levels associated with construction activities occurring under the proposed Project. Nonetheless, even with implementation of Mitigation Measures AQ-1 and AQ-2 in addition to Policy P-ENV-15, emissions of ROG, NO_x, PM₁₀, and PM_{2.5} exhaust may not be reduced to levels below BAAQMD's thresholds when multiple construction projects are concurrently ongoing in the Planning Area. Accordingly, additional mitigation would be required to reduce these emissions impacts to a less-than-significant level. Pursuant to Mitigation Measure AQ-3, the City would be required to track all land use development construction activities occurring in the Planning Area, assess and determine the estimated total emissions for all construction activities that would be concurrently ongoing, and determine the mitigation fees for each development project's applicant to pay on a pro rata basis to BAAQMD to offset their pollutant emissions as necessary such that BAAQMD's daily pollutant thresholds would not be exceeded. Thus, Mitigation Measure AQ-3 would ensure that the construction-related impacts of the proposed Project on air quality would be reduced to a less-than-significant level.

Proposed Project Goals and Policies that Reduce the Impact

Policies P-ENV-11, P-ENV-12, P-ENV-13, P-ENV-14, P-ENV-15, and P-ENV-16, as listed under Impact 3.3-1.

Mitigation Measures

MM-AQ-1: Require Construction Fleet to Use Renewable Diesel. All applicants proposing development of projects within the Planning Area shall require their contractors, as a condition of contract, to reduce construction-related exhaust emissions by ensuring that all off-road equipment operating for more than 20 total hours over the entire duration of construction activities shall operate on renewable diesel (such as Diesel high performance renewable). Renewable diesel is currently commercially available in San Francisco Bay Area.

MM-AQ-2: Require Use of Diesel Trucks with 2010-Compliant Model Year Engines. All applicants proposing development of projects within the Planning Area shall require their contractors, as a condition of contract, to use diesel trucks that have 2010 model year or newer engines. In the event that 2010 model year or newer diesel trucks cannot be obtained, the contractor

must provide documentation to the City showing that a good faith effort to locate such engines was conducted.

MM- AQ-3: Require Payment of Mitigation Fees to Offset Emissions Exceeding BAAQMD's Daily Pollutant Thresholds.

This mitigation will either be conducted by the City through BAAQMD or by the City itself.

BAAQMD Mitigation Fee Approach

The City shall work with BAAQMD's Office of Community Investment and Infrastructure (OCII) to establish City-specific construction emissions offset guidance that can be implemented to assess, determine, and issue mitigation fees that project applicants would be required to pay BAAQMD on a pro rata basis for all concurrently ongoing construction projects in the Planning Area to offset all pollutant emissions exceeding BAAQMD's daily pollutant thresholds. The offset fees will be paid into BAAQMD's Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of mitigation.

City Mitigation Fee Approach

If for any reason providing mitigation fees through BAAQMD is not pursued, then the City shall administer the mitigation funds directly for emissions reductions. The offset mitigation program shall follow the BAAQMD Guidance for Lead Agencies to Develop and Offset Mitigation Program (BAAQMD 2012). The offset fees with this approach will be paid into the City's mitigation program in an amount to be determined at the time of mitigation. This mitigation (AQ-3) does not apply if builder contractor documents show they will not exceed BAAQMD's daily pollutant thresholds.

This mitigation (AQ-3) does not apply if builder/contractor documents show they will not exceed BAAQMD's daily pollutant threshold.

Specific Requirements

This mitigation includes the following specific requirements:

- For all construction projects occurring in the Planning Area, the applicants for each project shall require their construction contractors to estimate annual construction activity monitoring data for the following year. All applicants shall submit their estimated construction-related emissions to the City for review by November 1 of each year for the following construction year.
- The City shall review all received construction estimates to ensure they are representative, total the emissions estimates for all construction projects that had activities that would be ongoing during the following construction year, and determine the total mitigation fee that would need to be submitted to BAAQMD to fund offsets for the portion of annual emissions that exceed BAAQMD's average daily thresholds for criteria pollutants.

- In light of the total mitigation fee that was determined, and based on the construction emission amounts submitted by each applicant, the City shall appropriate the mitigation fee amount that would need to be submitted by each project applicant on a pro rata basis. The City shall issue the required mitigation fee amounts to each applicable project applicant.
- Upon receiving the City's assigned mitigation fee amount, the applicants shall enter into a construction mitigation contract with BAAQMD to submit their apportioned mitigation fees or enter into an agreement with the City to submit their apportioned mitigation fees.

Examples of Potential Offset Actions

There are a wide range of feasible actions to offset emissions (through BAAQMD or the City) including, but not limited to, the following:

- Retrofitting and/or replacing heavy duty diesel engines and trucks (on or off road) with new, cleaner engines and trucks.
- Retrofitting stationary sources such as backup generators or boilers with new technologies that reduce emissions.
- Replacing diesel agriculture water pumps with alternative fuels.
- Fund projects within a jurisdiction's adopted bicycle/pedestrian plans.
- Replace non-EPA wood burning devices with natural gas or EPA approved fireplaces.
- Provide energy efficiency upgrades at residential, commercial, or government buildings.
- Electrification of loading docks at distribution warehouses.
- Install alternative energy supply on buildings.
- Replace older landscape maintenance equipment with newer, lower-emission equipment.

Impact 3.1-3 Implementation of the proposed Project would violate an air quality standard and contribute substantially to an existing or projected air quality violation during operation. (*Significant and unavoidable*)

Buildout of the Planning Area under the proposed Project has the potential to result in air quality impacts from mobile, area, and energy sources. Mobile sources would include vehicle trips generated by land uses proposed within the Planning Area. Area sources would include hearth usage, landscaping equipment, off-gassing during the reapplication of architectural coatings, and

consumer products (e.g., solvents, cleaning supplies, cosmetics, toiletries). Energy sources would include onsite natural gas combustion for space and water heating. Each of these sources was taken into account in calculating the proposed Project's long-term operational emissions, which were quantified using CalEEMod model.

Table 3.1-7 summarizes daily mobile, area, and energy source emissions generated under existing (2013) and 2040 conditions with the proposed Project. To evaluate the magnitude of the change in the air quality environment due to implementation of the proposed Project, the emissions under the proposed Project at buildout in 2040 are compared to the emissions under existing conditions, and the resulting net increase in emissions is compared to BAAQMD's project-level thresholds.

As indicated in Table 3.1-7, unmitigated operational sources under the proposed Project would result in a net increase in criteria pollutant emissions of PM10 and PM2.5 that exceeds BAAQMD's project-level thresholds, while emissions of ROG, NOx, and CO under the proposed Project would not exceed BAAQMD's project-level thresholds. It should be noted that a net reduction in emissions of both NOx and CO would occur under the proposed Project when compared to existing conditions, which is primarily attributed to the continued improvement in mobile source emissions in California over time due to vehicle fleet turnover and the implementation of more advanced vehicle technologies, including lower emission fuels.

While vehicle fleet turnover and improved vehicle technologies over time would also result in a reduction of PM10 and PM2.5 exhaust emissions, the fugitive PM10 and PM2.5 emissions generated by vehicle travel on roadways would still occur and would not receive the same emissions reduction benefits because those emissions are dependent on miles traveled by vehicles. Because full buildout of the proposed Project in 2040 would result in an increase of total VMT over existing conditions, the fugitive PM10 and PM2.5 emissions from on-road travel by vehicles would also increase over existing conditions. While fugitive PM10 and PM2.5 emissions made up approximately 93 and 80 percent of the total mobile source PM10 and PM2.5 emissions, respectively, under existing conditions, both the fugitive PM10 and PM2.5 emissions made up 99 and 96 of the total mobile source PM10 and PM2.5 emissions, respectively, under the proposed Project at buildout. These results indicate that exhaust emissions of PM10 and PM2.5 in 2040 would decline as a result of the benefits from vehicle fleet turnover and the implementation of more advanced vehicle technologies.

The emissions shown in Table 3.1-7 accounts for mobile source emission benefits achieved by Plan policies that increase proximity to transit and mixed-used design. These policies reduce per capita VMT, although total VMT, when compared with existing (2013) conditions, are projected to increase with the proposed Project due to greater population and employment growth.

As discussed above, BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire specific plan. Accordingly, operational air quality impacts of the proposed Project are also evaluated for consistency with the 2017 Clean Air Plan to determine whether criteria pollutant emissions attributed to population and economic growth are significant. Impact 3.1-1 provides the 2017 Clean Air Plan consistency analysis based on the requirements of BAAQMD's 2017 CEQA Guidelines. The analysis demonstrates that the proposed Project would support the goals of the

2017 Clean Air Plan, include all applicable control measures, and would not conflict with its implementation.

While the proposed Project would reduce the severity of growth-oriented criteria pollutants by locating uses in proximity to transit (i.e., the future Isabel Avenue Valley Link station), fostering bicycle and pedestrian infrastructure, and supporting sustainable land use patterns, including mixed-use design and increased density, individual projects may still generate emissions in excess of BAAQMD's project-level thresholds. Accordingly, operational criteria pollutant emissions associated with development under the proposed Project are conservatively identified as significant.

Table 3.3-7 in the 2018 EIR is replaced by Table 3.1-7 as follows.

Table 3.1-7. Estimated Maximum Daily Unmitigated Operational Emissions for the Proposed Project (pounds per day)

<i>Analysis Condition/Source</i>	<i>ROG</i>	<i>NOx</i>	<i>CO</i>	<i>PM10</i>	<i>PM2.5</i>
Existing (2013)					
Area	152	5	115	1	1
Energy	3	29	23	2	2
Mobile	363	1,948	4,208	576	179
<i>Total</i>	<i>517</i>	<i>1,982</i>	<i>4,346</i>	<i>579</i>	<i>182</i>
2040 With Proposed Project					
Area	424	20	436	4	4
Energy	7	67	51	5	5
Mobile	132	1,183	1,560	1,045	283
<i>Total</i>	<i>564</i>	<i>1,270</i>	<i>2,047</i>	<i>1,054</i>	<i>291</i>
Net Increase with Proposed Project					
2040 With Proposed Project vs. Existing	47	(712)	(2,299)	475	109
Threshold ^a	54	54	-	82	54
Exceed Threshold?	No	No	-	Yes	Yes

Note: Emission outputs from CalEEMod are generated for both the summer and winter seasons, with emission levels differing slightly for the pollutants in each season. Emission levels of ROG and NOx tend to be generally higher during the winter while emissions of CO tend to be generally higher in the summer. Emissions of PM10 and PM2.5 remain the same during both seasons. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

a. BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire specific plan such as the proposed Project.

Source: Dyett & Bhatia, 2020.

The proposed Project includes numerous policies to reduce VMT and associated mobile sources. As shown in Table 3.1-7, mobile sources would contribute the majority of emissions that would exceed BAAQMD's PM10 and PM2.5 thresholds.

Implementation of Mitigation Measure GHG-1 (see Chapter 3.2: Energy, Greenhouse Gases, and Climate Change) would reduce mobile emissions that contribute to the exceedance of BAAQMD's PM2.5 threshold. Mitigation Measure GHG-1 includes strategies that would reduce VMT such as increasing affordable housing, incorporating street and intersection traffic calming measures, expanding the local bus network, and requiring large employers to provide a suite of travel demand reduction measures to reduce single-vehicle trips. Mitigated emissions under the proposed Project are shown in Table 3.1-8.

Table 3.1-8. Estimated Maximum Daily Mitigated Operational Emissions for the Proposed Project (pounds per day)

<i>Analysis Condition/Source</i>	<i>ROG</i>	<i>NOx</i>	<i>CO</i>	<i>PM10</i>	<i>PM2.5</i>
Existing (2013)					
Area	152	5	115	1	1
Energy	3	29	23	2	2
Mobile	363	1,948	4,208	576	179
<i>Total</i>	<i>517</i>	<i>1,982</i>	<i>4,346</i>	<i>579</i>	<i>182</i>
2040 With Proposed Project					
Area	424	20	436	4	4
Energy	7	67	51	5	5
Mobile	112	1,039	1,142	722	195
<i>Total</i>	<i>543</i>	<i>1,126</i>	<i>1,630</i>	<i>730</i>	<i>204</i>
Net Increase with Proposed Project					
2040 With Proposed Project vs. Existing	26	(856)	(2,716)	151	22
Threshold ^a	54	54	-	82	54
Exceed Threshold?	No	No	-	Yes	No

Note: Emission outputs from CalEEMod are generated for both the summer and winter seasons, with emission levels differing slightly for the pollutants in each season. Emission levels of ROG and NOx tend to be generally higher during the winter while emissions of CO tend to be generally higher in the summer. Emissions of PM10 and PM2.5 remain the same during both seasons. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

a. BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire specific plan such as the proposed Project.

Source: Dyett & Bhatia, 2020.

As shown in Table 3.1-8, implementation of the strategies in Mitigation Measure GHG-1 aimed at reducing VMT would be effective at reducing emissions of ROG, NOx, CO, PM10, and PM2.5 under the proposed Project. Emissions of PM2.5 would not exceed the BAAQMD threshold. However, emissions of PM10 would still exceed the threshold and result in a significant and unavoidable impact. Because the proposed Project's mobile-source emissions are generated from passenger vehicles that are not regulated at the City level, there are no additional feasible mitigation measures available that can be implemented by the City to reduce these PM10 emissions. Accordingly, operational sources under the proposed Project would result in a significant and unavoidable air quality impact associated with PM10 emissions.

Proposed Project Goals and Policies that Reduce the Impact

Refer to policies, design standards, and design guidelines identified under Impact 3.1-1.

Mitigation Measures

See Mitigation Measure GHG-1 in Chapter 3.2: Energy, Greenhouse Gases, and Climate Change. No additional feasible mitigation measures are available.

Impact 3.1-4 Implementation of the proposed Project would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). (*Significant and unavoidable*)

Regional air pollution is by nature a cumulative impact, as emissions from past, present, and future projects contribute to unfavorable air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative negative air quality impacts. As discussed above, BAAQMD has identified project-level thresholds to evaluate impacts to air quality (Table 3.1-5). The thresholds have been adopted to prevent further deterioration of ambient air quality, which is influenced by emissions generated by projects within a specific air basin. The project-level thresholds, therefore, consider relevant past, present, and reasonably foreseeable future projects within SFBAAB. For example, as noted in BAAQMD's (2017) CEQA Guidelines,

In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary.

As discussed above, BAAQMD's project-level thresholds do not lend themselves well to the analysis of specific plans. Rather, it is more appropriate to evaluate planning-level documents for their consistency with the most recently adopted AQAP, which is the 2017 Clean Air Plan for the SFBAAB. As discussed under Impact 3.1-3, the proposed Project would support the goals of BAAQMD's 2017 Clean Air Plan, include all applicable control measures, and would not conflict with its implementation. The comprehensive suite of proposed Project policies would ultimately reduce the severity of growth-oriented criteria pollutants, relative to conditions without the proposed Project.

Individual development projects may still generate construction emissions in excess of BAAQMD's project-level thresholds. Implementation of Mitigation Measures AQ-1 through AQ-3 would ensure that the construction-related impacts of the proposed Project on air quality would be reduced to a less-than-significant level. Implementation of Mitigation Measure GHG-1 would also ensure that the operational impacts of the proposed Project on PM_{2.5} emissions would be reduced

to a less-than-significant level. However, operational sources under the proposed Project would result in a significant and unavoidable and cumulatively considerable air quality impact associated with PM₁₀ emissions.

Health Implications of Regional Criteria Pollutants⁴

High levels of criteria pollutants are associated with various forms of health risk (e.g., asthma, irregular heartbeat). Adverse health effects associated with criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, ozone precursors (ROG and NO_x) affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region.

EPA develops and considers quantitative characterizations of exposures and associated risks to human health and the environment, known as the Health Risk and Exposure Assessment (HREA). The HREA estimates population exposure to and resulting mortality and morbidity health risks associated with the full range of observed pollutant concentrations, as well as incremental changes in exposures and risks associated with ambient air quality adjusted to meet the existing NAAQS. However, existing models have limited sensitivity to small changes in criteria pollutant concentrations and, as such, translating project-generated criteria pollutants to specific health effects would produce meaningless results. In other words, increases in regional air pollution from project-generated ozone precursors (ROG and NO_x) would have no effect on specific human health outcomes that could be attributed to specific project emissions. Other criteria pollutant emissions, including CO, PM₁₀, and PM_{2.5}, generally affect air quality on a localized scale. Health effects related to localized pollutants are the product of localized sources and emissions generated by numerous sources throughout a region. Certain air quality models, particularly dispersion models, have the ability to translate project-generated localized pollutants to specific health effects. Refer to Impacts 3.1-5 and 3.1-6 for an analysis of health risks related to PM and CO.

As shown in Tables 3.1-7 and 3.1-8, land uses developed under the proposed Project would increase emissions of ROG, which is an ozone precursor. Emissions of ROG generated by buildout of the proposed Project could increase photochemical reactions and the formation of tropospheric ozone, which, at certain concentrations, could lead to respiratory symptoms (e.g., coughing), decreased lung function, and inflammation of airways. Although these health effects are associated with ozone, the impacts are a result of cumulative ROG emissions throughout the Bay Area. Accordingly, the incremental contribution of development supported by the proposed Project to specific health outcomes related to criteria pollutant emissions would be limited. It is also important to note that growth-related emissions associated with the proposed Project would not occur

⁴ As noted previously under the “Supplemental Health Risk Guidance” heading in the Impact Analysis section of this EIR, the discussion of potential health effects from regional criteria pollutants is provided for informational purposes. The analysis of impacts to human health from the proposed Project focuses on the localized pollutants with the greatest potential to result in a significant, material impact on human health, which is consistent with the current state-of-practice and published guidance by entities such as BAAQMD, CAPCOA, OEHHA, and ARB. The pollutants of concern include TACs and localized CO, which are analyzed under Impacts 3.3-5 and 3.3-6.

immediately and all at once, but would instead occur incrementally over time as regional air quality improves and regulations to reduce emissions take effect.

Proposed Project Goals and Policies that Reduce the Impact

Refer to policies, design standards, and design guidelines identified under Impact 3.1-1.

Mitigation Measures

MM- AQ-1: Require Construction Fleet to Use Renewable Diesel. Refer to Impact 3.1-2.

MM-AQ-2: Require Use of Diesel trucks with 2010-compliant Model Year Engines. Refer to Impact 3.1-2.

MM-AQ-3: Require Payment of Mitigation Fees to Offset Emissions Exceeding BAAQMD's Daily Pollutant Thresholds. Refer to Impact 3.1-2.

Impact 3.1-5 Implementation of the proposed Project would expose sensitive receptors to substantial pollutant concentrations from new sources of toxic air containments. (*Significant and unavoidable*)

Asbestos

Demolition of existing structures results in particulates that may disperse to adjacent sensitive receptor locations. ACM were commonly used as fireproofing and insulating agents prior to the 1970s. The U.S. Consumer Product Safety Commission banned use of most ACM in 1977 due to their link to mesothelioma. However, buildings constructed prior to 1977 that would be demolished by the development supported by the proposed Project may have used ACM and could expose receptors to asbestos, which may become airborne with other particulates during demolition.

All demolition activities would be subject to EPA's asbestos NESHAP if asbestos is present at the existing facilities. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of ACM. The asbestos NESHAP regulations for demolition and renovation are outlined in BAAQMD Regulation XI, Rule 11-2. Consequently, regulatory mechanisms exist that would ensure that impacts from ACM, if present during demolition under the proposed Project, would be less than significant.

Diesel Particulate Matter and PM2.5

In a recent court case, the California Supreme Court held that lead agencies are not required to analyze the impacts of the environment on a project's future users or residents, unless the project exacerbates existing environmental hazards (see *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369) or when the legislature has indicated by specific California Public Resources Code sections (21096, 21151.8, 21155.1, 21159.21, 21159.22, 21159.23, and 21159.24) that specifically define environmental hazards associated with airport noise and safety, school projects, certain kinds of infill housing, and transit priority projects must be addressed. The proposed Project, which would guide future development of the area surrounding the future Isabel Avenue Valley Link station in Livermore, is intended to support

regional goals of integrating transit and land use policies to create opportunities for transit-oriented development. As the future Valley Link station would be located in the I-580 median at Isabel Avenue, the proposed Project would bring future land uses and associated sensitive receptors in proximity to roadways that are major source of TAC emissions. Additionally, certain land use types (e.g., residential mixed use) proposed under the proposed Project may introduce emission sources (e.g., generators) that would exacerbate existing environmental TAC hazards while also siting a sensitive receptor that may be exposed to the exacerbated existing TAC hazard. Accordingly, this EIR considers both potential effects of plan development on existing receptors, as well as effects of the environment on the proposed Project.

Operational Health Risks

BAAQMD's CEQA Guidelines (2017) suggest that specific plans establish overlay zones around existing and proposed land uses that emit TACs. Table 3.1-2 inventories existing stationary sources within and in proximity to the Planning Area. Three of these sources individually exceed BAAQMD's project-level thresholds.⁵ The values presented in Table 3.1-2 are conservatively estimated based on the distance to the closest residential receptor.

As discussed previously, I-580, Isabel Avenue, Airway Boulevard, Portola Avenue, and North Canyons Parkway currently have ADT in excess of 10,000 ADT. Health risks adjacent to these roadways are summarized in Table 3.1-9. Health risk values are obtained from the BAAQMD Roadway Screening Analysis tool, last updated in 2015. As of March 2020, BAAQMD considers this tool outdated and has removed it. Given the existing conditions baseline of 2013, Table 3.1-9 is provided for informational purposes.

⁵ BAAQMD's project-level health risk thresholds are as follows: cancer risk = 10.0 cases per million; hazard index = 1.0; PM_{2.5} concentration = 0.3 ug/m³.

Table 3.1-9. Health Risks from Major Roadways (ADT >10,000) Located In and Within 1,000 Feet of the Planning Area In Excess of BAAQMD Project-Level Thresholds^a

Source Name	Location	Cancer Risk ^b	Chronic Hazard	PM2.5 Concentration
I-580	Within Plan Area	389.4	0.3	2.1
Airway Boulevard	Along Plan Area Boundary	27.7	<0.1	0.2
Isabel Avenue	Within Plan Area	40.1	0.0	0.6
Portola Avenue	Within Plan Area	18.8	0.0	0.3
North Canyon Parkway	Within Plan Area	22.9	0.0	0.3
BAAQMD Project-Level Threshold		10.0	1.0	0.3
BAAQMD Cumulative Threshold		100	10.0	0.8

Notes:

a. Risks have been adjusted by a factor of 1.3744 to reflect OEHHA's and BAAQMD's updated health risk assessment guidelines (Lau pers. comm.)

b. Health risk values are at a distance of 10 feet from the roadway.

BAAQMD Roadway Screening Analysis tool last updated April 16, 2015. As of March 2020, BAAQMD considers this calculator outdated and has removed it from its website. Given the existing conditions baseline of year 2013, this data is considered relevant for the purposes of this analysis.

Source: Bay Area Air Quality Management District, 2011.

As implementation of the proposed Project ultimately would result in the net new development of 4,095 multi-family residential dwelling units, and 2,104,200 square feet of non-residential development in the Planning Area at buildout in 2040, the increase in vehicle traffic from the proposed Project would generate additional vehicle-related TACs (including DPM and other TACs) on the local roadways located within and near the Planning Area and increase their health risks on nearby sensitive receptors. As each of the roadways identified in Table 3.1-9 currently exceed the BAAQMD's project-level cancer risk threshold, the future traffic levels from the proposed Project would further increase these risks and exacerbate cumulative health risks. Consequently, both new and existing sensitive receptors in the Planning Area would be exposed to increased TAC exposure from roadways as a result of the proposed Project.

In addition, locating new sensitive receptors associated with land uses that may also generate TACs (e.g., mixed-use developments with generators) within 1,000 feet of stationary and/or roadway sources (especially those located near the future Valley Link station in the I-580 median at Isabel Avenue) could result in exposure of these new sensitive receptors to health risks from individual or combined sources in excess of BAAQMD's cumulative thresholds.⁶ While the exposure of new sensitive receptors to existing sources of emissions does not constitute a significant environmental impact under CEQA, emissions generated by the new land uses (e.g., from diesel deliveries) in the

⁶ BAAQMD's cumulative-level health risk thresholds are as follows: cancer risk = 100 cases per million; hazard index = 10.0; PM2.5 concentration = 0.8 ug/m³.

Planning Area may individually exceed BAAQMD's project-level thresholds or exacerbate existing cumulative impacts. The proposed Project includes policies that would reduce the exposure of new sensitive receptors to existing sources of TAC emissions and reduce the potential for new TAC emissions to exacerbate existing exposure in the Planning Area for existing and potential new receptors. For example, proposed Project Policies P-ENV-9 and P-ENV-10 outline requirements for projects within certain distances of existing stationary and roadway sources to install indoor air quality equipment, such as enhanced air filters or equivalent mechanisms, to minimize health risks to future residents. Proposed Project Policy P-ENV-11 would require new large commercial developments to prepare loading plans aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading on nearby sensitive receptors.

Development under the proposed Project may also result in the installation or operation of new stationary sources of TACs. While it is unknown what specific sources would be installed or where they would operate, all new stationary sources would be subject to the permit authority of the BAAQMD. The BAAQMD will not issue a permit for a new permitted source that results in an operational cancer risk in excess of 10.0 cases per million or a hazard index of in excess of 1.0. Consequently, regulatory mechanisms exist that would ensure that cancer and health hazard impacts from stationary sources developed under the proposed Project would be less than significant, but may not be sufficient to address PM_{2.5} impacts if the source results in significant PM_{2.5} concentrations.

Construction Health Risks

Construction activities of future development projects under the proposed Project would also generate DPM that could expose adjacent receptors to significant health risks. Without specific details on the locations of building footprints or their construction schedules, a quantitative evaluation of potential health risk impacts is not possible. However, Mitigation Measures AQ-1 and AQ-2 along with proposed Project Policy P-ENV-13 would reduce DPM exhaust from construction equipment and associated health risks. Mitigation Measure AQ-4 is also identified to provide a project-level evaluation of construction-related health risks from future projects within 1,000 feet of sensitive receptors.

While proposed Project Policies P-ENV-9 through P-ENV-10 would reduce operational health risks to future residents, and Policy P-ENV-13, along with Mitigation Measures AQ-1, AQ-2, and AQ-4, would reduce construction health risks to existing and future receptors, there may be instances where project-specific conditions preclude the reduction of health risks below adopted thresholds. Therefore, consistent with BAAQMD's plan-level guidance, health impacts from TAC exposure are considered significant and unavoidable.

Proposed Project Goals and Policies that Reduce the Impact

Policy P-ENV-13, as listed under Impact 3.1-1.

Environmental Resources Chapter

- P-ENV-11: Require new residential projects and other new sensitive receptors such as schools, daycares, nursing and retirement homes located within 500 feet of I-580 to install indoor air quality equipment, such as HEPA filters or equivalent mechanisms to minimize health risks for future residents.
- P-ENV-12: Require project proponents within identified high risk Overlay Zones surrounding existing hazardous sites, roadways, or TAC sources to assess health risks at the location in question and to incorporate feasible design-related risk mitigation measures, such as high-efficiency particulate air filters (HEPA filters) or equivalent indoor air quality equipment mechanisms, as appropriate.
- P-ENV-13: Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.

Mitigation Measures

Mitigation Measure AQ-4: Require Future Projects Located within 1,000 Feet of Receptors Perform a Construction Health Risk Assessment. All applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by the Bay Area Air Quality Management District (BAAQMD), shall prepare a site-specific construction health risk assessment (HRA) taking into account both project-level and cumulative health risks (including existing TAC sources). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level and cumulative thresholds (as appropriate), then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project-level and/or cumulative thresholds (as appropriate), additional feasible on- and offsite mitigation shall be analyzed by the applicant to help reduce risks to the greatest extent practicable.

Impact 3.1-6 Implementation of the proposed Project would not expose sensitive receptors to substantial carbon monoxide pollutant concentrations from increased traffic. (*Less than significant*)

Elevated levels of CO concentrations are typically found in areas with significant traffic congestion. These areas, called hotspots, have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. Because CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. CO is a public health concern because it can cause health problems such as fatigue, headache, confusion, dizziness, and even death.

In order to determine the potential for CO hotspots, BAAQMD considers consistency with the relevant Congestion Management Plan (CMP), because congested intersections generate unhealthy concentrations of CO. The Alameda County CMP sets Level of Service (LOS) standards for

roadways and monitors LOS trends at 18 intersections in the planning area. Implementation of the proposed Project would have significant impacts on the operation of three of these intersections: North Livermore Avenue/Portola Avenue, Isabel Avenue/Airway Boulevard, and Isabel Avenue/Jack London Boulevard. The intersection of Isabel Avenue/Airway Boulevard is designated as exempt from the City of Livermore's LOS standard by per the City of Livermore General Plan and the intersection of Isabel Avenue/Jack London Boulevard is designated as exempt from the City's LOS standard because it is near a freeway interchange. However, impacts on the operation of North Livermore Avenue and Portola Avenue would make the proposed Project inconsistent with the CMP standards.

Under existing and future vehicle emission rates, a plan would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited by bridges or tunnels—in order to generate a significant CO impact. Traffic engineers Kittleson & Associates calculated traffic volumes at major intersections in the planning area for existing conditions and buildout. Implementation of the proposed Project would increase traffic volumes at a single intersection by no more than 18,800 vehicles per day (North Canyons Parkway west of Gateway Drive). Implementation of the proposed Project would create a new station parking and access road, resulting in up to 27,965 vehicles per day where no road currently exists (Isabel Avenue south of Valley Link Parking Road/Access). Additionally, traffic volumes along segments of the I-580 within the Planning Area would increase up to 29,282 vehicles per day under the proposed Project. Implementation of the proposed Project would increase peak hour AM and PM traffic volumes at a single intersection by no more than 1,780 vehicles per hour and 2,111 vehicles per hour, respectively. Therefore, implementation of the proposed Project would have a less than significant impact on CO emissions based on traffic volumes.

Implementation of the proposed Project would significantly decrease daily operational emissions of CO from mobile sources, counteracting a slight increase in CO from area and energy sources in 2040 (Tables 3.1-7 and 3.1-8). The proposed Project also includes policies that would encourage bicycle, pedestrian, and transit use to tie land use and transportation, which ensures consistency with Alameda County's CMP. Given the estimated traffic volumes and CO operational emissions supported by these policies, the proposed Project would have a less than significant impact on the health of sensitive receptors regarding CO exposure and consistency with the CMP.

Table 3.3-9 is not included due to new methodology used to determine significance.

Proposed Project Goals and Policies that Reduce the Impact

Policies P-TRA-1, P-TRA-3, P-TRA-4, P-TRA-6, P-TRA-7, P-TRA-10, P-TRA-13, P-TRA-19, P-TRA-20, P-TRA-21, P-TRA-22, P-TRA-23, and P-TRA-24, as listed under Impact 3.1-1.

Mitigation Measures

None required.

Impact 3.1-7 Implementation of the proposed Project would not create objectionable odors affecting a substantial number of people. (*Less than significant*)

BAAQMD (2017) and ARB (2005) have identified the following types of land uses as being commonly associated with odors. Although this list is not exhaustive, it is intended to help lead agencies recognize the types of facilities where more analysis may be warranted.

- Sewage Treatment Plants
- Coffee Roasters
- Asphalt Plants
- Metal Smelters
- Landfills
- Recycling Facilities
- Waste Transfer Stations
- Petroleum Refineries
- Biomass Operations
- Autobody Shops
- Coating Operations
- Fiberglass Manufacturing
- Foundries
- Rendering Plants
- Livestock Operations

Several of the potential odor-generating land use types identified above are allowed under the City's existing industrial and manufacturing zoning designations, and would continue to be allowed with approval of the proposed Project. In addition, the amount of industrial and business park land uses has been reduced overall under the proposed Project as compared to the existing General Plan, and the proposed Project does not include any policies that would expressly encourage industrial or manufacturing uses. Additionally, as future development under the proposed Project must comply with the Planning Area's development standards, odor-generating uses would only be developed in areas zoned for such uses. While the proposed Project allows for some industrial-related uses, development of most of these uses would be conditionally permitted. For instance, while recycling facilities and auto service facilities are allowed within certain Planning Area locations, no recycling facilities would be permitted on sites that are adjacent to a residential zone and no auto service station structure or equipment are permitted within 75 feet of a residential zone.

Based on the proposed Project's Land Use Diagram, auto-related, industrial, and manufacturing uses would generally be located in areas outside of the half-mile radius from the future Valley Link station, whereas most of the proposed residential uses would be located within a half-mile radius of the Valley Link station. As such, the land use categories defined under the proposed Project and

their designated locations within the Planning Area under the proposed Project would serve to minimize impacts associated with odor nuisance. Furthermore, the proposed Project also contains Design Standard DS-37, which minimizes potential nuisances including odors from the siting of new uses next to existing uses, and DS-46, which promotes locating loading and service entrances such that noise and odor impacts on nearby uses would be minimized.

Potential odor emitters during construction activities include diesel exhaust, asphalt paving, and the use of architectural coatings and solvents. Construction-related operations near existing receptors would be temporary, and construction activities would not be likely to result in nuisance odors that would violate BAAQMD Regulation 7. Given mandatory compliance with BAAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. Accordingly, odor impacts would be less than significant.

Proposed Project Goals and Policies that Reduce the Impact

Urban Design Chapter

DS-39: Loading and service entrances shall not intrude on the public view or interfere with pedestrian and vehicular flows and shall be located to minimize noise and odor impacts to nearby uses and to integrate with the building design

Mitigation Measures

None required.

3.2 Traffic and Transportation

Environmental Setting

PHYSICAL SETTING

This subsection addresses the existing conditions for transportation, including the regional overview, local setting, freeway segments, local roadway intersections, transit, bicycle facilities, and pedestrians.

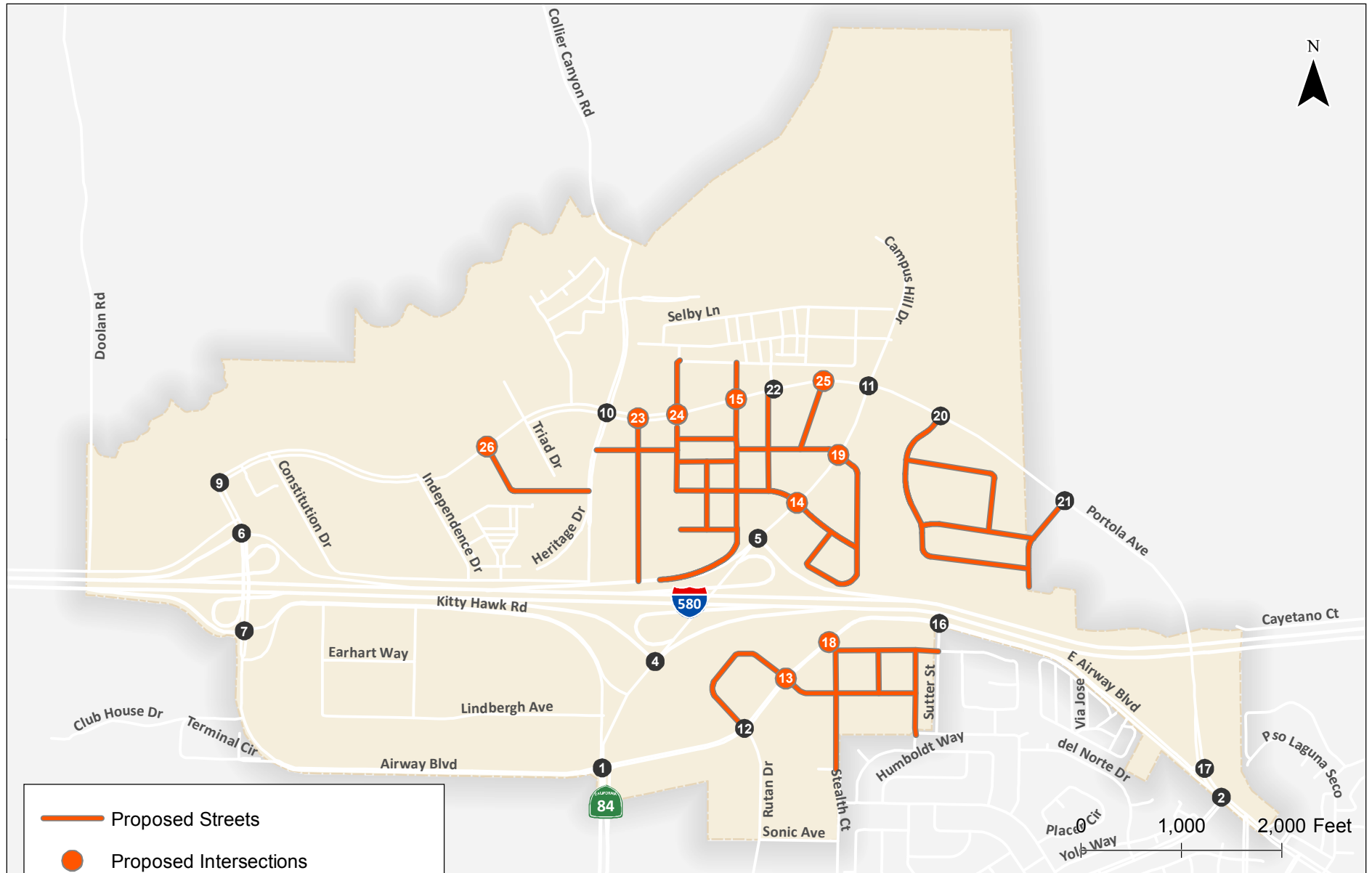
Regional Overview

The Tri-Valley Area is located east of the San Francisco Bay within the I-580 and I-680 freeway corridors, and includes the Amador, Livermore, and San Ramon Valleys. The Tri-Valley Area encompasses the cities of Dublin, Pleasanton, and Livermore in eastern Alameda County and the town of Danville and the City of San Ramon in south Contra Costa County.

Regional trends in the Tri-Valley Area that affect transportation within the project vicinity are described below. The region has been one of the fastest growing subregions of the San Francisco Bay Area (Bay Area). The Tri-Valley Area's housing market has largely driven its transportation patterns, although the Tri-Valley Area also includes multiple employment areas. The strongest travel pattern is commuting from the Tri-Valley Area and points east (including San Joaquin and Stanislaus Counties) to the rest of the Bay Area. Demand following this pattern has increased, leading to regular heavy traffic congestion on I-580.

Local Setting

This subsection describes the existing conditions related to freeway segments, local roadway intersections, transit, bicycles, and pedestrians. Figure 3.2-1 illustrates the study area, which comprises a portion of the City of Livermore, as well as portions of unincorporated Alameda County. The facilities included in the analysis vary according to transportation subtopic, as noted in the subsections that follow.



**Study Area and Study Intersections
Livermore, CA**

**Figure
3.2-1**

Freeway Segments

The key regional freeway route through the study area is I-580. Figure 3.2-2 presents the freeway segments analyzed as part of this study. Project impacts on the study area roadways were identified by measuring the effect of project traffic on freeways in the site vicinity during the morning (6:30 to 8:30 a.m.) and evening (4:30 to 6:30 p.m.) peak periods, when traffic volumes are the greatest and the project is expected to generate the most vehicular traffic. These segments were selected based on their location along I-580 and major travel routes serving the Specific Plan area and in consultation with local jurisdictions.

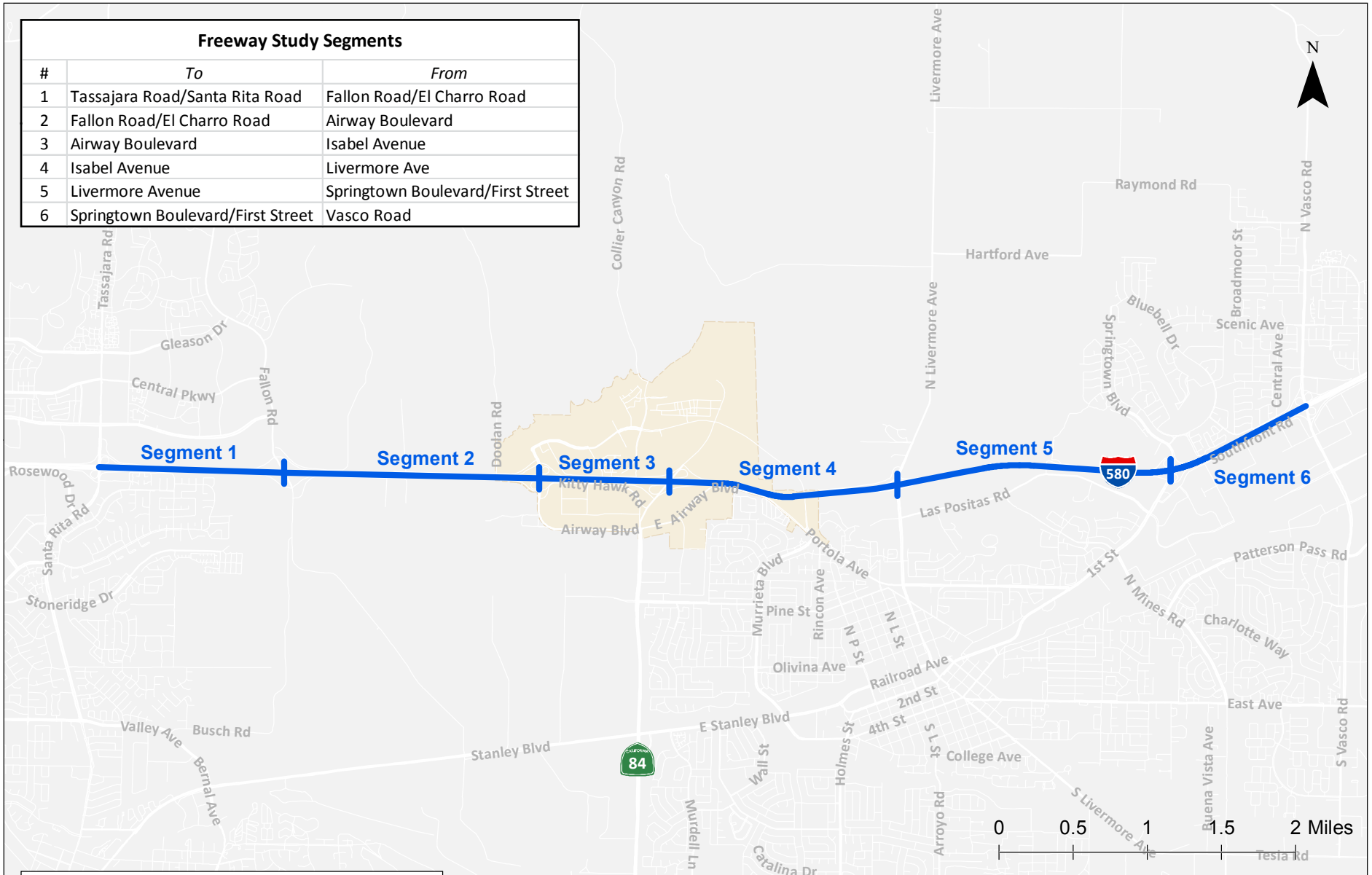
I-580 is a freeway that runs east-west from I-5 near Tracy to United States (U.S.) Highway 101 in San Rafael. I-580 connects the Bay Area with San Joaquin County and is a major interregional route for commuting, truck commerce, and recreational travel. Through the study area, I-580 currently features at least four general purpose lanes in each direction, as well as one auxiliary lane in each direction between most interchanges. I-580 also includes one high occupancy toll (HOT) lane in the westbound direction between Greenville Road and San Ramon Road/Foothill Road and two HOT lanes in the eastbound direction, with one of the eastbound HOT lanes extending from Hacienda Drive to Greenville Road and the other extending from El Charro/Fallon Road to Vasco Road. All together, these HOT lanes are known as the I-580 Express Lanes.

I-580 experiences severe congestion during the morning (AM) peak period and evening (PM) peak period. The peak hour varies for each study segment; however, the AM peak hour typically occurs between 6:30 and 8:30 a.m. while the PM peak hour typically occurs between 4:30 and 6:30 p.m. Within the Livermore city limits in 2015, I-580 carried an average daily traffic volume of 174,000 to 240,000 vehicles in both directions (Caltrans 2017).

The stretch of I-580 through Altamont Pass just east of Livermore is a primary transportation gateway to the Bay Area from the Central Valley (including San Joaquin and Stanislaus Counties). On an average weekday in 2017, 149,000 vehicles passed over Altamont Pass on I-580 (counting trips in either direction) (Caltrans, 2015).

The operational performance of freeway segments is described by level of service (LOS), a performance metric for roadways and intersections based on the ratio of vehicle demand to available capacity. Levels range from LOS A, which indicates free-flowing or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. For more information about the freeway segment LOS methodology, please see the Methodology and Assumptions subsection below. Existing freeway operations were evaluated using information from the Alameda County Congestion Management Program 2014 LOS Monitoring Study (Alameda CTC, 2014) developed by the Alameda County Transportation Commission (Alameda CTC).

Freeway Study Segments		
#	To	From
1	Tassajara Road/Santa Rita Road	Fallon Road/El Charro Road
2	Fallon Road/El Charro Road	Airway Boulevard
3	Airway Boulevard	Isabel Avenue
4	Isabel Avenue	Livermore Ave
5	Livermore Avenue	Springtown Boulevard/First Street
6	Springtown Boulevard/First Street	Vasco Road



- Study Segments
- Proposed Project Development Area

**Freeway Study Segments
Livermore, CA**

**Figure
3.2-2**

Local Roadways and Intersections

The local roadway network for the study area includes arterials, collectors, and local streets. This network is described below from north to south and east to west, as designated in general plan documents for the relevant jurisdictions. The roadway intersections included in this analysis are based on consultation with local jurisdictions, and the intersection location along major travel routes that may be affected by the proposed Project. Figure 3.2-1 identifies the intersections analyzed as part of this study.

Operating conditions on the study area roadways were determined by measuring the effect of traffic at intersections in the site vicinity during the AM and PM peak hours, when traffic is typically the highest. Traffic conditions at study intersections, listed in Table 3.2-1, were evaluated using the Highway Capacity Manual (HCM) 2000 (Transportation Research Board, 2000) LOS methodology, as described in the Methodology and Assumptions subsection below.

Existing intersection volumes were obtained from counts conducted by BART and the INSP team between 2016-2017. Multimodal volume counts were collected for AM and PM peak hours and are presented in Figure 3.2-3. Level of service analysis was computed for the study intersections, as shown in Table 3.2-1.

Under existing conditions, no study intersections exceed the adopted significance thresholds. Therefore, there are no impacted locations under existing conditions.

Table 3.2-1: Intersection Level of Service, Existing Conditions

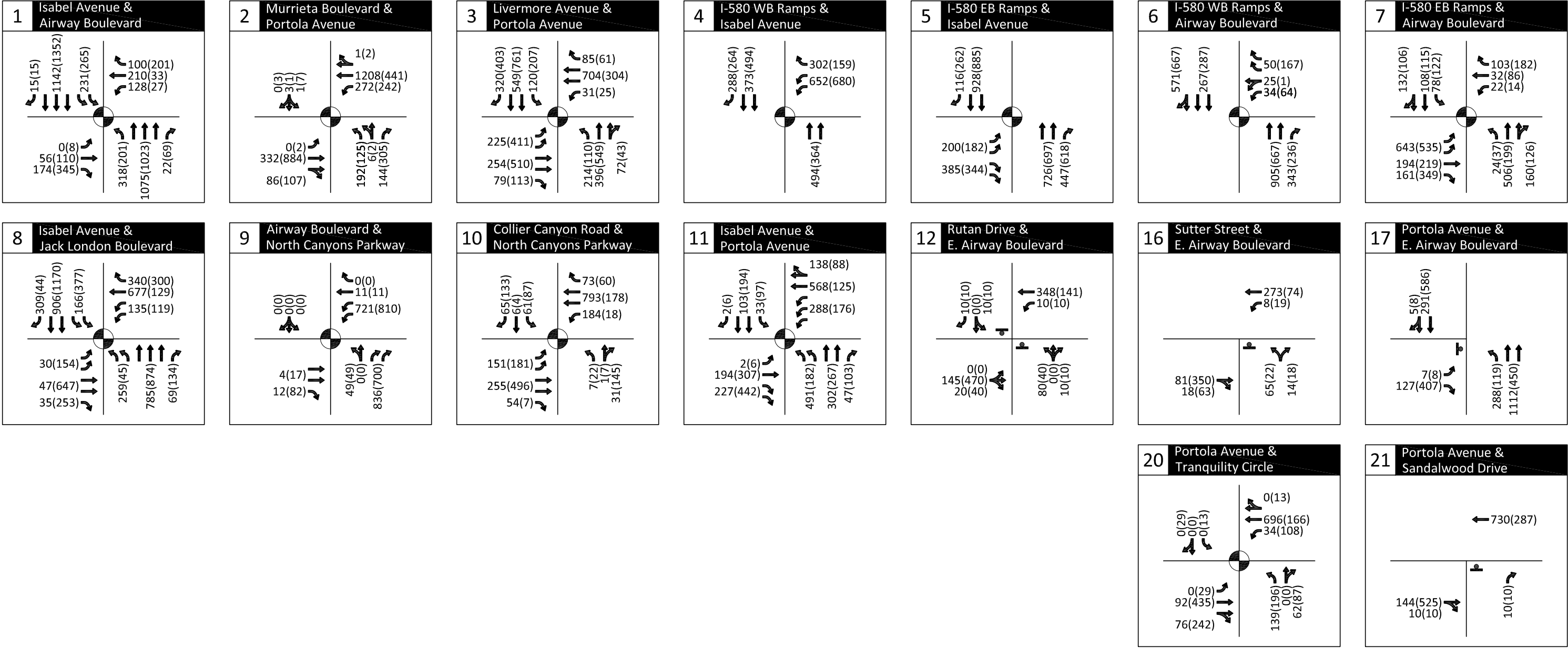
#	Name	Control	Standard	Existing AM			Existing PM		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt*	0.68	27.7	C	0.84	34.0	C
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.57	23.7	C	0.72	21.9	C
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.68	39.0	D	0.81	41.7	D
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.47	7.8	A	0.50	9.9	A
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.50	6.3	A	0.54	6.8	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.35	3.1	A	0.32	5.5	A
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.55	35.4	D	0.53	24.2	C
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt*	0.94	48.6	D	0.89	45.1	D
9	Airway Boulevard & North Canyons Parkway	Signal	E	0.31	7.0	A	0.61	13.3	B
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.44	23.3	C	0.48	23.9	C
11	Isabel Avenue & Portola Avenue	Signal	E	0.56	25.5	C	0.53	24.6	C
12	Rutan Drive & E. Airway Boulevard	Stop	Mid D	0.22	2.7 (15.4)	A (C)	0.15	1.6 (16.6)	A (C)
13	Valley Link Access & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
14	Isabel Avenue & Gateway Avenue	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
15	Portola Avenue & Main Street	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.2-1: Intersection Level of Service, Existing Conditions

#	Name	Control	Standard	Existing AM			Existing PM		
				V/C	Delay	LOS	V/C	Delay	LOS
16	Sutter Street & E. Airway Boulevard	Stop	Mid D	0.18	2.2 (11.9)	A (B)	0.26	1.5 (12.0)	A (B)
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	0.36	2.3 (12.7)	A (B)	0.70	6.2 (23.2)	A (C)
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.46	38.1	D	0.61	46.7	D
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.47	0.1 (9.1)	A (A)	0.22	0.1 (10.2)	A (B)
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Note: * Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Source: Kittelson & Associates, Inc., 2018.



AM(PM) - Traffic Volume

- Stop Sign
- Traffic Signal

Existing Traffic Volumes
Weekday AM and PM Peak Hours
Livermore, CA

Figure
3.2-3

City of Livermore

In Livermore, the major streets include Collier Canyon Road, Isabel Avenue, Vallecitos Road/Holmes Street, Murrieta Boulevard, P Street, Livermore Avenue, Mines Road, Springtown Boulevard, Vasco Road, and Greenville Road, which provide north-south access through the city. In addition, North Canyons Parkway, Northfront Road, Jack London Boulevard, East Stanley Boulevard, Las Positas Road, Patterson Pass Road, First Street, Railroad Avenue, East Avenue, Altamont Pass Road, Portola Avenue, Fourth Street, Tesla Road, and Concannon Boulevard are major streets providing east-west access. All other facilities are classified as collector streets, intercounty routes, special rural routes, or local streets. Ten major arterials in Livermore were analyzed for this project EIR; these roadways are described below.

Collier Canyon Road is a north-south arterial in northern Livermore. North of the city limits, this arterial becomes primarily a two-lane undivided rural roadway, providing access between the City of Livermore and portions of unincorporated Alameda and Contra Costa counties and the Town of Danville to the north. The speed limit is 35 miles per hour (mph) along the roadway segment within the City of Livermore. Outside of the city limits, the roadway is posted at 45 miles per hour (mph) and carries low volume traffic.

North Canyons Parkway is an east-west arterial north of I-580. This arterial is primarily a four-lane divided roadway with left-turn pockets where applicable. The speed limit is 45 mph. The street terminates at Doolan Road to the west and connects to Portola Avenue to the east. The cities of Dublin and Livermore are studying a future connection of this roadway with Dublin Boulevard to the west.

Isabel Avenue is a north-south arterial, a portion of which is also designated as State Route 84. Isabel Avenue typically carries heavy commuter traffic along western Livermore. The arterial traverses the entire length of the City of Livermore, provides direct access to I-580, and connects several neighborhoods and commercial areas in western Livermore. Isabel Avenue provides two travel lanes in each direction north of I-580, and three lanes each direction south of I-580, with left turn pockets at key locations. The speed limit is primarily 50 mph along the entire roadway. Isabel Avenue would provide access to the proposed Isabel Valley Link Station (Isabel Station) facilities north and south of I-580.

Jack London Boulevard is an east-west arterial south of I-580 in western Livermore. This arterial is primarily a two-lane undivided road with left-turn pockets at most intersections. The speed limit is 45 mph. The street connects to Stoneridge Drive at the Livermore city limit and terminates at Murrieta Boulevard to the east.

Murrieta Boulevard is a north-south arterial that in western Livermore. The arterial includes two lanes in each direction, with a raised median and left-turn pockets at most intersections. The street connects to Portola Avenue in the north and Fourth Street in the south. The roadway provides access to I-580 from western Livermore. The speed limit is 35 mph along the entire roadway.

Livermore Avenue is a major north-south arterial that extends throughout the entire length of the City of Livermore and continues north providing access between the city and portions of unincorporated Alameda and Contra Costa counties and the Town of Danville. Traffic flow is

moderate, and the roadway provides additional north-south linkages through downtown. The arterial is primarily a two-lane, divided roadway; however, near the downtown area, it is reduced to one lane in each direction, with left-turn pockets where applicable. The roadway provides access to I-580 and connects the freeway to several subareas throughout the City of Livermore. The speed limit along Livermore Avenue is 40 mph near I-580, and the speed limit is reduced to 30 mph near the downtown area. The posted speed limit is 25 mph in the downtown area between Railroad Avenue and Fourth Street.

Stanley Boulevard is a four to five-lane road that extends from Santa Rita Road in Pleasanton to First Street in Livermore. The speed limit is 45 mph. The road features a Class II bicycle lane along its entire length and a Class I trail within the unincorporated Alameda County segment between the two cities.

Portola Avenue is a major east-west arterial, located in northern Livermore that operates north of downtown. South of I-580, this arterial is primarily a four-lane divided roadway with left-turn pockets where applicable; north of I-580, this arterial varies from two lanes to six lanes. The roadway connects several neighborhoods and businesses and provides direct connection to other major arterials throughout northern Livermore. Portola Avenue previously terminated at ramps to/from I-580; in 2012, as the final component of the Isabel/I-580 Interchange project, Portola Avenue was extended over I-580 to connect with North Canyons Parkway, near Las Positas College, north of the Isabel Station site. The speed limit is 35 mph along the roadway.

Vasco Road is a north-south arterial that typically carries truck traffic along eastern Livermore. The arterial operates along the entire length of the city and includes two travel lanes in each direction, with a raised median at most intersections. The roadway provides direct access to I-580 and connects several commercial, industrial, and agricultural areas in eastern Livermore. The arterial extends north to east Contra Costa County and is a primary commute route. The speed limit is 45 mph along the entire roadway.

Greenville Road is a north-south arterial at the eastern edge of Livermore that typically carries truck traffic along the eastern part of the city. The arterial traverses the entire length of Livermore and includes two lanes in each direction, with a raised median and left-turn pockets at most intersections. The roadway provides direct access to I-580 and connects businesses, industrial uses, and agricultural areas in eastern Livermore. The speed limit is 45 mph along the entire roadway.

Livermore experience a significant amount of nonlocal cut-through traffic on local roads because large numbers of commuters use city streets to bypass the traffic congestion on I-580 and I-680. Cut-through traffic primarily occurs in response to freeway congestion and affects major east-west and north-south routes through the cities. Cut-through traffic can occur on arterial streets as well as on local and collector streets, and can also be accompanied by excessive speeding. Congestion on I-580 is predicted to worsen as cities east of the Altamont Pass continue to grow. City streets with noted cut-through traffic include Livermore Avenue, Concannon Boulevard, First Street, Vasco Road, Greenville Road, Stanley Boulevard, Isabel Avenue, Northfront Road, Southfront Road, and Las Positas Road. Increases in regional commuting, combined with increases in congestion on regional freeways and highways such as I-580, are expected to cause an increase in the amount of cut-through traffic in all Tri-Valley cities as motorists seek non-freeway routes for regional trips.

Transit

Valley Link

Valley Link is conceived as a rail-based transit solution to bridge the gap between BART and ACE and improve connections between the greater San Francisco Bay Area and San Joaquin County. The rail connection will include six new and three “infill” stations, including at Greenville Road and Isabel Avenue in Livermore, and a transfer station near the East Dublin/ Pleasanton BART station, all part of Phase 1. The second phase of the project will extend rail service from the North Lathrop ACE Station to the existing Stockton ACE/San Joaquin Stations. Planned frequency would include train service every 12 minutes in the peak periods and 24 minutes in the off-peak periods. The Valley Link system will consist of multiple unit (MU) trains featuring hybrid technology, with the ability to convert to fully-electric operations in the future. It will consider technology advances such as full electric battery operation and potential use of hydrogen fuel cells to power train motors.

Valley Link trains will run throughout the day in both directions with the goal of matching BART frequency and hours of operation. Valley Link will offer service between 5:00 a.m. and 8:00 p.m. daily with 12-minute headways peak hours and 30-minute headways during off-peak hours. The Valley Link Project Feasibility Report estimates that Valley Link trains will complete 25 daily round trips and accommodate 28,000 riders per day in 2040. The Feasibility Report estimates that about 3,740 riders will board at the Isabel Station on the average weekday in 2040. A draft program schedule has been developed for planning and managing the overall program delivery, and forecasts completion of the Valley Link project as taking place between the second quarter of 2027 and the fourth quarter of 2028.

Other Transit Services

This subsection describes other transit services that will ultimately connect to Valley Link.

Valley Link will connect to BART at the Dublin/Pleasanton Station. The BART system consists of six train lines operating out of 46 stations over 112 route miles; the system connects the Bay Area counties of Alameda, Contra Costa, San Francisco, and San Mateo. During fiscal year 2015–2016, 433,000 passengers entered the BART system each weekday. Four out of the six BART lines travel from the East Bay to San Francisco through a 3.6-mile-long tunnel known as the Transbay Tube. The Transbay Tube serves half of BART's daily ridership and is a major capacity constraint for the BART system. The Transbay Tube can safely accommodate about one train per 2.5 minutes and is at capacity with 23 trains and nearly 25,000 passengers during the peak hour in the peak direction.

BART provides daily service in the study area at the Dublin/Pleasanton Station, which is located in the I-580 median between the Hopyard Road and Hacienda Drive interchanges. All trains serving the Dublin/Pleasanton Station currently run on the Dublin/Pleasanton-Daly City line, directly to Daly City via downtown San Francisco. On weekdays, BART trains complete 76 trips along this route in each direction, offering service from 4:00 a.m. to 1:00 a.m. the following morning. Weekday trains operate at 15-minute headways until about 7:30 p.m., and at 20-minute headways after 7:30 p.m. In fiscal year 2015–2016, an average of 7,900 BART riders per weekday exited the Dublin/Pleasanton Station.

The Livermore-Amador Valley Transit Authority (LAVTA) is the primary bus service provider in the Tri-Valley Area (including the cities of Dublin, Pleasanton, and Livermore). LAVTA currently operates five routes in the study area, all of which connect to the Dublin/Pleasanton Station.

In addition to LAVTA, San Joaquin Regional Transit District (RTD), Stanislaus Regional Transit, County Connection, and Modesto Area Express (MAX) operate public bus services in the study area. The San Joaquin Regional Rail Commission (SJRRRC) is the owner and operator of the commuter rail service in the study area known as the Altamont Corridor Express (ACE), which Valley Link will connect to in Livermore, North Lathrop, and Stockton. Table 3.2-2 provides a detailed summary of the transit routes serving the study area.

Table 3.2-2: Surrounding Transit Services, Existing

<i>Operator</i>	<i>Route</i>	<i>Existing Peak Headway</i>	<i>Existing Service Span</i>	<i>Route Overview</i>
BART	BART	15 min	Weekday/Saturday: 4:00 a.m. – 1:00 a.m. Weekend: 7:30 a.m. – 1:00 a.m.	Dublin/Pleasanton Station to Daly City Station
LAVTA	10	30 min	Weekday: 4:00 a.m. – 1:14 a.m. Saturday: 4:57 a.m. – 1:14 a.m. Sunday: 5:17 a.m. – 1:14 a.m.	LLNL to Dublin/Pleasanton Station (to Stoneridge Mall on weekends and M–F 7:20–11:56 p.m. only).
LAVTA	12	30 min	Weekday: 6:00 a.m. – 10:40 p.m. Weekend (<i>Sunday only</i>): 6:00 a.m. – 10:40 p.m.	Livermore Transit Center to Stoneridge Mall via Dublin/Pleasanton Station
LAVTA	12X	45 min	Weekday: 6:00 a.m. – 9:15 p.m. Weekend: <i>No service</i>	Livermore Transit Center, Valley Care Livermore Campus, Airway Park and Ride, Las Positas College, Kitty Hawk/Armstrong, Dublin Boulevard/Fallon intersection, East Dublin/Pleasanton Station
LAVTA	20X	45 min	Weekday: 6:15–10:00 a.m.	Dublin/Pleasanton Station,

Table 3.2-2: Surrounding Transit Services, Existing

Operator	Route	Existing Peak Headway	Existing Service Span	Route Overview
			& 4:00–6:40 p.m. Weekend: <i>No service</i>	Greenville Road, LLNL/SNL, Livermore Transit Center
LAVTA	Rapid Route	15 min	Weekday: 5:30 a.m. – 8:00 p.m.	Dublin/Pleasanton Station to Livermore Transit Center
RTD	150	60 min	Weekday: 4:10 a.m. – 10:20 p.m. Weekend: <i>No service</i>	Stockton Downtown Transit Center, Stockton-Michigan Park & Ride, Lathrop: Save Mart, Tracy Transit Station, Dublin/Pleasanton Station
MAX	BART Express	60 min (two inbound trips in a.m. and two outbound trips in p.m.)	Weekday: 4:40–9:00 a.m. & 3:45–8:00 p.m. Weekend: <i>No service</i>	Modesto Downtown Transportation Center, Sisk Road Orchard Supply Hardware Parking Lot (Modesto), Dublin/Pleasanton Station
SJRR	ACE	30 min (four inbound trips in a.m. and four outbound trips in p.m.)	Weekday: 4:20–9:17 a.m. & 3:35–8:50 p.m. Weekend: <i>No service</i>	Downtown Stockton Transit Center to San Jose (via Livermore and Pleasanton)
StaRT	Commuter	One trip per peak period, peak direction	Weekday: 4:15–6:10 a.m. & 4:20–6:20 p.m.	Turlock, Patterson, Pleasanton via I-5 and I-580

Table 3.2-2: Surrounding Transit Services, Existing

Operator	Route	Existing Peak Headway	Existing Service Span	Route Overview
County Connection	35	30 min (peak) 60 min (off peak)	Weekday: 6:00 a.m. – 8:17 p.m. Weekend: <i>No service</i>	San Ramon Transit Center, Bollinger Canyon Road, Dougherty Road, Dublin/Pleasanton Station
County Connection	36	60 min	Weekday: 6:15 a.m. – 9:00 p.m. Weekend: <i>No service</i>	San Ramon Transit Center, San Ramon, Dublin/Pleasanton Station
County Connection	97X	30 min (peak) No off-peak service	Weekday: 6:30 a.m. – 7:00 p.m.	Bishop Ranch Express, South: Dublin/Pleasanton Station to Bishop Ranch

Notes:

This table refers to existing surrounding transit services prior to implementation of Wheels Forward Plan.

min = minutes; LAVTA = Livermore-Amador Valley Transit Authority; RTD = San Joaquin Regional Transit District; MAX = Modesto Area Express; StaRT = Stanislaus Regional Transit; SJRRC = San Joaquin Regional Rail Commission; LLNL = Lawrence Livermore National Laboratory; SNL = Sandia National Laboratories.

Sources: Livermore-Amador Valley Transit Authority (LAVTA), 2014; San Joaquin Regional Transit District (RTD), 2016; Stanislaus Regional Transit (StaRT), 2016; County Connection, and Modesto Area Express (MAX), 2016; San Joaquin Regional Rail Commission (SJRRC), 2016

The RTD is the regional transit provider for San Joaquin County, with one express route that connects the Stockton Downtown Transit Center to the Dublin/Pleasanton Station.

The MAX operates one route between the Modesto Downtown Transportation Center and the Dublin/Pleasanton Station.

The SJRRC operates four ACE trains in the peak direction between Stockton and San Jose via downtown Livermore and Pleasanton. The SJRRC is currently in the process of expanding service to Ceres, Merced, and Sacramento. Additionally, the SJRRC is coordinating with Union Pacific Railroad on a platform extension project at multiple stations, including Livermore, that will accommodate 10-car trains. The SJRRC also started providing Saturday service in mid-2019 with two daily round trips between Stockton and San Jose.

In the current condition, there are bus shuttles connecting BART to the ACE Pleasanton Station, operated by LAVTA, including Route 53 to the West Dublin/Pleasanton Station and Route 10 to

the Dublin/Pleasanton Station. Stanislaus Regional Transit provides bus service in Stanislaus County. The operator runs one commuter route to the existing Dublin/Pleasanton Station, starting from Turlock, via Patterson.

County Connection provides fixed-route and paratransit service in Contra Costa County. County Connection runs three routes to the Dublin/Pleasanton Station.

The existing annual weekday ridership for key surrounding transit services within the study area is presented in Table 3.2-3.

Table 3.2-3: Weekday Ridership, Existing

<i>Operator</i>	<i>Route</i>	<i>Ridership</i>
LAVTA	10	1,547
LAVTA	12/12X	651
LAVTA	20X	38
LAVTA	Rapid Route/30R	1,773

Source: Livermore-Amador Valley Transit Authority (LAVTA), 2016

Pedestrian and Bicycle Network

The Planning Area and nearby surroundings include several activity centers, parks, recreational facilities, and other key destinations that are expected to generate bike and foot traffic, should bike facilities be available. These destinations include:

- Las Positas College, with an enrollment of about 10,000 students;
- The Class I trails and bikeways in the area (see the following section);
- Shea Montage, across the street from Las Positas College to the south, and a smaller residential area southwest of the college;
- Shea Homes' Sage Project, under construction at the southeast corner of Isabel Avenue and Portola Avenue, consisting of 476 dwelling units;
- The residential neighborhood south and east of East Airway Boulevard, Sutter Street, Stetson Way and Stealth Street, and including Maitland Henry Park, a neighborhood park with a tot lot, barbecue pits and picnic tables, at Mendocino Road and Alameda Drive;
- Cayetano Park, near the corner of Portola Avenue and Isabel Avenue-Campus Hill Drive, with sports fields, play area and dog park; and
- Livermore Downs, a neighborhood park with a tot lot and tennis courts, at Paseo Laguna Seco and Portola Avenue.

Existing Bikeway and Trail Facilities

The Planning Area currently benefits from a network of Class II bicycle lanes, defined as a striped lane for one-way bike travel, as well as Class I trails, defined as separated paths suitable for use by pedestrians and bicyclists. In the Planning Area, many of the existing Class I trails are essentially wide sidewalks. Figure 3.2-4 shows the network of existing bikeways and Class I trails in and near the Planning Area.

Figure 3.2-4 also shows bikeways and Class I trails planned for the Isabel Neighborhood Plan, either as part of the Isabel Neighborhood plan or other existing City plans or programs. These will be discussed in the impact analysis below. Roughly from west to east and north to south, the existing bikeways, followed by the existing trails, are:

- Bike lanes on the entire length of North Canyons Parkway and Portola Avenue through the project area;
- Bike lanes on Airway Boulevard from Isabel Avenue to North Canyons Parkway;
- Bike lanes along Collier Canyon Road and Constitution Drive from Campus Loop south to Independence Drive;
- Bike lanes on Isabel Avenue from Portola Avenue past the southern boundary of the Planning Area;
- Bike lanes along most of Campus Loop;
- Trails along Collier Canyon Road and Collier Canyon Channel from Portola Avenue south to Constitution Drive;
- Trail from the Isabel/Campus Hill Drive intersection under I-580 to Portola Boulevard
- Trail along Campus Loop from Collier Canyon Road to Campus Hill Drive;
- Trail along Campus Hill Drive from Campus Loop to Isabel Avenue; and
- Trail along and beyond Stealth Street to the north, along and beyond Stetson Way to the west and along Sutter Street to East Airway Boulevard.

Existing Pedestrian Facilities

Figure 3.2-5 diagrams the existing and proposed pedestrian network throughout the Isabel Neighborhood, including crosswalks, bridges, under-crossings, and Class I trails. The diagram shows that existing trails connect Las Positas College, Collier Canyon Road, Isabel Avenue, and Portola Avenue, as well as along Sutter Street and Stealth Street. Planned trails extend the network to create a complete loop along College Loop, the Arroyo Las Positas, Airway Boulevard, and Collier Canyon Creek. All Class I trails identified on this diagram are completely separated from the vehicular right-of-way and for the exclusive use of bicycles and pedestrians. All pedestrian facilities are discussed in the impact analysis below.

Figure 3.2-4: Bicycle Circulation

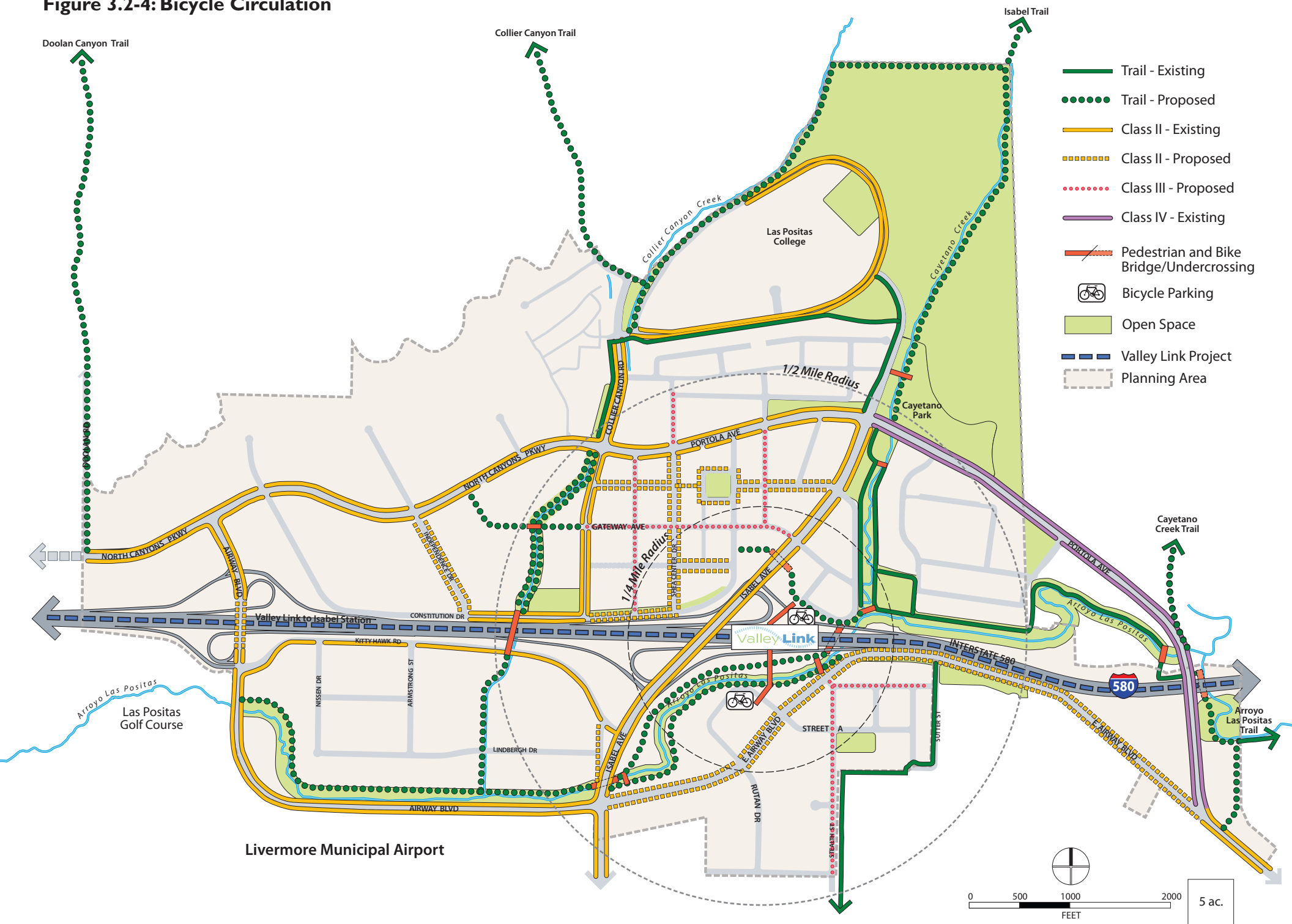
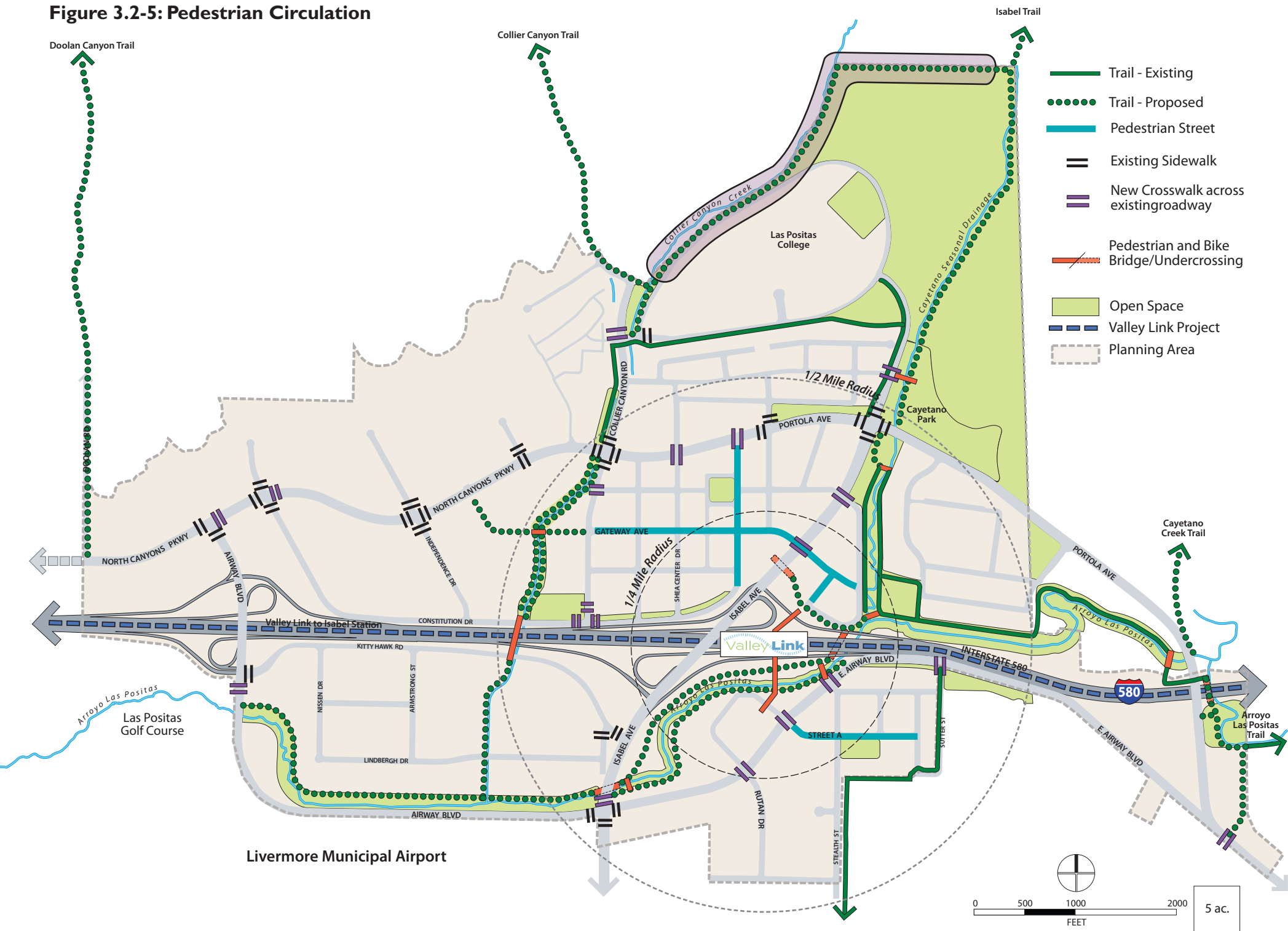


Figure 3.2-5: Pedestrian Circulation



REGULATORY SETTING

State Regulations

Senate Bill 743

Senate Bill (SB) 743, signed into law in 2013, requires CEQA lead agencies to shift from using traditional LOS standards and automobile delay to determine significant traffic impacts. Under SB 743, the State Office of Planning and Research is required to update CEQA guidelines and criteria to promote greenhouse gas emissions reductions, multimodal transportation networks and diverse land uses. The Office of Planning and Research proposes using VMT as the metric for evaluating the significant traffic impacts, where projects that decrease VMT compared to existing conditions may be considered to have a less than significant transportation impact. SB 743 provides that, once the State adopts updated CEQA Guidelines for alternatives to LOS-based significance determinations, automobile delay as described by LOS shall not be considered a significant impact on the environment. However, the State guidelines are still under development. Accordingly, the City of Livermore has determined to utilize the LOS-based methodology for significance determination in this EIR.

Caltrans

Within the Planning Area, Interstate 580 (I-580), a major east-west aligned route, is operated by Caltrans. The following is a summary of Caltrans policies that are intended specifically for situations where state-operated routes interact with City facilities.

Caltrans Deputy Directive 64-R2: Complete Streets – Integrating the Transportation System

In 2001, Caltrans adopted Deputy Directive (DD) 64; a policy directive related to non-motorized travel throughout the state. In October 2014, DD 64 was strengthened to reflect changing priorities and challenges. DD 64-R2 states:

The California Department of Transportation (Caltrans) provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. Caltrans views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

Caltrans develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating "complete streets" beginning early in system planning and continuing through project delivery and maintenance and operations. Developing a network of "complete streets" requires collaboration among all Department functional units and stakeholders to establish effective partnerships.

Caltrans states that the goal of complete streets is to “provide safe mobility for all users, including motorists, bicyclists, pedestrians and transit riders”. Furthermore, Caltrans states that successful long-term implementation of this policy is intended to result in more options for people to go from one place to another, less traffic congestion and greenhouse gas emissions, more walkable communities, and fewer barriers for older adults, children, and people with disabilities.

Director’s Policy 22 (DP-22), “Director’s Policy on Context Sensitive Solutions”

Director’s Policy 22, a policy regarding the use of “Context Sensitive Solutions” on all state highways, was adopted by Caltrans in November of 2001. The policy reads:

The Department uses “Context Sensitive Solutions” as an approach to plan, design, construct, maintain, and operate its transportation system. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. Context sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders.

The context of all projects and activities is a key factor in reaching decisions. It is considered for all State transportation and support facilities when defining, developing, and evaluating options. When considering the context, issues such as funding feasibility, maintenance feasibility, traffic demand, impact on alternate routes, impact on safety, and relevant laws, rules, and regulations must be addressed.

The policy recognizes that “in towns and cities across California, the State highway may be the only through street or may function as a local street,” that “these communities desire that their main street be an economic, social, and cultural asset as well as provide for the safe and efficient movement of people and goods,” and that “communities want transportation projects to provide opportunities for enhanced non-motorized travel and visual quality.” The policy acknowledges that addressing these needs will assure that transportation solutions meet more than just traffic and operational objectives.

Caltrans Guide for the Preparation of Traffic Impact Studies

The Caltrans Guide for the Preparation of Traffic Impact Studies, 2002, includes criteria for evaluating the effects of land use development and changes to the circulation system on State highways. Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D.

The California Department of Transportation (Caltrans) endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities; however, Caltrans recognizes that achieving LOS C/LOS D may not always be feasible (Caltrans, 2002). This analysis uses a standard of LOS E or better during peak hours as the planning objective for the evaluation of potential impacts of this development on Caltrans facilities, as that is the standard set by Alameda CTC for monitoring Caltrans facilities in the study area (Alameda CTC, 2015).

Local Regulations

Alameda CTC

Alameda CTC does not have adopted thresholds of significance applicable to CEQA requirements for freeway analysis purposes (Alameda CTC, 2015). Alameda CTC's freeway monitoring efforts set LOS E as the standard for monitoring performance (Alameda CTC, 2015).

Livermore Active Transportation Plan

Adopted in 2018, the Livermore Active Transportation Plan includes policies guiding new development projects to include trail and bikeway and pedestrian facilities to facilitate on-site circulation for non-motorized modes of travel. The Active Transportation Plan also guides the implementation of connections to the bikeways and trails system from all existing and future transit facilities, stations, and terminals in Livermore; safe and efficient off-street and on-street crossings of I-580 that make logical connections to the bikeways and trails; and connections between school/work/public facility areas to residential areas.

City of Livermore General Plan

The City of Livermore General Plan stipulates a transportation goal to “maintain adequate levels of service for all areas of the City.” “The upper limit of acceptable service at signalized intersections shall be mid-level D, except in the Downtown Area and near freeway interchanges...The upper limit of acceptable level of service at selected intersections near freeway interchanges shall be LOS E” (City of Livermore, 2014). In addition, the General Plan identifies selected intersections that may exceed the LOS standard.

The Circulation Element of the Livermore General Plan provides the policy framework for regulation and development of the City's transportation system. This Element includes policies to plan for Complete Streets, promote multimodal transportation, provide a pedestrian network that encourages walking for transportation and recreation, and provide safe and convenient bicycle parking.

Impact Analysis

SIGNIFICANCE CRITERIA

Implementation of the proposed Project would have a potentially significant adverse impact if it would:

- Criterion 1: Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Criterion 2: Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Criterion 3: Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Criterion 4: Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Criterion 5: Result in inadequate emergency access.
- Criterion 6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Applicable criteria related to the standards of significance above are described below.

Freeway Segments

This EIR uses the following criteria to identify impacts to freeway facilities:

1. If a freeway segment is projected to operate at LOS E or better without the project and the project is expected to cause the segment to operate at LOS F, the project impact is considered significant.
2. If a freeway segment is projected to operate at LOS F without the project and the project is expected to increase the volume-to-capacity (V/C) ratio on the freeway segment by more than 2 percent, the project impact is considered significant.

CMP Arterial Segments

This EIR uses the following criteria to identify impacts to CMP arterial facilities:

1. If an arterial segment is projected to operate at LOS E or better without the project and the project is expected to cause the segment to operate at LOS F, the project impact is considered significant.
2. If an arterial segment is projected to operate at LOS F without the project and the project is expected to increase the volume-to-capacity (V/C) ratio on the arterial segment by more than 5 percent, the project impact is considered significant.

Local Roadway Intersections

Performance standards for traffic are described below.

City of Livermore

An intersection impact would occur if, in either the AM or PM peak hour, the proposed Project resulted in the following:

1. An intersection operating at an acceptable mid-level LOS D or better (corresponding to an average delay of 45 seconds per vehicle) under No Project Conditions degraded to an unacceptable high of LOS D or worse under Project Conditions.
2. An intersection near the freeway operating at an acceptable LOS E or better (80 seconds per vehicle) under No Project Conditions degraded to an unacceptable LOS F under Project Conditions.
3. An intersection operating at substandard LOS under No Project Conditions increased average delays by more than 5 seconds per vehicle.

Transit

The primary policy goals of the transit agencies in the study area emphasize increasing ridership, improving access to BART, and reducing system inefficiencies. A significant impact would result if the proposed Project were to directly impede any of the relevant transit agencies from implementing planned improvements and/or their ability to meet these goals. Therefore, a significant impact would occur if the proposed Project resulted in the following:

1. Impeded connecting transit services from increasing ridership;
2. Impeded connecting transit services from improving their access to BART; or
3. Impeded connecting transit services from reducing system inefficiencies.

Bicyclists

There are no established criteria for the assessment of bicycle impacts. For this EIR, an impact on bicycles would occur if the proposed Project performs substantially worse than existing conditions in the Planning Area in terms of bicycle circulation, access, and safety.

Pedestrians

There are no established criteria for the assessment of pedestrian impacts. For this EIR, an impact on pedestrians would occur if the proposed Project performs substantially worse than existing conditions in terms of pedestrian crossing distance at study intersections, crossing delay at study intersections, circulation and access within the study area, and safety within the Planning Area.

Construction Impacts to Transportation

A significant impact would occur if construction activities of the proposed Project resulted in a substantial delay, safety hazard, or diminished access.

METHODOLOGY AND ASSUMPTIONS

The key difference in the analysis presented here is replacement of BART as primary transit with Valley Link rail from North Lathrop in San Joaquin County to East Dublin/Pleasanton in Alameda County. All traffic study locations and scenarios remain the same as in the previously-certified EIR.

Isabel Neighborhood Plan Analysis

The Valley Link project is anticipated to be completed between the second quarter of 2027 and the fourth quarter of 2028. Traffic for the Isabel Neighborhood Specific Plan was assessed for 2028 Near Term (Valley Link Opening) and 2040 Cumulative Conditions. The Valley Link project was not assumed as part of No Project Conditions. But both 2028 and 2040 Plus Project Conditions did assume the proposed Valley Link rail together with buildout of the INSP (partial buildout in 2028, and full buildout by 2040).

Traffic Modeling

Traffic modeling for the proposed Project was based directly on the modeling from the BART to Livermore Extension (BLVX) study and modified to replace BART as the primary transit serving the Neighborhood Plan with a station at Isabel Avenue on the Valley Link rail from North Lathrop in San Joaquin County to East Dublin/Pleasanton BART station in Alameda County. The BLVX study used the Alameda CTC Countywide Travel Demand Model with Association of Bay Area Governments (ABAG) Plan Bay Area Projections and network assumptions. The model has a base year of 2013, and horizon years of 2028 and 2040 conditions. Year 2028 and 2040 No Project Conditions include Plan Bay Area land use assumptions outside of the INSP area and Livermore General Plan assumptions within the INSP area. Additional modeling was conducted to represent the future INSP circulation in more detail than was represented in the BLVX modeling. The more detailed modeling was used to generate and distribute the INSP area trips to the new streets and connections to the existing city arterials so that detailed traffic operational analysis could be conducted to determine access control and size the new streets and intersections.

Valley Link Rail

Additional modeling was conducted to represent the assumptions for the Valley Link rail , including station locations, fares, travel times, frequencies, and park and ride connections. Valley Link rail replaces the DEIR BART extension from East Dublin/Pleasanton to Isabel Avenue with a

new proposed commuter rail extension from North Lathrop to East Dublin/ Pleasanton and having a station at Isabel Avenue. Valley Link ridership was compared to the preliminary results from the Valley Link rail DEIR study to ensure the two forecasting efforts produced comparable results.

Freeway Segments

This EIR uses a modified version of Alameda CTC's Countywide Travel Demand Model to generate future-year peak-period volumes. These volumes are used to calculate V/C ratios according to the 1985 HCM (Transportation Research Board, 1985), to be consistent with Alameda CTC's Congestion Management Program (Alameda CTC, 2015). The peak-hour volume on a segment in each direction is compared to the segment's vehicle carrying capacity (i.e., the V/C ratio is calculated). Segment capacity is calculated as 2,000 vehicles per hour per lane multiplied by the number of lanes.

Table 3.2-4 summarizes LOS and V/C thresholds for freeway segments. Results for general purpose lanes and high-occupancy vehicle (HOV)/express lanes are shown separately.

Table 3.2-4 Level of Service Criteria – Freeway Segments

<i>Level of Service</i>	<i>Average Travel Speed</i>	<i>Volume/Capacity Ratio</i>
A	≥ 60	0.35
B	≥ 55	0.58
C	≥ 49	0.75
D	≥ 41	0.90
E	≥ 30	1.00
F	< 30	-

Source: Transportation Research Board, 1985.

Local Roadway Intersections

For signalized intersections in the study area, the analysis calculated the average delay per vehicle using the HCM 2000 methodology, via Synchro 7 traffic analysis software, to determine LOS, as shown in Table 3.2-5. If the V/C ratio was found to exceed 1.0, regardless of the delay, the analysis assigned LOS F.

Table 3.2-5 Level of Service Criteria – Signalized Intersections

<i>Average Control Delay (sec/veh)</i>	<i>Level of Service</i>
≤ 10	A
>10–20	B
>20–35	C
>35–55	D
>55–80	E
>80	F

Note: sec/veh = seconds per vehicle

Source: Transportation Research Board, 2000.

For unsignalized intersections in the study area, the analysis used HCM 2000 methodology, determining the LOS by calculating the weighted average control delay, expressed in seconds per vehicle, as illustrated in Table 3.2-6. Control delay includes the sum of all individual movements that a vehicle might make at an unsignalized intersection, including initial deceleration delay, queue move-up time, stopped delay, and final acceleration. At two-way stop-controlled intersections, LOS was calculated for each controlled movement, as opposed to the intersection as a whole. If the V/C ratio of a lane was found to exceed 1.0, regardless of the control delay, the analysis assigned LOS F.

Table 3.2-6 Level of Service Criteria – Unsignalized Intersections

<i>Average Control Delay (sec/veh)</i>	<i>Level of Service</i>
≤ 10	A
>10–15	B
>15–25	C
>25–35	D
>35–50	E
>50	F

Note: sec/veh = seconds per vehicle

Source: Transportation Research Board, 2000.

Future Planned Roadway Improvements

The following roadway improvements are planned for the study area:

- City Traffic General Plan Improvements
- Portola overpass widening
- Isabel Avenue Widening/Improvements
- Dublin Blvd. - North Canyon Parkway Connection
- New traffic signals
- INSP Proposed improvements (refer to street network diagram)
- Off-site intersection improvements:

- The intersection of Portola Avenue/ East Airway Boulevard (Intersection 17) will be improved as part of the INSP Project to include a signal and addition of a second northbound left-turn lane.
- The intersection of Portola Avenue/ Murrieta Avenue (Intersection 2) will be improved as part of the INSP Project to include the addition of a second northbound left-turn lane. This improvement is also part of the City Transportation Improvement Program (TIP).
- Local Street types

Future Bicycle and Pedestrian Facilities

Figure 3.2-4 diagrams an extensive network of Class I trails throughout the Isabel Neighborhood as well as pedestrian bridges and under-crossings that complete the trail network. Within the Isabel Neighborhood, the trails provide continuous creekside access and routes to the station that are separated from both fast-moving traffic and expanses of parking. The trails include paved paths as well as unpaved trails for bicyclists, pedestrian, and hikers alike. All Class I trails identified on this diagram are completely separated from the vehicular right-of-way and for the exclusive use of bicycles and pedestrians.

Many of the trail alignments indicated are part of projects already underway or are already identified in local and regional trail plans. The trail segments along the east side of the Cayetano seasonal drainage area south of Portola Avenue and the trail segment that extends east to Portola Avenue and under I-580 are already planned as part of the Sage project, with a planned completion date is 2018. In addition, the trail network links to the citywide and Regional Trail Network, which includes trails leading eastward along the Arroyo Las Positas and northward into the hillsides (Doolan Trail, Collier Canyon Trail, Isabel Trail, and Cayetano Creek Trail) and eastward along the Arroyo Las Positas.

New trail segments that augment the network of planned improvements include trails in the vicinity of Las Positas College; along Collier Canyon Creek between Portola Avenue and Constitution Drive; along Arroyo Las Positas from the Airway Boulevard interchange to I-580, utilizing a Zone 7 maintenance road and the Valley Link parking site; and along the west side of the Cayetano seasonal drainage area, linking to the future Valley Link station. Improvements also include trails along the west side of Collier Canyon Creek from Portola Avenue to the Arroyo Las Positas and along the north side of the Arroyo Las Positas between I-580 and Isabel Avenue. These segments would be parallel to trails on the opposite sides of the creek, creating mini-loops and further increasing access to natural areas. The trail network would ultimately create a loop around the core of the neighborhood, completely separated from automobile traffic.

Undercrossings across roadways and waterways along this trail network include:

- The Isabel Path. A central feature of the Isabel Neighborhood, the Isabel Path is a pedestrian- and bicycle-only grade-separated undercrossing across Isabel Avenue between the I-580 ramps and Gateway Avenue. The path establishes direct access between the Valley Link pedestrian bridge point-of-contact area and the Retail Center/Main Street area. Since Isabel Avenue will continue to be a four-lane major street, a grade-separated crossing would be the safest and most convenient option, although at-grade crosswalks at the nearby

signalized intersections would still be provided. Given the topography of the site, which gently slopes up to the north, an undercrossing would require minimal grading and would keep the pathway relatively level.

- Portola Avenue under-crossing. While this undercrossing under I-580 along the Arroyo Las Positas is not within the half-mile radius of the station, it will be essential in establishing pedestrian and bicycle connectivity between the Isabel Neighborhood and other neighborhoods to the southeast. The Arroyo Las Positas already passes under the I-580 at this location; the new pedestrian path will follow along the west side of the Arroyo. This improvement is part of the Shea Homes Sage project.
- Undercrossing of I-580 at Arroyo Las Positas near the Valley Link Isabel Station.
- Improvements to the existing Isabel Avenue under-crossing at Airway Boulevard.

Bridges over the waterways and roadways along this trail network include:

- Over the Arroyo Las Positas, connecting the trail to the intersection of Isabel Avenue and Heligan Lane.
- Over the seasonal drainage channel in the northwest corner of the Shea Homes Sage site. This is included as part of the Shea Homes Sage project.
- Over the seasonal drainage channel in the southwest corner of the Shea Homes Sage site. This is included as part of the Shea Homes Sage project.
- Over the Arroyo Las Positas near the Portola Avenue overpass, connecting the new Portola Avenue undercrossing to the north side of the Arroyo.
- Collier Canyon Creek Bridge over I-580 at the Collier Canyon Creek alignment.
- Just east of the Airway Boulevard and Isabel Avenue intersection to provide pedestrian access from the trail on the north side of the arroyo to the south side; the City of Livermore proposes to make this bridge part of the City's trail connectivity plan.
- Over the Arroyo Las Positas north of the intersection of East Airway Boulevard and Stealth Street.

Crosswalks

In addition to trail improvements, Figure 3.2-5 indicates where new or enhanced crosswalks are needed to create safe and visible connections across new roadways as well as access to the network of Class I trails. Figure 3.2-5 indicates where new crosswalks are required across existing roadways; however, new crosswalks are also required on all new streets with signalized or stop-controlled intersections (see Figure 3.2-1 for locations of new roadways).

Most of the existing streets in the Planning Area have continuous sidewalks and at least one crosswalk at intersections. New crosswalks on major streets will enhance connectivity of the pedestrian network and provide on-street walking loops throughout the Planning Area. Many of the new crosswalks shown on Figure 3.2-5 are located specifically to enhance access to Valley Link from all directions via roadways and trails, decreasing exposure to fast-moving vehicles and

shortening the walking trip length. These include crosswalks on East Airway Boulevard, Isabel Avenue, Constitution Drive, and Portola Avenue.

Pedestrian Streets/Streetscapes

In addition to crosswalks, Figure 3.2-5 designates a limited number of rights-of-way segments as Pedestrian Streets/ Streetscapes.

Three roadway segments within the Planning Area will be designed with a signature palette of streetscape improvements and including pedestrian-oriented facilities such as, corner bulb-outs, tree wells, street furniture, benches, specialty lighting, specialty paving, and Neighborhood identity elements such as wayfinding, public art, and special events banners. Due to their locations, most users (residents, employees, and visitors) will traverse at least one Signature Street upon entering the Isabel Neighborhood, whether travelling by transit, car, bike, or on foot. Pedestrian Streets include:

- Main Street, the central retail spine of the Isabel Neighborhood;
- Gateway Avenue between Collier Canyon Creek and Arroyo Las Positas, the neighborhood's central east-west connection north of I-580; and
- Street A, a new east-west roadway south of I-580, which leads from the Valley Link parking garage, across E Airway Boulevard, through the new residential area.

Trip Generation

Trip generation was forecast using the Alameda CTC Countywide model for all horizon years and scenarios. The model computes daily person trips and then applies mode split to generate daily vehicle trips. The model accounts for trip reduction due to internalization and mode split for carpooling, transit, bike and pedestrian modes. Daily vehicle trips are further processed into peak hour vehicle trips for the detailed peak hour impact analysis. Table 3.2-7 below summarizes the daily trips for the greater INSP study area for existing conditions, 2028, and 2040, and for No Project and Plus Project Conditions. Prior to implementation of the proposed Project, the greater study area does have existing and future land uses that generate significant daily trips.

Table 3.2-7 Daily Vehicle Trip Generation

<i>Year</i>	<i>Scenario</i>	<i>Daily Vehicle Trips</i>
2013	No-Project	75,301
2028	No-Project	83,522
2028	Project	88,552
2040	No-Project	111,040
2040	Project	144,185

Source: Kittelson & Associates, Inc., 2018.

VMT

Vehicle miles traveled (VMT) was forecast using the Alameda CTC Countywide model for all horizon years and scenarios. The model computes daily vehicle trips which are then assigned to the roadway network. VMT is then computed based on the average distance traveled by each vehicle and summed up for the entire project study area. VMT per capita is also computed based on the service population (jobs + residential population) in the INSP study area. The VMT in this analysis was not used for impact findings, but is provided for informational purposes only. As expected, VMT increases over time due to local and regional growth. However, VMT per capita is projected to decrease due to increase in service population in the INSP study area. This is related to a number of factors, including increase in population, new transit choices, shorter trip making to new destination opportunities, and more opportunities for walk and bike trips.

Table 3.2-8 below summarizes the daily VMT and per capita VMT for the greater INSP study area for Existing, 2028 and 2040, and for No Project and Plus Project Conditions. Prior to the proposed Project being implemented, the greater study area does have existing and future no-build land uses that generate significant daily VMT. Under the 2040 Plus Project Condition, the VMT increases significantly, but with the addition of the new service population (residential population + jobs), the per service population VMT reduces compared to existing conditions and to the 2040 No Project Condition.

Table 3.2-8 in the previously certified EIR is replaced by Table 3.2-8 in this SEIR as follows.

Table 3.2-8 Daily Vehicle Miles Traveled

<i>Year</i>	<i>Scenario</i>	<i>Daily Vehicle Trips</i>	<i>Daily VMT</i>	<i>Service Population</i>	<i>Per Service Population VMT</i>
2013	No Project	75,301	694,152	16,864	41.2
2028	No Project	83,522	799,675	23,085	34.6
2028	Project	88,552	831,719	24,192	34.4
2040	No Project	111,040	1,048,211	27,270	38.4
2040	Project	144,185	1,340,854	36,694	36.5

Note: Service population may be different from Chapter 2: Project Description and Section 3.1, Land Use, Population, and Housing, as it accounts for an area larger than the Planning Area because the traffic model study area includes Traffic Analysis Zones that cover areas outside the Planning Area.

Source: Kittleson & Associates, Inc, 2018; INSP SEIR, 2020.

The transportation analysis described in this section involved a multi-step process to generate the performance analysis metrics necessary to quantify the proposed Project's impact. This process used a set of land use and transportation network assumptions in a travel demand model to generate projections of transit ridership, vehicle trip demand, roadway link volumes, and Valley Link station parking demand and access by various modes (buses, bicycles, pedestrians, etc.). The process then used these outputs in freeway segment and intersection operations analysis methodologies to generate estimates of freeway and intersection performance, as described in the sections below.

BART Forecasts

The BLVX Travel Demand Model (Cambridge Systematics, 2017), a version of the Alameda CTC travel demand model customized for the BART to Livermore Extension Project, was used to forecast traffic and ridership volumes for the proposed Project under each analyzed scenario. These forecasts were used in an operations analysis to identify impacts for the INSP.

Travel demand projections were made for multiple scenarios, as follows:

- 2028 No Project Conditions
- 2028 Project Conditions, for the proposed Project Valley Link Opening Conditions, proposed Project– reflecting land use growth as summarized in Chapter 2: Project Description
- 2040 No Project Conditions
- 2040 Project Conditions, for the proposed Project– reflecting land use growth as summarized in Chapter 2: Project Description

The methodologies used to evaluate the significance of transportation impacts are described below for freeway segments, local roadway intersections, transit, bicycles, and pedestrians.

IMPACTS

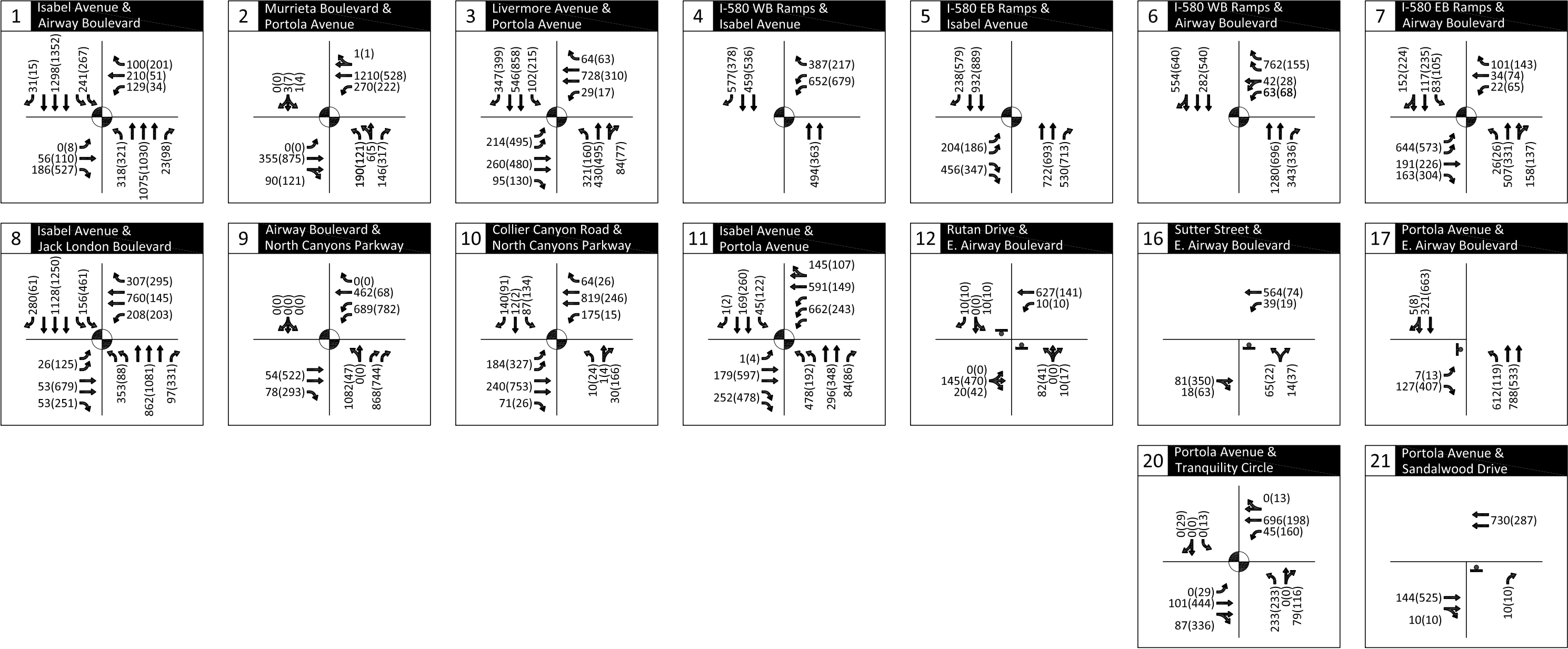
Impact 3.2-1 Implementation of the proposed Project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. *(Significant and Unavoidable)*

2028 Near Term No Project

AM and PM peak hour volumes for 2028 Near Term No Project Conditions are presented in Figure 3.2-6. As presented in Table 3.2-9, under 2028 Near Term conditions, intersection operations are expected to degrade compared to existing conditions as a result of projected regional and local land use growth. Under 2028 Near Term conditions, land use would grow according to the City of Livermore General Plan. Based on that growth, only two study intersections would exceed the adopted significance thresholds and operate at unacceptable levels, as follows:

- Airway Boulevard/Driveway & North Canyons Parkway (Intersection #9) would operate at LOS F with an average delay of 100.9 seconds during the AM Peak hour.
- Portola Avenue/Tranquility Circle (Intersection #20) would operate at LOS D with an average delay of 46.7 seconds during the PM Peak hour.

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AM(PM) - Traffic Volume

⬇ - Stop Sign

⬤ - Traffic Signal

2025 Near Term No Project Traffic Volumes
Weekday AM and PM Peak Hours
Livermore, CA

Figure
3.2-6

Table 3.2-9 2028 Near Term No Project Intersection Level of Service

#	Name	Control	Standard	AM Peak Hour			PM Peak Hour		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt*	0.76	28.6	C	0.84	34.0	C
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.71	14.5	B	0.72	21.9	C
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.78	43.6	D	0.81	41.7	D
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.50	14.4	B	0.50	9.9	A
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.43	8.2	A	0.54	6.8	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.71	31.8	C	0.32	5.5	A
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.55	39.1	D	0.53	24.2	C
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt*	0.80	33.8	C	0.89	45.1	D
9	Airway Boulevard & North Canyons Parkway	Signal	E	1.16	100.9	F	0.61	13.3	B
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.55	22.3	C	0.48	23.9	C
11	Isabel Avenue & Portola Avenue	Signal	E	0.62	28.3	C	0.53	24.6	C
12	Rutan Drive & E. Airway Boulevard	Signal	Mid D	0.40	2.9 (24.9)	A (C)	0.17	1.8 (16.4)	A (C)
13	Valley Link Access & E. Airway Boulevard	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
14	Isabel Avenue & Gateway Avenue	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
15	Portola Avenue & Main Street	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
16	Sutter Street & E. Airway Boulevard	Stop Control	Mid D	0.36	2.1 (16.8)	A (C)	0.26	1.5 (12.0)	A (B)

Table 3.2-9 2028 Near Term No Project Intersection Level of Service

#	Name	Control	Standard	AM Peak Hour			PM Peak Hour		
				V/C	Delay	LOS	V/C	Delay	LOS
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	0.55	5.6 (25.1)	A (D)	0.70	6.2 (23.2)	A (C)
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.56	15.2	B	0.61	46.7	D
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.23	0.1 (8.8)	A (A)	0.22	0.1 (10.2)	A (B)
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

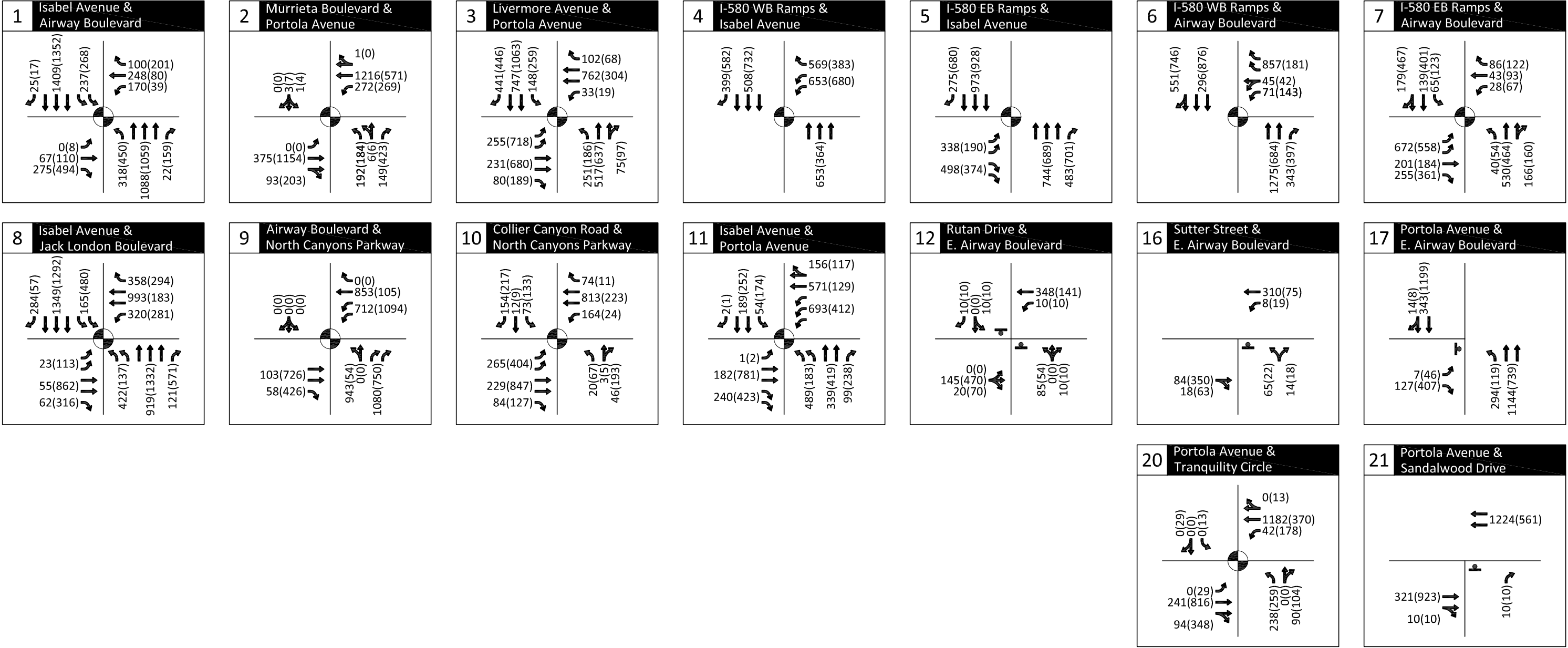
Note: * Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Source: Kittelson & Associates, Inc., 2018.

2040 Cumulative No Project

AM and PM peak hour volumes for 2040 Cumulative No Project Conditions are presented in Figure 3.2-7. In 2040, intersection operations are expected to worsen even further with projected growth in the study area. As presented in Table 3.2-10, under 2040 Cumulative No Project Conditions, regional land use would grow according to ABAG Plan Bay Area Projections, and locally according to the City of Livermore General Plan. Based on that growth, three study intersections would exceed the adopted significance thresholds and operate at unacceptable levels, as follows:

- North Livermore Avenue/Portola Avenue (Intersection #3) would operate at LOS E with an average delay of 55.5 seconds during the PM Peak hour.
- Airway Boulevard/Driveway & North Canyons Parkway (Intersection #9) would operate at LOS F with an average delay of 80.6 seconds during the AM Peak hour.
- Portola Avenue/East Airway Boulevard (Intersection #17) would operate at LOS F with an average delay of 125.4 seconds during the PM Peak hour.



AM(PM) - Traffic Volume

⬇ - Stop Sign

⬇ - Traffic Signal

2040 Cumulative No Project Traffic Volumes
Weekday AM and PM Peak Hours
Livermore, CA

Figure
3.2-7

Table 3.2-10 2040 Cumulative No Project Intersection Level of Service

#	Name	Control	Standard	AM Peak Hour			PM Peak Hour		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt	0.86	31.8	C	0.81	59.8	E
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.69	14.2	B	0.84	31.6	C
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.84	42.3	D	0.91	55.5	E
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.61	13.7	B	0.52	14.1	B
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.44	8.8	A	0.56	5.3	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.83	17.1	B	0.46	7.0	A
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.62	23.2	C	0.61	37.4	D
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt	1.01	53.3	D	1.03	73.6	E
9	Airway Boulevard & North Canyons Parkway	Signal	E	1.22	80.6	F	0.66	24.5	C
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.52	20.7	C	0.55	22.5	C
11	Isabel Avenue & Portola Avenue	Signal	E	0.64	28.2	C	0.67	33.5	C
12	Rutan Drive & E. Airway Boulevard	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
13	Valley Link Access & E. Airway Boulevard	Signal	Mid D	0.23	2.8 (15.6)	A (C)	0.20	1.9 (17.9)	A (C)

Table 3.2-10 2040 Cumulative No Project Intersection Level of Service

#	Name	Control	Standard	AM Peak Hour			PM Peak Hour		
				V/C	Delay	LOS	V/C	Delay	LOS
14	Isabel Avenue & Gateway Avenue	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
15	Portola Avenue & Main Street	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
16	Sutter Street & E. Airway Boulevard	Stop Control	Mid D	0.20	2.0 (12.0)	A (B)	0.26	1.2 (12.1)	A (B)
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	0.37	2.3 (12.3)	A (B)	1.17	23.2 (125.4)	C (F)
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.71	26.9	C	0.77	37.5	D
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.39	0.1 (9.4)	A (A)	0.39	0.1 (9.2)	A (A)
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

* Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Bold text indicates intersection operating beyond standard. Shaded cell indicates significant impact.

Source: Kittelson & Associates, Inc., 2018.

2028 Near Term Plus Project (Valley Link Opening)

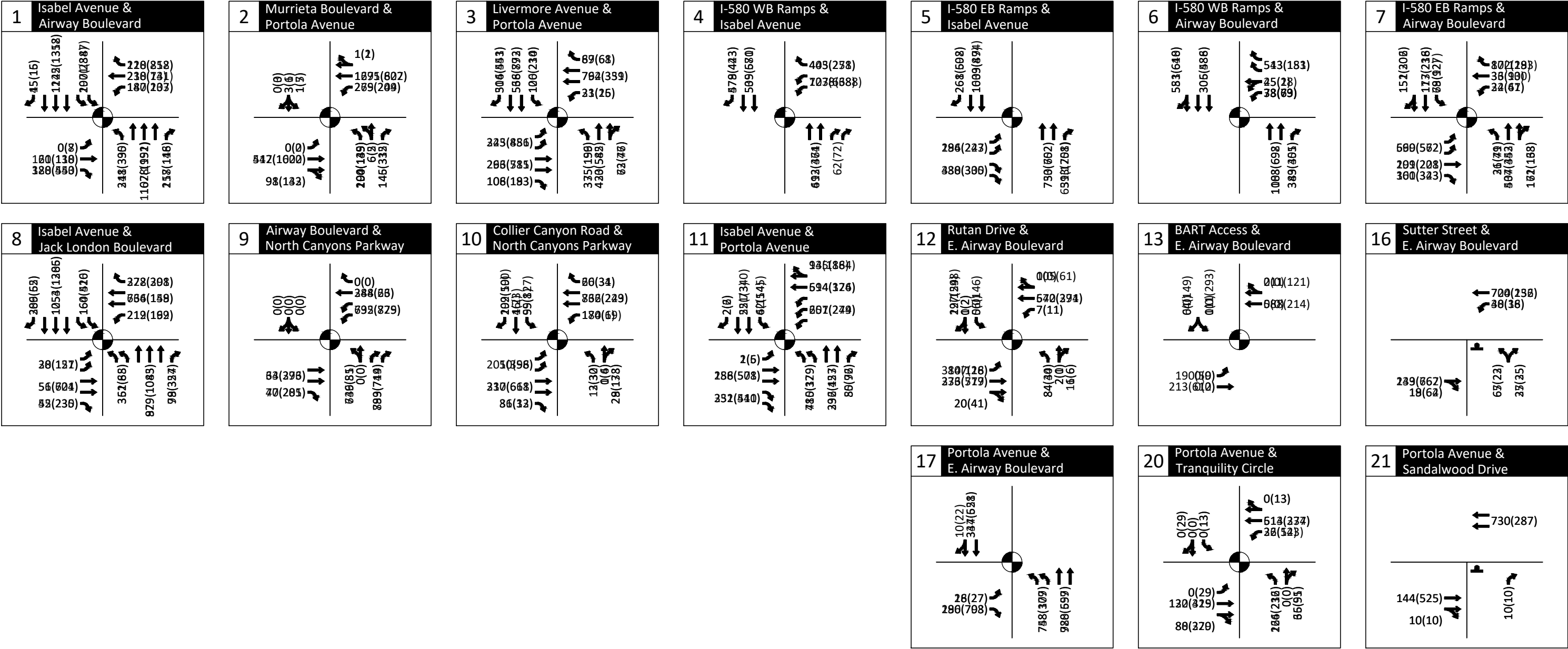
AM and PM peak hour volumes for 2028 Near Term Plus Project Conditions, representing the Valley Link opening year, are presented in Figure 3.2-8. Table 3.2-11 and Table 3.2-12 present the 2028 Near Term Plus Project intersection operations for the AM peak hour and PM peak hour, respectively.

Under 2028 Near Term Plus Project Conditions, intersection operations are expected to degrade compared to 2028 No Project Conditions as a result of growth from proposed Project implementation. The proposed Project's potentially significant impacts to intersection operations were identified using the criteria previously described. Based on these criteria, the following intersections were found to be operating below the LOS standard under 2028 Near Term Conditions.

The additional traffic generated by the proposed Project and Valley Link opening would result in unacceptable operations at the intersection of North Livermore Avenue & Portola Avenue (#3) during the weekday AM peak hour under 2028 Near Term Conditions.

This intersection serves as one of the main intersections connecting the Isabel Neighborhood to downtown Livermore. The addition of proposed Project traffic would result in an overall intersection delay of 48.0 seconds per vehicle in the AM peak hour with LOS D which exceeds the mid-level LOS D standard (45 seconds). Proposed Project would result in a delay of 38.4 seconds per vehicle in the PM peak hour with LOS D, which is below the standard. Table 3.2-11 is replaced with Table 3.2-11 as follows.

Table 3.2-12 in the 2018 EIR is replaced with Table 3.2-12 as follows.



AM(PM) - Traffic Volume

⬆ - Stop Sign

⬤ - Traffic Signal

2025 Near Term Plus Project Traffic Volumes
Weekday AM and PM Peak Hours
Livermore, CA

Figure
3.2-8

Table 3.2-11 2028 Near Term Plus Project Intersection Level of Service AM Peak Hour

#	Name	Control	Standard	2028 Near Term No Project			2028 Near Term Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt*	0.76	28.6	C	0.71	24.9	C
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.71	14.5	B	0.74	15.7	B
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.78	43.6	D	0.83	48.0	D
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.50	14.4	B	0.53	14.6	B
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.43	8.2	A	0.48	8.3	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.71	31.8	C	0.48	19.3	B
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.55	39.1	D	0.51	42.0	D
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt*	0.80	33.8	C	0.75	32.0	C
9	Airway Boulevard & North Canyons Parkway	Signal	E	1.16	100.9	F	0.75	27.3	C
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.55	22.3	C	0.50	18.4	B
11	Isabel Avenue & Portola Avenue	Signal	E	0.62	28.3	C	0.66	29.8	C
12	Rutan Drive & E. Airway Boulevard	Signal	Mid D	0.40	2.9 (24.9)	A (C)	0.43	15.2	B
13	Valley Link Access & E. Airway Boulevard	Signal	Mid D	N/A	N/A	N/A	0.54	17.1	B
14	Isabel Avenue & Gateway Avenue	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
15	Portola Avenue & Main Street	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
16	Sutter Street & E. Airway Boulevard	Stop Control	Mid D	0.36	2.1 (16.8)	A (C)	0.45	21.5	C
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	0.55	5.6 (25.1)	A (D)	0.51	9.9	A
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.2-11 2028 Near Term Plus Project Intersection Level of Service AM Peak Hour

#	Name	Control	Standard	2028 Near Term No Project			2028 Near Term Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.56	15.2	B	0.46	22.2	C
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.23	0.1 (8.8)	A (A)	0.23	8.8	A
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

* Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Bold text indicates intersection operating beyond standard. Shaded cell indicates significant impact.

Source: Kittelson & Associates, Inc., 2018, INSP SEIR 2020.

Table 3.2-12 2028 Near Term Plus Project Intersection Level of Service PM Peak Hour

#	Name	Control	Standard	2028 Near Term No Project			2028 Near Term Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt*	0.84	34	C	0.88	37.9	D
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.72	21.9	C	0.77	25.6	C
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.81	41.7	D	0.78	38.3	D
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.50	9.9	A	0.54	9.2	A
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.54	6.8	A	0.53	7.3	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.32	5.5	A	0.28	5.1	A
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.53	24.2	C	0.55	25.7	C
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt*	0.89	45.1	D	0.81	36.7	D
9	Airway Boulevard & North Canyons Parkway	Signal	E	0.61	13.3	B	0.55	11.7	B
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.48	23.9	C	0.36	15.6	B
11	Isabel Avenue & Portola Avenue	Signal	E	0.53	24.6	C	0.50	25.3	C
12	Rutan Drive & E. Airway Boulevard	Signal	Mid D	0.17	1.8 (16.4)	A (C)	0.36	10.7	B
13	Valley Link Access & E. Airway Boulevard	Signal	Mid D	N/A	N/A	N/A	0.73	20.9	C
14	Isabel Avenue & Gateway Avenue	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
15	Portola Avenue & Main Street	Signal	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
16	Sutter Street & E. Airway Boulevard	Stop Control	Mid D	0.26	1.5 (12.0)	A (B)	0.46	17.3	C
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	0.70	6.2 (23.2)	A (C)	0.49	10.9	B
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.2-12 2028 Near Term Plus Project Intersection Level of Service PM Peak Hour

#	Name	Control	Standard	2028 Near Term No Project			2028 Near Term Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.61	46.7	D	0.49	32.4	C
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.22	0.1 (10.2)	A (B)	0.22	10.2	B
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

* Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Bold text indicates intersection operating beyond standard. Shaded cell indicates significant impact.

Source: Kittelson & Associates, Inc., 2018, INSP SEIR 2020.

2040 Cumulative Plus Project

AM and PM peak hour volumes for 2040 Cumulative Plus Project Conditions with Valley Link rail are presented in Figure 3.2-9. Under 2040 Cumulative Plus Project Conditions, intersection operations are expected to degrade compared to 2040 Cumulative No Project Conditions because of growth resulting from implementation of the proposed Project. The proposed Project's potentially significant impacts to intersection operations were identified using the criteria previously described in this report. Based on these criteria, the following intersections were found to be operating below the LOS standard under Cumulative 2040 Conditions. Intersection operations for weekday AM and PM peak hours are presented in Tables 3.2-13 and 3.2-14, respectively.

The proposed Project includes new pedestrian and bicycle connections within the Planning Area. These new connections support the policies in the City of Livermore General Plan that promote multimodal transportation and provide a pedestrian network and biking infrastructure. The proposed Project also supports and expands upon the improvements identified in the Livermore Active Transportation Plan.

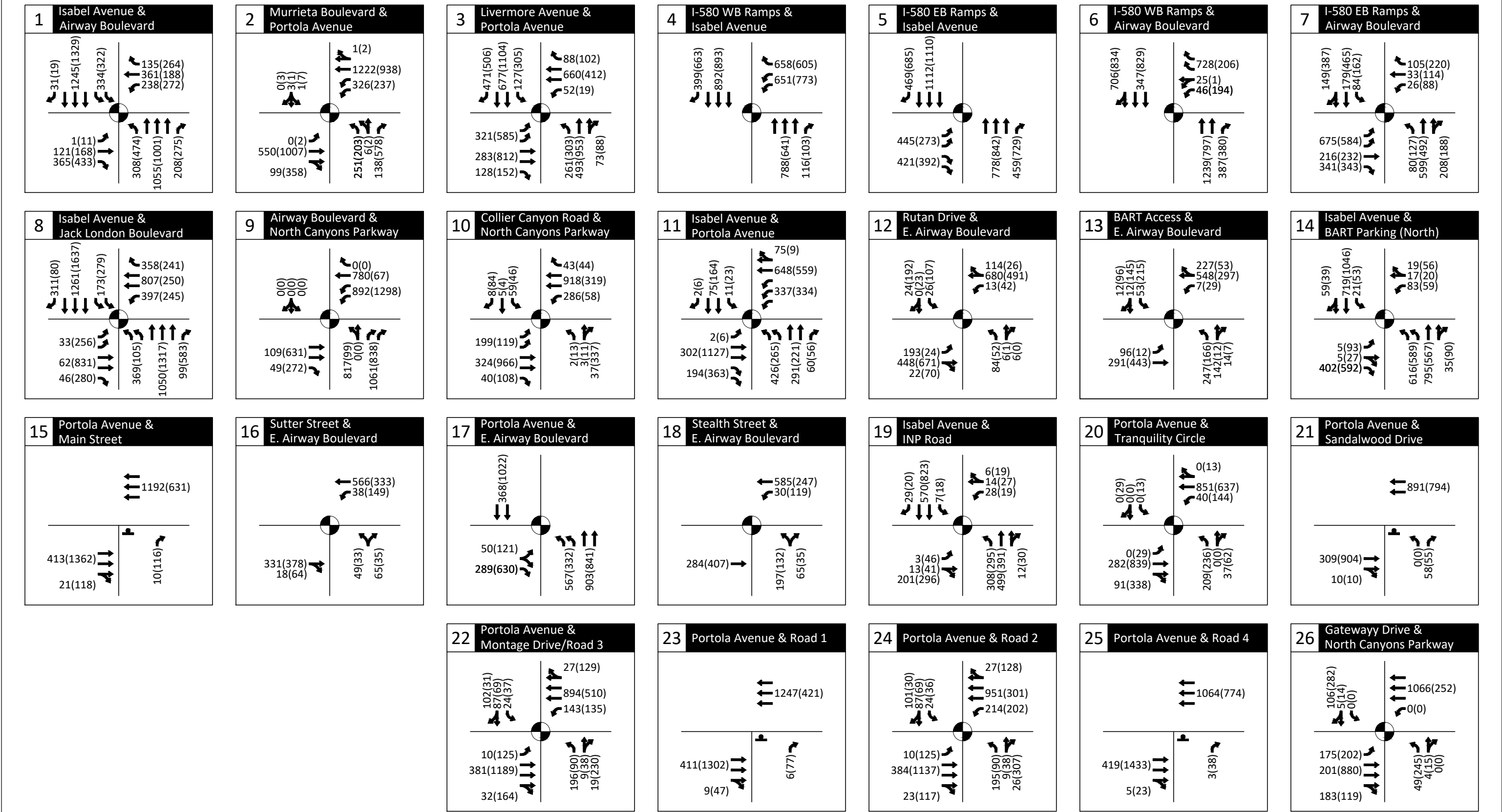
The additional traffic generated by the proposed Project would result in unacceptable operations at the intersection of North Livermore Avenue & Portola Avenue (#3) during the weekday PM peak hour under Cumulative 2040 Conditions. It would also cause vehicular delay during the PM peak hour, which is operating below the LOS D standard, to increase by more than five seconds compared the no-project (15 seconds). This intersection serves as one of the main intersections connecting the Isabel Neighborhood to downtown Livermore. The addition of proposed Project traffic would result in an overall intersection delay of 70.1 seconds per vehicle in the PM peak hour which is below the mid-level LOS D standard (45 seconds).

The intersection of Isabel Avenue/Airway Boulevard (Intersection #1) would degrade to LOS D with an average delay of 41.5 seconds during the AM Peak hour, and LOS F with an average delay of 80.9 seconds in the PM peak hour. However, this intersection is designated as exempt from the City of Livermore's LOS standard per the City of Livermore General Plan policy.

The intersection of Isabel Avenue/Jack London Boulevard (Intersection #8) would degrade to LOS D with an average delay of 53.7 seconds during the AM Peak hour, and LOS D with an average delay of 56.2 seconds in the PM peak hour. This exceeds the mid-D threshold of 45 seconds of delay. However, this intersection is designated as exempt from the City of Livermore's LOS standard because it is near a freeway interchange.

Table 3.2-13 in the 2018 EIR is replaced by Table 3.2-13 as follows.

Table 3.2-14 in the 2018 EIR is replaced by Table 3.2-14 as follows.



AM(PM) - Traffic Volume

⬆ - Stop Sign

⬆ - Traffic Signal

2040 Cumulative Plus Project Traffic Volumes
Weekday AM and PM Peak Hours
Livermore, CA

Figure
3.2-9

Table 3.2-13 2040 Cumulative Plus Project Intersection Level of Service AM Peak Hour

#	Name	Control	Standard	2040 Cumulative No Project			2040 Cumulative Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt*	0.86	31.8	C	0.93	41.5	D
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.73	13.6	B	0.71	15.1	B
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.84	42.3	D	0.81	40.1	D
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.61	13.7	B	0.80	16.1	B
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.44	8.8	A	0.44	7.6	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.83	17.1	B	0.76	12.4	B
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.62	23.2	C	0.67	25.7	C
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt*	1.01	53.3	D	0.98	53.7	D
9	Airway Boulevard & North Canyons Parkway	Signal	E	1.22	80.6	F	1.08	52.9	D
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.52	20.7	C	0.59	19.1	B
11	Isabel Avenue & Portola Avenue	Signal	E	0.64	28.2	C	0.56	24.6	C
12	Rutan Drive & E. Airway Boulevard	Signal	Mid D	0.23	2.8 (15.6)	A (C)	0.77	17.7	B
13	Valley Link Access & E. Airway Boulevard	Signal	Mid D	N/A	N/A	N/A	0.84	29.9	C
14	Isabel Avenue & Gateway Avenue	Signal	Mid D	N/A	N/A	N/A	0.65	28.8	C
15	Portola Avenue & Main Street	Signal	Mid D	N/A	N/A	N/A	0.25	8.5	A
16	Sutter Street & E. Airway Boulevard	Stop Control	Mid D	0.20	2.0 (12.0)	A (B)	0.40	7.2	A
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	0.37	2.3 (12.3)	A (B)	0.50	10.0	B
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	0.55	12.3	B

Table 3.2-13 2040 Cumulative Plus Project Intersection Level of Service AM Peak Hour

#	Name	Control	Standard	2040 Cumulative No Project			2040 Cumulative Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	0.54	20.2	C
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.71	26.9	C	0.57	14.2	B
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.39	0.1 (9.4)	A (A)	0.28	9.6	A
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	0.63	31.5	C
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	0.27	9.2	A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	0.62	24.9	C
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	0.23	8.5	A

Notes:

* Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Bold text indicates intersection operating beyond standard. Shaded cell indicates significant impact.

Source: Kittelson & Associates, Inc., 2018, INSP SEIR 2020.

Table 3.2-14 2040 Cumulative Plus Project Intersection Level of Service PM Peak Hour

#	Name	Control	Standard	2040 Cumulative No Project			2040 Cumulative Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
1	Isabel Avenue & Airway Boulevard	Signal	Exempt*	0.81	59.8	E	1.00	80.9	F
2	Murrieta Boulevard & Portola Avenue	Signal	Mid D	0.76	25.4	C	0.88	36.3	D
3	Livermore Avenue & Portola Avenue	Signal	Mid D	0.91	55.5	E	0.98	70.1	E
4	I-580 WB Ramps & Isabel Avenue	Signal	E	0.52	14.1	B	0.64	16.8	B
5	I-580 EB Ramps & Isabel Avenue	Signal	E	0.56	5.3	A	0.59	5.9	A
6	I-580 WB Ramps & Airway Boulevard	Signal	E	0.46	7.0	A	0.47	7.0	A
7	I-580 EB Ramps & Airway Boulevard	Signal	E	0.61	37.4	D	0.67	41.5	D
8	Isabel Avenue & Jack London Boulevard	Signal	Exempt*	1.03	73.6	E	0.97	56.2	E
9	Airway Boulevard & North Canyons Parkway	Signal	E	0.66	24.5	C	0.73	26.8	C
10	Collier Canyon Road & North Canyons Parkway	Signal	Mid D	0.55	22.5	C	0.59	19.3	B
11	Isabel Avenue & Portola Avenue	Signal	E	0.67	33.5	C	0.68	27.2	C
12	Rutan Drive & E. Airway Boulevard	Signal	Mid D	0.20	1.9 (17.9)	A (C)	0.66	16.3	B
13	Valley Link Access & E. Airway Boulevard	Signal	Mid D	N/A	N/A	N/A	0.83	24.7	C
14	Isabel Avenue & Gateway Avenue	Signal	Mid D	N/A	N/A	N/A	0.77	28.8	C
15	Portola Avenue & Main Street	Signal	Mid D	N/A	N/A	N/A	0.35	10.1	B
16	Sutter Street & E. Airway Boulevard	Stop Control	Mid D	0.26	1.2 (12.1)	A (B)	0.32	4.7	A
17	Portola Avenue & E. Airway Boulevard	Stop	Mid D	1.17	23.2 (125.4)	C (F)	0.78	20.7	C
18	Stealth Street & E. Airway Boulevard	Future	Mid D	N/A	N/A	N/A	0.55	9.0	A

Table 3.2-14 2040 Cumulative Plus Project Intersection Level of Service PM Peak Hour

#	Name	Control	Standard	2040 Cumulative No Project			2040 Cumulative Plus Project		
				V/C	Delay	LOS	V/C	Delay	LOS
19	Isabel Avenue & Road 5	Future	Mid D	N/A	N/A	N/A	0.66	23.6	C
20	Portola Avenue & Tranquility Circle	Signal	Mid D	0.80	88.5	F	0.73	31.3	C
21	Portola Avenue & Sandalwood Drive	Stop	Mid D	0.39	0.1 (9.2)	A (A)	0.39	9.8	A
22	Portola Avenue & Montage Drive/Road 3	Future	Mid D	N/A	N/A	N/A	0.64	24.1	C
23	Portola Avenue & Road 1	Future	Mid D	N/A	N/A	N/A	0.33	9.4	A
24	Portola Avenue & Road 2	Future	Mid D	N/A	N/A	N/A	0.65	26.2	C
25	Portola Avenue & Road 4	Future	Mid D	N/A	N/A	N/A	0.37	9.7	A

Notes: * Exempt per Livermore Policy: Goal CIR-5, Objective CIR-5.1 Policy P4, Circulation Element, Amended 2014

Bold text indicates intersection operating beyond standard. Shaded cell indicates significant impact.

Source: Kittelson & Associates, Inc., 2018, INSP SEIR 2020.

Mitigation Measures

At the intersection of North Livermore Avenue and Portola Avenue, adding additional left turn lanes to the impacted intersection under 2040 Conditions could address impacts to intersection operations. However, the addition of left turn lanes would require that both roads be widened. Due to roadway right-of-way constraints on North Livermore Avenue and Portola Avenue, the addition of more travel lanes is not feasible. Therefore, no additional improvements would be feasible to address this significant impact, and it remains significant and unavoidable.

Impact 3.2-2 Implementation of the proposed Project would conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. (*Significant and Unavoidable*)

Freeway and arterial segments were evaluated according to the Alameda CTC CMP criteria. Results for freeway and arterial segments were extracted from the travel forecasts prepared by the BART team for the BLVX study for No-Project, and by the INSP team for the Plus-Project scenarios.

Freeway Segments

Freeway Segment Assumptions

This section summarizes the known completed and planned improvements for I-580 between 2013 and 2028/2040, as follows:

- Construct auxiliary lanes on I-580 eastbound between Isabel Avenue and North Livermore Avenue, and between North Livermore Avenue and First Street (includes widening the Arroyo Las Positas Bridge at two locations and providing additional improvements to accommodate future express lanes)
- Modify the I-580/Vasco Road interchange, including widening the I-580 overcrossing to provide eight lanes (plus bike lanes/shoulders), constructing auxiliary lanes on I-580 between Vasco Road and First Street, and widening Vasco Road to eight lanes between Northfront Road and Las Positas Road
- Reconstruct the I-580/First Street interchange
- Reconstruct the I-580/Greenville Road interchange
- Improve the I-580/San Ramon Road/Foothill Road interchange, including elimination of the eastbound diagonal offramp and eastbound loop offramp and construction of a new signalized intersection at the offramp

The lane configuration for I-580 changes significantly between existing conditions (2013) and 2028 and 2040 Project Conditions. Table 3.2-15 shows the freeway configuration for I-580 for 2013 and 2028/2040.

Table 3.2-15 I-580 Lane Configuration in 2014 and 2028/2040, No Project Conditions

#	To	From	2013 General Purpose Lanes		2013 Express Lanes		2028 & 2040 General Purpose Lanes		2028 & 2040 Express Lanes	
			WB	EB	WB	EB	WB	EB	WB	EB
1	Tassajara Road/ Santa Rita Road	Fallon Road/ El Charro Road	5	5	0	1	5	5	1	1
2	Fallon Road/ El Charro Road	Airway Boulevard	4	5	0	1	5	5	1	2
3	Airway Boulevard	Isabel Avenue	4	5	0	1	5	5	1	2
4	Isabel Avenue	Livermore Avenue	4	4	0	1	5	5	1	2
5	Livermore Avenue	Springtown Boulevard/ First Street	4	4	0	1	5	5	1	2
6	Springtown Boulevard/ First Street	Vasco Road	4	5	0	1	5	5	1	2

Notes: EB = eastbound; WB = westbound.

Current and future freeway configuration assumptions were agreed upon by BART and Alameda CTC.

Source: Alameda CTC, BART, and City of Livermore, 2017.

Lastly, express lanes management on I-580 is expected to change by 2040. The express lane currently allows carpool users, defined as two or more people per vehicle, to access the lanes without paying a toll. By 2040, to manage the travel demand on the lanes, only carpoolers with three or more people per vehicle are expected to be allowed to use the lane without paying a toll.

2028 Near Term No Project

Table 3.2-16 and Table 3.2-17 present freeway LOS results for 2028, for general purpose and HOT/express lanes for the AM and PM peak hours, respectively. Most general purpose lane segments in the study area are expected to experience congested conditions, with conditions at LOS E or F in at least one direction in one peak period. In general, the westbound direction sees heavier volumes in the AM than in the PM.

Table 3.2-16 I-580 Performance in AM, 2028 Near Term No Project Conditions

#	To	From	General Purpose, Westbound		General Purpose, Eastbound		Express Lane, Westbound		Express Lane, Eastbound	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/ Santa Rita Road	Fallon Road/ El Charro Road	F	1.00	B	0.57	F	1.02	A	0.29
2	Fallon Road/ El Charro Road	Airway Boulevard	E	0.97	B	0.55	E	0.99	A	0.15
3	Airway Boulevard	Isabel Avenue	F	1.04	B	0.49	F	1.04	A	0.15
4	Isabel Avenue	Livermore Avenue	F	1.05	B	0.54	F	1.06	A	0.15
5	Livermore Avenue	Springtown Boulevard/First Street	E	0.98	B	0.52	E	0.99	A	0.15
6	Springtown Boulevard/First Street	Vasco Road	E	0.98	B	0.57	E	0.98	A	0.15

Notes: N/A = not applicable; LOS = level of service; V/C = volume-to-capacity ratio.

Bold/gray shading indicates segments that operate at unacceptable levels.

Source: BLVX DEIR, 2017.

Table 3.2-17 I-580 Performance in PM, 2028 Near Term No Project Conditions

#	To	From	General-Purpose Westbound		General-Purpose Eastbound		Express Lane Westbound		Express Lane Eastbound	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	C	0.66	E	0.95	B	0.47	D	0.85
2	Fallon Road/ El Charro Road	Airway Boulevard	C	0.62	E	0.97	B	0.47	B	0.44
3	Airway Boulevard	Isabel Avenue	B	0.55	E	0.95	B	0.43	B	0.40
4	Isabel Avenue	Livermore Avenue	C	0.64	F	1.04	B	0.42	B	0.40
5	Livermore Avenue	Springtown Boulevard/ First Street	B	0.51	E	0.92	B	0.37	B	0.40
6	Springtown Boulevard/ First Street	Vasco Road	C	0.59	D	0.90	B	0.36	B	0.36

Notes: N/A = not applicable; LOS = level of service; V/C = volume-to-capacity ratio.

Bold/gray shading indicates segments that operate at unacceptable levels.

Source: BLVX DEIR, 2017.

2040 Cumulative No Project

Table 3.2-18 and Table 3.2-19 show freeway LOS results under 2040 No Project Conditions for the AM peak hour and PM peak hour, respectively. The general purpose lanes are expected to experience greater volumes, with most segments in the peak travel direction in the study area showing LOS E or F. The trends remain unchanged from 2028, with westbound lanes seeing the greatest volumes in the AM peak period and eastbound lanes seeing the greatest volumes in the PM peak period. The HOT/express lanes improve notably from 2028 to 2040, the result of a change in the tolling policy.

Freeway General Purpose Lane Segments

2028 NEAR TERM PLUS PROJECT (VALLEY LINK OPENING)

With the implementation of the proposed Project in 2028, regional traffic volumes will increase from traffic volumes under the No Project Alternative. In the peak periods, some corridors are expected to experience notable increases in traffic volumes while decreases are expected with other corridors. While the addition of the Valley Link rail project relieves some corridors, the increase in land uses associated with the proposed Project increases traffic levels. Tables 3.2-20 and 3.2-21 show the general change in traffic patterns for the 2028 Near Term proposed Project compared with No Project Conditions for the AM and PM peak hours, respectively.

For the proposed Project under 2028 Near Term Conditions, no general purpose freeway segments would have a significant impact compared to No Project Conditions. Therefore, this impact would be less than significant.

Table 3.2-20 in the 2018 EIR is replaced by Table 3.2-20 as follows. Table 3.2-21 in the 2018 EIR is replaced by Table 3.2-21 as follows.

Table 3.2-18 I-580 Performance in AM, 2040 No Project Conditions

#	To	From	General-Purpose Westbound		General-Purpose Eastbound		Express Lane Westbound		Express Lane Eastbound	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/El Charro Road	F	1.02	C	0.67	B	0.45	A	0.20
2	Fallon Road/El Charro Road	Airway Boulevard	E	0.99	C	0.65	B	0.44	A	0.10
3	Airway Boulevard	Isabel Avenue	F	1.06	C	0.59	B	0.40	A	0.10
4	Isabel Avenue	Livermore Avenue	F	1.10	C	0.63	B	0.40	A	0.10
5	Livermore Avenue	Springtown Boulevard/First Street	F	1.03	C	0.63	B	0.38	A	0.10
6	Springtown Boulevard/First Street	Vasco Road	F	1.04	D	0.77	A	0.35	A	0.10

Notes: N/A = not applicable; LOS = level of service; V/C = volume-to-capacity ratio.

Bold/gray shading indicates segments that operate at unacceptable levels.

Source: BLVX DEIR, 2017.

Table 3.2-19 I-580 Performance in PM, 2040 No Project Conditions

#	To	From	General-Purpose Westbound		General-Purpose Eastbound		Express Lane Westbound		Express Lane Eastbound	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	D	0.78	E	0.98	A	0.22	A	0.24
2	Fallon Road/ El Charro Road	Airway Boulevard	D	0.75	E	0.97	A	0.22	A	0.13
3	Airway Boulevard	Isabel Avenue	C	0.66	E	0.99	A	0.20	A	0.12
4	Isabel Avenue	Livermore Avenue	D	0.77	F	1.08	A	0.20	A	0.13
5	Livermore Avenue	Springtown Boulevard/ First Street	C	0.74	F	1.01	A	0.18	A	0.12
6	Springtown Boulevard/ First Street	Vasco Road	D	0.83	F	1.02	A	0.17	A	0.11

Notes: N/A = not applicable; LOS = level of service; V/C = volume-to-capacity ratio.

Bold/gray shading indicates segments that operate at unacceptable levels.

Source: BLVX DEIR, 2017.

Table 3.2-20 I-580 General Purpose Freeway Level of Service, 2028 Near Term Conditions, AM Peak Hour

#	To	From	Westbound				Eastbound			
			No Project Alternative		INSP Project		No Project Alternative		INSP Project	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	F	1.004	F	1.001	B	0.567	B	0.562
2	Fallon Road/ El Charro Road	Airway Boulevard	E	0.975	E	0.962	B	0.547	B	0.546
3	Airway Boulevard	Isabel Avenue	F	1.037	E	1.011	B	0.488	B	0.492
4	Isabel Avenue	Livermore Avenue	F	1.051	F	1.037	B	0.537	B	0.549
5	Livermore Avenue	Springtown Boulevard/ First Street	E	0.984	E	0.974	B	0.519	B	0.535
6	Springtown Boulevard/ First Street	Vasco Road	E	0.978	E	0.969	B	0.567	C	0.582

Notes: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operating beyond the standard.

Source: BLVX DEIR, 2017, INSP SEIR, 2020.

Table 3.2-21 I-580 General Purpose Freeway Level of Service, 2028 Near Term Conditions, PM Peak Hour

#	To	From	Westbound		INSP Project		Eastbound		INSP Project	
			No Project Alternative				No Project Alternative			
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	C	0.659	C	0.660	E	0.954	E	0.948
2	Fallon Road/ El Charro Road	Airway Boulevard	C	0.623	C	0.624	E	0.970	E	0.952
3	Airway Boulevard	Isabel Avenue	B	0.545	B	0.550	E	0.953	E	0.934
4	Isabel Avenue	Livermore Avenue	C	0.636	C	0.640	F	1.037	F	1.046
5	Livermore Avenue	Springtown Boulevard/ First Street	B	0.513	B	0.522	E	0.922	E	0.937
6	Springtown Boulevard/ First Street	Vasco Road	C	0.586	C	0.596	E	0.903	E	0.925

Notes: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Source: BLVX DEIR, 2017, INSP SEIR, 2020.

2040 CUMULATIVE PLUS PROJECT

Similar to 2028, the addition of the Valley Link rail project to Isabel Avenue and the buildout of the proposed Project would contribute to changes in traffic compared to the No Project Condition. In 2040, traffic levels would reduce east of the Dublin/Pleasanton Station as commuters drive to and park, drop off, or pick up Valley Link rail passengers at the proposed station near Isabel Avenue. The shifting of vehicles from the Dublin/Pleasanton Station to the Isabel Station would cause small volume reductions on I-580 and parallel roadways west of Isabel Avenue, between Isabel Avenue and Hacienda Drive. The shifting from auto travel to transit would also cause small volume reductions on I-580 and parallel roadways west of Isabel. However, east of Isabel Avenue, a small increase of vehicles on I-580 and local Livermore roadways would result from travelers driving to the Isabel Station and to the built-out Planning Area.

The proposed Project in 2040 would slightly reduce vehicle volumes on I-580 between Isabel Avenue and Hacienda Drive. East of Isabel Avenue, a small increase of vehicles on I-580 would result from travelers drawn to Valley Link rail at the new Isabel Station and to the Isabel Neighborhood. Additionally, the proposed Project buildout would result in more vehicles on I-580 both east and west of Isabel Avenue. Table 3.2-22 and Table 3.2-23 show the general change in traffic patterns for the 2040 Cumulative proposed Project compared with No Project Conditions for the AM and PM peak hours, respectively.

Table 3.2-22 in the 2018 EIR is replaced by Table 3.2-22 as follows.

Table 3.2-23 in the 2018 EIR is replaced by Table 3.2-23 as follows.

Table 3.2-22 I-580 General Purpose Freeway Level of Service, 2040 Cumulative Conditions, AM Peak Hour

#	To	From	Westbound				Eastbound			
			No Project Alternative		INSP Project		No Project Alternative		INSP Project	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	F	1.020	F	1.009	C	0.668	C	0.695
2	Fallon Road/ El Charro Road	Airway Boulevard	E	0.995	E	0.968	C	0.653	C	0.691
3	Airway Boulevard	Isabel Avenue	F	1.064	F	1.045	C	0.588	B	0.600
4	Isabel Avenue	Livermore Avenue	F	1.103	F	1.156	C	0.633	C	0.634
5	Livermore Avenue	Springtown Boulevard/ First Street	F	1.026	F	1.075	C	0.628	C	0.631
6	Springtown Boulevard/ First Street	Vasco Road	F	1.037	F	1.063	D	0.766	D	0.768

Notes: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Shaded cell indicates significant impact.

Source: BLVX DEIR, 2017.

Table 3.2-23 I-580 General Purpose Freeway Level of Service, 2040 Cumulative Conditions, PM Peak Hour

#	To	From	Westbound		Eastbound					
			No Project Alternative		INSP Project		No Project Alternative		INSP Project	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	D	0.780	D	0.804	E	0.976	E	0.980
2	Fallon Road/ El Charro Road	Airway Boulevard	D	0.754	D	0.789	E	0.970	E	0.977
3	Airway Boulevard	Isabel Avenue	C	0.664	C	0.674	E	0.992	E	0.991
4	Isabel Avenue	Livermore Avenue	D	0.771	D	0.781	F	1.083	F	1.149
5	Livermore Avenue	Springtown Boulevard/ First Street	C	0.738	C	0.722	F	1.013	F	1.054
6	Springtown Boulevard/ First Street	Vasco Road	D	0.826	D	0.828	F	1.016	F	1.059

Notes: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Shaded cell indicates significant impact.

Source: BLVX DEIR, 2017.

For the proposed Project under 2040 Cumulative Conditions, three general purpose freeway segments would have a significant impact compared to No Project Conditions. Impacts would occur at the following segments:

North Livermore Avenue to Isabel Avenue General Purpose (Segment #4). This segment would operate at a V/C ratio of 1.156 and LOS F during the AM peak hour in the westbound direction and a V/C ratio of 1.149 and LOS F during the PM peak hour in the eastbound direction.

Springtown Boulevard/ First Street to North Livermore Avenue (Segment #5). This segment would operate at a V/C ratio of 1.075 and LOS F during the AM peak hour in the westbound direction and a V/C ratio of 1.054 and LOS F during the PM peak hour in the eastbound direction.

Vasco Road to Springtown Boulevard/ First Street (Segment #6). This segment would operate at a V/C ratio of 1.063 and LOS F during the AM peak hour in the westbound direction and a V/C ratio of 1.059 and LOS F during the PM peak hour in the eastbound direction.

Freeway Express Lane Segments

2028 NEAR TERM PLUS PROJECT (VALLEY LINK OPENING)

Tables 3.2-24 and 3.2-25 summarize the freeway results for the express lane for 2028 Near Term Conditions for the AM and PM peak hours, respectively.

For the proposed Project under 2028 Near Term Conditions, three express lane freeway segments would operate at unacceptable levels during one of the peak periods. However, these segments would operate no worse than under the No Project Conditions. Therefore, the proposed Project would have no impacts related HOV/express lane segments under 2028 Near Term Conditions, and no mitigation measures are required.

Table 3.2-24 in the 2018 EIR is replaced by Table 3.2-24 as follows.

Table 3.2-25 in the 2018 EIR is replaced by Table 3.2-25 as follows.

2040 CUMULATIVE PLUS PROJECT

Tables 3.2-26 and 3.2-27 summarize the freeway results for the express lane for 2040 Cumulative Conditions for the AM and PM peak hours, respectively.

Under 2040 Cumulative Conditions, the HOV policy is expected to be three persons per vehicle, rather than the current two persons per vehicle. The analysis showed that, under this policy, fewer vehicles would qualify to use the HOV/express lanes, causing them to operate at an improved LOS in 2040 compared with 2028.

Under the proposed Project, all HOV/express lane freeway segments would operate at acceptable levels in the 2040 cumulative analysis. Therefore, there would be no impact.

Table 3.2-26 in the 2018 EIR is replaced by Table 3.2-26 as follows.

Table 3.2-27 in the 2018 EIR is replaced by Table 3.2-27 as follows.

Table 3.2-24 I-580 HOV/Express Lane Freeway Level of Service, 2028 Near Term Conditions, AM Peak Hour

#	To	From	Westbound				Eastbound			
			No Project Alternative		INSP Project		No Project Alternative		INSP Project	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	F	1.024	F	1.030	A	0.293	A	0.262
2	Fallon Road/ El Charro Road	Airway Boulevard	E	0.990	E	0.984	A	0.147	A	0.131
3	Airway Boulevard	Isabel Avenue	F	1.044	F	1.016	A	0.147	A	0.131
4	Isabel Avenue	Livermore Avenue	F	1.055	F	1.041	A	0.147	A	0.128
5	Livermore Avenue	Springtown Boulevard/ First Street	E	0.994	E	0.980	A	0.147	A	0.132
6	Springtown Boulevard/ First Street	Vasco Road	E	0.981	E	0.972	A	0.146	A	0.131

Notes: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Source: BLVX DEIR, 2017 (for No Project).

Table 3.2-25 I-580 HOV/Express Lane Freeway Level of Service, 2028 Near Term Conditions, PM Peak Hour

			Westbound				Eastbound				
			No Project Alternative		INSP Project		No Project Alternative		INSP Project		
#	To	From	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	B	0.474	B	0.469		D	0.846	D	0.814
2	Fallon Road/ El Charro Road	Airway Boulevard	B	0.473	B	0.469		B	0.442	B	0.422
3	Airway Boulevard	Isabel Avenue	B	0.426	B	0.424		B	0.398	B	0.377
4	Isabel Avenue	Livermore Avenue	B	0.421	B	0.423		B	0.433	B	0.414
5	Livermore Avenue	Springtown Boulevard/ First Street	B	0.366	B	0.370		B	0.402	B	0.382
6	Springtown Boulevard/ First Street	Vasco Road	B	0.356	B	0.359		B	0.364	A	0.344

Notes: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Source: BLVX DEIR, 2017 (for No Project).

Table 3.2-26 I-580 HOV/Express Lane Freeway Level of Service, 2040 Cumulative Conditions, AM Peak Hour

#	To	From	Westbound		Eastbound					
			No Project Alternative		INSP Project		No Project Alternative		INSP Project	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	B	0.446	B	0.418	A	0.198	A	0.206
2	Fallon Road/ El Charro Road	Airway Boulevard	B	0.435	B	0.414	A	0.105	A	0.108
3	Airway Boulevard	Isabel Avenue	B	0.399	B	0.378	A	0.102	A	0.102
4	Isabel Avenue	Livermore Avenue	B	0.396	B	0.375	A	0.098	A	0.097
5	Livermore Avenue	Springtown Boulevard/ First Street	B	0.378	B	0.355	A	0.098	A	0.096
6	Springtown Boulevard/ First Street	Vasco Road	A	0.349	A	0.324	A	0.096	A	0.094

Note: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Source: BLVX DEIR, 2017 (for No Project).

Table 3.2-27 I-580 HOV/Express Lane Freeway Level of Service, 2040 Cumulative Conditions, PM Peak Hour

#	To	From	Westbound				Eastbound			
			No Project Alternative		INSP Project		No Project Alternative		INSP Project	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	Tassajara Road/Santa Rita Road	Fallon Road/ El Charro Road	A	0.222	A	0.238	A	0.239	A	0.252
2	Fallon Road/ El Charro Road	Airway Boulevard	A	0.216	A	0.235	A	0.129	A	0.135
3	Airway Boulevard	Isabel Avenue	A	0.202	A	0.192	A	0.124	A	0.129
4	Isabel Avenue	Livermore Avenue	A	0.199	A	0.209	A	0.128	A	0.139
5	Livermore Avenue	Springtown Boulevard/ First Street	A	0.181	A	0.186	A	0.119	A	0.127
6	Springtown Boulevard/ First Street	Vasco Road	A	0.174	A	0.181	A	0.109	A	0.115

Note: LOS = level of service; V/C = volume-to-capacity ratio.

Bold indicates segment operates beyond the standard.

Source: BLVX DEIR, 2017 (for No Project).

Arterial Segments

Arterial segment forecasts were extracted from the modified version of Alameda CTC's Countywide Travel Demand Model with Valley Link rail to generate future-year peak-hour volumes. These volumes are used to calculate V/C ratios and determine impacts. The analysis relied on the Highway Capacity Manual 2010 (HCM) arterial capacity methodology for determining level of service.

2028 Near Term Conditions (Valley Link Opening)

Table 3.2-28 presents segment operations for 2028 Near Term Conditions, representing the Valley Link opening year. For the proposed Project under 2028 Near Term Plus Project Conditions, there are two segments in the AM peak hour and two segments in the PM peak hour that operate at LOS F, but based on the established significance threshold, no CMP arterials segments would have a significant impact compared to No Project Conditions. Therefore, impacts to CMP arterial segments in 2028 are less than significant.

Table 3.2-28 in the 2018 EIR is replaced by Table 3.2-28 as follows.

Table 3.2-28 2028 Near Term Arterial CMP Segments

Segment		2028 Near Term No Project		2028 Near Term Plus Project	
		AM	PM	AM	PM
Northbound/Eastbound					
N. Livermore Ave. - North of Portola Ave.	Volume	897	1,498	933	1,527
	LOS	C	D	D	E
	V/C change			0.04	0.02
Airway Blvd. - West of Isabel Ave.	Volume	135	983	142	972
	LOS	C	F	C	F
	V/C change			0.05	-0.01
Airway Blvd. - East of Isabel Ave.	Volume	126	387	254	418
	LOS	C	D	D	D
	V/C change			1.02	0.08
Stanley Blvd. - West of Isabel Ave.	Volume	310	2,074	313	2,085
	LOS	C	F	C	F
	V/C change			0.01	0.01
Isabel Ave. - South of Stanley Blvd.	Volume	1,536	1,073	1,591	1,052
	LOS	D	D	D	D
	V/C change			0.04	-0.02
Southbound/Westbound					
N. Livermore Ave. - North of Portola Ave.	Volume	486	1,727	933	1,527
	LOS	C	F	D	E
	V/C change			0.04	0.02
Airway Blvd. - West of Isabel Ave.	Volume	759	545	142	972
	LOS	E	D	C	F
	V/C change			0.05	-0.01
Airway Blvd. - East of Isabel Ave.	Volume	367	249	254	418
	LOS	C	C	D	D
	V/C change			1.02	0.08
Stanley Blvd. - West of Isabel Ave.	Volume	2,066	518	313	2,085
	LOS	F	D	C	F
	V/C change			0.01	0.01
Isabel Ave. - South of Stanley Blvd.	Volume	665	1,618	1,591	1,052
	LOS	C	D	D	D

Table 3.2-28 2028 Near Term Arterial CMP Segments

Segment	2028 Near Term No Project		2028 Near Term Plus Project	
	AM	PM	AM	PM
V/C change			0.04	-0.02

Note: Bold indicates operating beyond standard of LOS E.

Source: Kittelson & Associates, Inc., 2018.

2040 Cumulative Conditions

Table 3.2-29 presents segment operations for 2040 Cumulative Conditions. For the proposed Project under 2040 Cumulative Conditions, there are four segments in the AM peak hour and four segments in the PM peak hour that would operate at LOS F, but only two CMP arterial segments would have a significant impact compared to No Project Conditions. Impacts would occur at the following segments:

Airway Boulevard, West of Isabel Avenue. This segment would operate at a LOS F during the AM and PM peak hour in the southbound and northbound directions and a V/C ratio increase over the No Project Condition of > 0.05. Based on the significance criteria for the CMP, this represents a significant impact.

Isabel Avenue South of Stanley Boulevard. This segment would operate at a LOS F during the PM peak hour in the southbound direction and a V/C ratio increase over the No Project Condition of > 0.05. Based on the significance criteria for the CMP, this represents a significant impact.

Table 3.2-29 in the 2018 EIR is replaced by Table 3.2-29 as follows.

Table 3.2-29 2040 Cumulative Arterial CMP Segments

Segment		2040 Cumulative No Project		2040 Cumulative Plus Project	
		AM	PM	AM	PM
Northbound/Eastbound					
N. Livermore Ave. - North of Portola Ave.	Volume	1,125	2,069	1,175	2,115
	LOS	C	F	D	F
	V/C change			0.04	0.02
Airway Blvd. - West of Isabel Ave.	Volume	234	985	392	996
	LOS	C	F	C	F
	V/C change			0.67	0.01
Airway Blvd. - East of Isabel Ave.	Volume	131	487	421	677
	LOS	C	D	D	E
	V/C change			0.11	-0.21
Stanley Blvd. - West of Isabel Ave.	Volume	279	2,838	292	2,845
	LOS	C	F	C	F
	V/C change			0.05	0.00
Isabel Ave. - South of Stanley Blvd.	Volume	2,344	1,794	2,395	1,649
	LOS	F	F	F	E
	V/C change			0.02	-0.08
Southbound/Westbound					
N. Livermore Ave. - North of Portola Ave.	Volume	934	2,028	962	2,063
	LOS	C	E	C	E
	V/C change			0.03	0.02
Airway Blvd. - West of Isabel Ave.	Volume	880	709	942	841
	LOS	F	D	F	F
	V/C change			0.07	0.19
Airway Blvd. - East of Isabel Ave.	Volume	328	268	513	628
	LOS	C	C	D	E
	V/C change			-0.10	0.07
Stanley Blvd. - West of Isabel Ave.	Volume	2,824	509	2,772	558
	LOS	F	D	F	D
	V/C change			-0.02	0.10
Isabel Ave. - South of Stanley Blvd.	Volume	1,124	2,629	1,226	2,699
	LOS	D	F	D	F
	V/C change			0.09	0.03

Table 3.2-29 2040 Cumulative Arterial CMP Segments

Segment	2040 Cumulative No Project		2040 Cumulative Plus Project	
	AM	PM	AM	PM

Note: Bold indicates operating beyond standard of LOS E.

Shaded cell indicates significant impact.

Source: Kittelson & Associates, Inc., 2018.

Mitigation Measures

Freeway Segments

Typical mitigation measures that would address significant impacts to general purpose freeway segments entail operational improvements to the freeway, such as adding or modifying ramp metering, adding express lanes, and constructing other capacity enhancements such as additional travel lanes. However, the transportation analysis already accounts for these types of planned and programed operational improvements along the study area segments of I-580, as described in the Freeway Segment Assumptions subsection above.

No additional improvements would be feasible to address this significant impact. Specifically, while adding travel lanes to I-580 would increase the capacity of the freeway and reduce this impact, physical constraints and the existing ROW along the affected freeway segment make this infeasible. For example, widening I-580 would conflict with bridge columns at some locations and would impact homes, businesses, and/or an existing park (Northfront Park). Furthermore, adding travel lanes can lead to additional social and environmental impacts such as induced travel demand (e.g., increased passenger vehicles on the roadway because of greater freeway capacity). The additional passenger vehicles would have adverse environmental impacts, including degradation of air quality, increased noise from vehicles, and reductions in transit use, as less congestion or reduced driving time may make driving more attractive than transit. Therefore, the impact remains significant and unavoidable.

Arterial Segments

Typical mitigation measures that would address significant impacts to arterial segments entail widening or operational improvements to the arterials. However, the transportation analysis already accounts for these types of planned and programed operational improvements along the study area segments, as described in the Freeway Segment Assumptions subsection above.

No additional improvements would be feasible to address this significant impact. Specifically, while adding travel lanes to arterial segments would increase the capacity of the roadways and reduce this impact, physical constraints and the existing ROW along the affected arterial segment make this infeasible. Furthermore, adding travel lanes can lead to additional social and environmental impacts such as induced travel demand (e.g., increased passenger vehicles on the roadway because of greater freeway capacity). The additional passenger vehicles would have adverse environmental impacts, including degradation of air quality, increased noise from vehicles, and reductions in

transit use, as less congestion or reduced driving time may make driving more attractive than transit. Therefore, the impact remains significant and unavoidable.

Impact 3.2-3 Implementation of the proposed Project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. *(Less than Significant)*

The Livermore Municipal Airport is located just southwest of the Planning Area. As such, the proposed Project would create land uses that are compatible with the airport from a safety perspective, although it would increase the number of residents exposed to overflight noise and may increase noise complaints (see Section 3.1: Land Use, Population, and Housing; Section 3.6: Noise and Vibration; and Section 3.8: Hazards and Hazardous Materials of the 2018 Draft EIR). Given the potential that some pilots may avoid flying over new residential development, implementation of the Plan could indirectly change typical flight patterns compared to existing conditions. For example, some pilots could choose to fly farther south or north. However, the take-offs and landing approaches would not change, and the project does not propose any elements that would affect the established flight patterns for LVK, as the Plan is consistent with the ALUCP and federal aviation regulations on height and safety. Flight patterns would be similar to the flight patterns experienced today and those allowed under local policy and federal law. Therefore, the impact on flight patterns would be less than significant.

Mitigation Measures

None required.

Impact 3.2-4 Implementation of the proposed Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). *(Less than Significant)*

Implementation of the proposed Project would increase traffic levels in the study area and introduce new intersections and traffic signals to the existing street system. However, these new roadways and traffic signals would be designed to City Design standards and therefore should not substantially increase hazards due to a design feature. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Impact 3.2-5 Implementation of the proposed Project would not result in inadequate emergency access. (*Less than Significant*)

Implementation of the proposed Project would increase land uses in the Planning Area. New land uses will require additional emergency access to respond to emergencies. However, these new roadways and intersections will be designed to City design standards that account for emergency access and therefore should not result in inadequate emergency access. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Impact 3.2-6 Implementation of the proposed Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (*No Impact*)

The proposed Project includes new pedestrian and bicycle connections within the Planning Area, supporting and expanding upon the improvements identified in the Livermore Bikeways and Trails Master Plan. The transit-oriented development pattern creates a diverse mix of land uses, resulting in a concentration of housing, jobs, and shopping all within walking and bicycling distance of one another. The Plan emphasizes multimodal circulation, accommodating vehicular through traffic but at a slow pace that substantially improves safety for pedestrians and cyclists compared to traditional higher-speed roadway systems. Pedestrian and bicycle activity is likely to increase proportionately to increases in traffic volumes in the Planning Area. Primary pedestrian street crossings on major streets would occur at signals, which include specific provisions to minimize conflicts between vehicular traffic and non-motorized transportation users. The proposed Project's would benefit pedestrian and bicycle circulation in the Planning, so there would be no impact.

Mitigation Measures

None required.

3.3 Energy, Greenhouse Gases, and Climate Change

Environmental Setting

PHYSICAL SETTING

Energy

Energy usage is typically quantified using the British thermal unit (BTU¹). California has a diverse portfolio of energy resources. The state ranked third in the nation in 2016 in conventional hydroelectric generation and sixth in the nation in 2018 in crude oil production (excluding federal offshore areas), and, as of January 2019, third in oil refining capacity (U.S. Energy Information Administration, 2019). Also in 2018, the state was ranked first as a producer of electricity from biomass, geothermal, and solar energy, and second in net electricity generation from all other renewable energy resources combined. Other energy production sources in the state include natural gas, nuclear, and biofuels (U.S. Energy Information Administration, 2019).

Energy efficiency efforts have dramatically reduced statewide per capita energy consumption relative to historical averages. According to the U.S. Energy Information Administration, California consumed approximately 7,881 trillion BTUs of energy in 2017. Per capita energy consumption (i.e., total energy consumption divided by the population) in California is amongst the lowest in the country, with 200 million BTU in 2017, which ranked 48th among all states in the country. Natural gas accounted for the majority of energy consumption (28 percent), followed by motor gasoline (22 percent), distillate and jet fuel (16 percent), interstate electricity (8 percent), nuclear and hydroelectric power (7 percent), and a variety of other sources (U.S. Energy Information Administration, 2019). The transportation sector consumed the highest quantity of energy (40 percent), followed by the industrial and commercial sectors (U.S. Energy Information Administration, 2019).

California's per capita energy consumption, in general, is declining due to improvements in energy efficiency and design. However, despite this reduction in per capita energy use, the state's overall (i.e., non-per capita energy consumption) energy consumption is expected to increase over the next several decades due to growth in population, jobs, and demand for vehicle travel. For example,

1 A British thermal unit is a standard unit of energy measure, which is the quantity of heat required to raise the temperature of 1 pound of water 1 degree Fahrenheit at or near the temperature at which water has its greatest density (39.2 degrees Fahrenheit). A therm is a unit of heat equivalent to 100,000 BTUs.

electricity usage is anticipated to grow about 15 to 25 percent by 2030 over 2016 consumption (California Energy Commission, 2018).

Regionally, Pacific Gas & Electric (PG&E), the provider for electricity and natural gas in the Planning Area, has a diverse power production portfolio, which consists of a variety of renewable and non-renewable sources. Energy production typically varies by season and by year depending on hydrologic conditions. Regional electricity loads also tend to be higher in the summer because the higher summer temperatures drive increased demand for air-conditioning. In contrast, natural gas loads are higher in the winter because the colder temperatures drive increased demand for natural gas heating. In 2018, approximately 80 percent of PG&E's electric power mix came from greenhouse gas (GHG)-free resources including nuclear, large hydroelectric, and renewable sources. An average of 39 percent of PG&E's electricity in 2018 came from renewable sources including solar, wind, geothermal, biomass, and hydroelectric sources (Pacific Gas & Electric, 2019).

At the local level, Alameda County consumes a small amount of energy relative to the state. Electricity and natural gas usage are individually about 4 and 3 percent of the statewide total, respectively (California Energy Commission, 2019). Gasoline is about 4 percent of statewide usage, whereas diesel fuel usage is about 5 percent of the statewide total (California Air Resources Board, 2019). For reference, Alameda County is home to about 4 percent of California residents. As a whole, Alameda County consumed 10,417 gigawatt-hour (GWh) of electricity and 377 million therms of natural gas in 2018. Table 3.3-1 provides a summary of total and per capita Alameda County energy consumption in 2018.

Table 3.4-1 is replaced with Table 3.3-1 as follows.

Table 3.3-1: Alameda County Total and Per Capita Energy Consumption (2018)^a

	Mass	Million BTUs	Per Capita BTUs
Electricity	10,417 GWh	35,563,638	21,337,077
Natural Gas	377 million therm	37,690,952	22,613,399
Gasoline	612 million gallons	74,886,768	44,929,733
Diesel	172 million gallons	23,820,280	12,291,427

Notes:

BTU = British thermal unit

kWh = Kilowatt-hours

GWh = Gigawatt-hours

3,414 BTU per 1kWh

99,976 BTU per Therm

122,364 BTU per 1 gallon gasoline (average of 120,388–124,340)

138,490 BTU per 1 gallon diesel

Alameda County 2018 Population = 1,666,753

a. As data provided by the CEC for electricity and natural gas consumption and data provided by CARB for gasoline and diesel fuel consumption are currently only available at the county level, energy consumption data for the City of Livermore and the Planning Area have not been provided

Sources: California Energy Commission, 2019; California Air Resources Board, 2019; U.S. Census Bureau, 2019; U.S. Department of Energy, 2014.

Greenhouse Gases

Greenhouse Effect and Climate Change

The phenomenon known as the greenhouse effect keeps the atmosphere near Earth's surface warm enough for the successful habitation of humans and other life forms. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHGs. The presence of GHGs increase the amount of infrared radiation absorbed by the atmosphere, thus enhancing the greenhouse effect and amplifying the warming of Earth. Human activities including the burning of fossil fuels and changes in land use, such as agriculture and deforestation, generate GHG emissions that contribute to the warming of the Earth (Center for Climate and Energy Solutions, 2016).

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures—a phenomenon commonly referred to as global warming. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events (Intergovernmental Panel on Climate Change, 2007). Large-scale changes to Earth's system are collectively referred to as climate change.

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature will rise by 0.3 to 4.8°C (0.5 to 8.6°F) during the 21st century (Intergovernmental Panel on Climate Change, 2013). Large increases in global temperatures could have substantial adverse effects on the natural and human environments worldwide and in California.

Greenhouse Gases

The principle anthropogenic (human-made) GHGs contributing to global warming are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated compounds, including sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorinated carbons (PFCs). Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic sources. Characteristics of the principle anthropogenic GHGs are discussed below.

CO₂ enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products; respiration; and as a result of other chemical reactions (e.g., manufacture of cement). CO₂ is also removed from the atmosphere (or sequestered) when it is absorbed by plants as part of the biological carbon cycle.

CH₄ is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

N₂O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

SF₆, an anthropogenic chemical, is used as an electrical insulating fluid for power distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer chemical for the study of oceanic and atmospheric processes.

HFCs are anthropogenic chemicals used in commercial, industrial, and consumer products and have high global warming potential (GWP). HFCs are generally used as substitutes for ozone-depleting substances in automobile air conditioners and refrigerants.

PFCs are typically emitted as byproducts of industrial and manufacturing processes. They were originally introduced as alternatives to ozone-depleting substances.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the GWP methodology defined in the IPCC reference documents. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalent (CO₂e), which compares the gas in question to that of the same mass of CO₂ (CO₂ has a global warming potential of 1 by definition). The GWP values used in this analysis are

based on the IPCC Fourth Assessment Report (AR4) and United Nations Framework Convention on Climate Change reporting guidelines (Intergovernmental Panel on Climate Change, 2007). The AR4 GWP values are used in ARB's California GHG inventory and 2017 Climate Change Scoping Plan Update.

Table 3.3-2 lists the global warming potential of CO₂, CH₄, and N₂O along with their lifetimes and most recent abundances in the atmosphere.

Table 3.3-2: Atmospheric Lifetimes and Global Warming Potentials of Key Greenhouse Gases

Greenhouse Gases	GWP (100 years) ^a	Lifetime (years)	2014 Atmospheric Abundance
CO ₂	1	50–200	400 ppm
CH ₄	25	9–15	1,834 ppb
N ₂ O	298	121	328 ppb

Notes:

CH₄ = methane

CO₂ = carbon dioxide

N₂O = nitrous oxide

Ppb = parts per billion

Ppm = parts per million

a. The GWPs listed above and included in this analysis are from the IPCC's Fourth Assessment Report (AR4). The IPCC has released slightly revised GWPs as part of their Fifth Assessment Report (AR5). However, the AR4 GWP values are used by California for statewide emissions planning, and have been incorporated into both the most recent 2015 California GHG inventory and 2017 Climate Change Scoping Plan Update.

Sources: Myhre et al. 2013; Blasing 2016.

Greenhouse Gas Emissions Inventories

A GHG inventory is a quantification of all GHG emissions and sinks² within a selected physical or economic boundary. GHG inventories can be performed on a large scale (e.g., for global and national entities) or on a small scale (e.g., for a particular building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources. Table 3.3-3 outlines the most recent global, national, statewide, and regional GHG inventories.

In 2012, the City of Livermore adopted their Climate Action Plan (CAP) to reduce GHG emissions. As a component of the CAP analysis, the City's GHG emissions in 2005, 2008, and 2020 (forecasted) were quantified. A 'business-as-usual' forecast was prepared for 2020 to determine the level of emissions reductions the City would need to achieve to meet their GHG reduction goal. GHG emissions produced by the community in 2005 and 2008, and the expected level of emissions in

² A GHG sink is a process, activity, or mechanism that removes a GHG from the atmosphere.

2020 are shown in Table 3.3-4. The inventory and forecast data indicate that transportation sources in the City represent the largest source of community emissions in each analysis year.

Table 3.3-3: Global, National, and State GHG Emissions Inventories

<i>Emissions Inventory</i>	<i>CO₂e (metric tons)</i>
2010 IPCC Global GHG Emissions Inventory	52,000,000,000
2015 EPA National GHG Emissions Inventory	6,587,000,000
2015 ARB State GHG Emissions Inventory	440,400,000
2011 BAAQMD GHG Emissions Inventory	86,600,000

Sources: Intergovernmental Panel on Climate Change 2014; U.S. Environmental Protection Agency 2017; California Air Resources Board 2017a; Bay Area Air Quality Management District 2011.

In addition to the CAP's reported community emissions shown below, the CAP also evaluated municipal GHG emissions. Municipal emissions are those emissions that are generated as the result of municipal (i.e. city or county) government operations. The regulatory framework for the CAP is described below under the Regulatory Setting section. Refer to the City's CAP for a summary of the municipal GHG emissions.³

Table 3.3-4: City of Livermore Community Greenhouse Gas Emissions Inventories and Forecast (metric tons CO₂e)

<i>Emission Sector</i>	<i>2005 Inventory</i>		<i>2008 Inventory</i>		<i>2020 Forecast</i>	
	<i>Metric Tons</i>		<i>Metric Tons</i>		<i>Metric Tons</i>	
	<i>CO₂e</i>	<i>Percent</i>	<i>CO₂e</i>	<i>Percent</i>	<i>CO₂e</i>	<i>Percent</i>
Transportation	147,327	35.8%	150,881	35.4%	182,643	36.7%
Water Conveyance	5,246	1.3%	5,374	1.3%	6,073	1.2%
Wastewater Treatment	826	0.2%	846	0.2%	956	0.2%
Solid Waste Generation	32,783	8.0%	33,580	7.9%	37,948	7.6%
Residential Energy	121,572	29.5%	129,177	30.3%	140,726	28.3%
Commercial/ Industrial Energy	104,183	25.3%	106,320	24.9%	128,956	25.9%
Total	411,937	100%	426,177	100%	497,302	100%

Source: City of Livermore 2012 Climate Action Plan.

Climate Change

Even with the efforts of municipalities throughout the state, a certain amount of climate change is inevitable because of existing and unavoidable future GHG emissions. With respect to the San

³ The City's CAP is accessible online at the following address:
<http://www.cityoflivermore.net/civicax/filebank/documents/9789/>.

Francisco Bay Area Air Basin (SFBAAB), including the City of Livermore, climate change effects are expected to result in the following conditions:

- Sea level rise, with present projections estimating a 6- to 32-centimeter increase above 1990 levels by the 2035 to 2064 timeframe. By the 2070 to 2100 timeframe, an increase of 11 to 72 centimeters is expected, depending on which scenario of emissions actually occurs (e.g. lower, middle-upper, higher) (PRBO Conservation Science, 2011);
- A hotter and drier climate, with average annual temperatures increasing by up to 6°F in Alameda County by 2099, relative to baseline conditions (1961–1990) (California Energy Commission, 2016b);
- Increased frequency and intensity of winter storm events that could affect peak stream flows and increase flooding as large amounts of runoff move over pavement and other built surfaces. Although modeling results can vary, climate scientists predict an increase in warmer temperatures and months (California Energy Commission, 2012). Changes in precipitation patterns may amplify the existing flood risk in the Planning Area;
- Changes in growing season conditions and species distribution (PRBO Conservation Science, 2011); and
- Increased heat and decreased air quality, with the result that public health will be placed at risk, and native plant and animal species may be lost (PRBO Conservation Science, 2011).

REGULATORY SETTING

Energy

Federal Regulations

The Energy Policy Act of 2005 establishes a comprehensive, long-term federal energy policy to be implemented by the U.S. Department of Energy. The Energy Policy Act addresses energy production in the United States, including oil, gas, coal, and alternative forms of energy and energy efficiency and tax incentives. Energy efficiency and tax incentive programs include credits for the construction of new energy efficient homes, production or purchase of energy efficient appliances, and loan guarantees for entities that develop or use innovative technologies that avoid the production of GHGs. The federal government has also adopted the Energy and Independence Security Act of 2007 (EISA), which sets energy management requirements in several areas.

State Regulations

Assembly Bill 2076, Reducing Dependence on Petroleum (2000)

The California Energy Commission (CEC) and California Air Resources Board (ARB) are directed by Assembly Bill (AB) 2076 to develop and adopt recommendations for reducing dependence on petroleum. A performance-based goal is to reduce petroleum demand to 15 percent less than 2003 demand by 2020.

Senate Bill 1389 (2002) and California Integrated Energy Policy Report

Senate Bill (SB) 1389 requires the CEC to develop an integrated energy plan for electricity, natural gas, and transportation fuels. The energy plan is to be updated biannually and support improvements to the California energy system that reduce air pollution, congestion, and wasteful energy use. The current Integrated Energy Policy Report (IEPR) was updated in 2016 and covers a broad range of topics, including, but not limited to, environmental performance of the electricity generation system, landscape-scale planning, transportation fuel supply reliability, climate adaptation activities, and climate and sea level rise scenarios.

California Energy Efficiency Standards for Residential and Nonresidential Buildings—Green Building Code (2011), Title 24 Update (2014/2016)

The Green Building Standards Code (CALGreen) applies to the planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires the installation of energy- and water-efficient indoor infrastructure for all new projects beginning after January 1, 2011. CALGreen now requires newly constructed buildings to develop a waste management plan and to recycle or salvage for reuse at least 65 percent of the construction and demolition waste materials generated during project construction.

Administrative regulations for CALGreen Part 11 and the California Building Energy Efficiency Standards were adopted in 2013 and took effect on January 1, 2014. The 2013 Building Energy Efficiency Standards are 25 percent more efficient than previous standards for residential construction. Part 11 also established voluntary standards that became mandatory in the 2010 edition of the code, including planning and design for sustainable site development, energy efficiency, water conservation, material conservation, and internal air contaminants. The standards offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

The 2016 Building Energy Efficiency Standards took effect on January 1, 2017. According to CEC, single-family homes built to the 2016 standards will use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards. While the 2016 standards do not require zero net energy (ZNE) buildings, which on an annual basis would produce approximately the same amount of energy as they consume, the 2019 standards are expected to take the final step toward achieving ZNE for newly constructed residential buildings throughout California. Later standards are expected to require ZNE for newly constructed commercial buildings.

Local Regulations

City of Livermore General Plan

The Open Space and Conservation Element of the City of Livermore General Plan addresses energy conservation and identifies policies to protect and improve this resource (City of Livermore, 2004). The goal, objective, and policies relevant to the proposed Project's energy analysis include minimizing Livermore's energy consumption by promoting energy conservation in the public and private realms.

In addition, the Infrastructure and Public Services Element of the General Plan includes goals to provide utilities and manage solid waste in ways that are environmentally acceptable by considering the energy efficiency of proposed development and promoting the recovery of recyclable materials and energy from solid waste generated in the city.

Climate Change

Federal Regulations

There is no federal overarching law specifically related to climate change or the reduction of GHGs. Under the Obama Administration, the EPA was developing regulations under the Clean Air Act (CAA) pursuant to the EPA's authority under the CAA. In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld the EPA's authority to regulate GHG emissions under the CAA. Foremost among recent developments have been the settlement agreements between the EPA, several states, and non-governmental organizations (NGOs) to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court's decision in *Massachusetts v. EPA*; and the EPA's "Endangerment Finding," "Cause or Contribute Finding," Mandatory Reporting Rule, light-duty and heavy-duty vehicle fuel economy standards, and EPA's Clean Power Plan Final Rule. Under the Clean Power Plan, EPA issued regulations to control CO₂ emissions from new and existing coal-fired power plants. However, on February 9, 2016 the Supreme Court issued a stay of these regulations pending litigation. The fate of the proposed regulations is uncertain given the change in federal administrations and the pending deliberations in federal courts.

State Regulations

California has adopted statewide legislation addressing various aspects of GHG emissions reduction and climate change. The legislation establishes a broad framework for the State's long-term GHG reduction program. The Governor of California has also issued several executive orders related to the State's evolving climate change policy. Summaries of key policies, regulations, and legislation at the state levels that are relevant to the proposed Project are provided below.

Executive Order S-3-05 (2005)

California Executive Order (EO) S-3-05 sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalent [MT CO₂e]); by 2020, reduce emissions to 1990 levels (approximately 427 million metric tons CO₂e); and by 2050, reduce emissions to 80 percent below 1990 levels (approximately 85 million metric tons CO₂e). Executive orders are binding only on state agencies. Accordingly, California EO S-3-05 will guide State agencies' efforts to control and regulate GHG emissions, but will have no direct binding effect on local government or private actions. The Secretary of the California Environmental Protection Agency is required to report to the Governor and State legislature biannually on the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this executive order.

Assembly Bill 1493, Pavley Rules (2002, amendments 2009)/Advanced Clean Cars (2012)

Known as “Pavley I,” AB 1493 established the nation’s first GHG standards for automobiles. AB 1493 required ARB to adopt vehicle standards to lower GHG emissions from new light duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as “Pavley II,” and now referred to as the “Advanced Clean Cars” measure) was adopted for vehicle model years 2017 to 2025 in 2012. Together, the two standards are expected to increase average fuel economy to roughly 54.5 miles per gallon by 2025.

Assembly Bill 32 (2006) and California Climate Change Scoping Plan (2008/2014)

In 2006, the California legislature passed AB 32 (California Health and Safety Code Division 25.5, Sections 38500 et seq., or AB 32), also known as the California Global Warming Solutions Act. AB 32 requires ARB to implement emission limits, regulations, and other feasible and cost-effective measures such that statewide GHG emissions are reduced to 1990 levels by 2020.

Pursuant to AB 32, ARB adopted the Climate Change Scoping Plan (Scoping Plan) in December 2008, which outlines measures for meeting the 2020 GHG emissions reduction limits. The Scoping Plan must be updated every five years to evaluate AB 32 policies and ensure that California is on track to achieve the 2020 GHG emissions reduction goal. In 2014, ARB released the First Update to the Climate Change Scoping Plan (First Update), which builds upon the initial scoping plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds and drive GHG emissions reductions through strategic planning and targeted low-carbon investments. This update defines ARB’s climate change priorities for the next five years and sets the groundwork for reaching the long-term goals set forth in California EO S-3-05. The First Update highlights California’s progress toward meeting the near-term 2020 GHG emissions reduction goals in the initial scoping plan. It also evaluates actions to align the State’s longer-term GHG emissions reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

Executive Order S-01-07, Low Carbon Fuel Standard (2007)

California EO S-01-07 mandates (1) that a statewide goal be established to reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020, and (2) that a low-carbon fuel standard for transportation fuels be established in California. The executive order initiates a research and regulatory process at ARB.

Senate Bill 375 (Steinberg) (2008)

SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans (RTPs), and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by metropolitan planning organizations (MPOs), to incorporate a sustainable communities strategy (SCS). The goal of the SCS is to reduce regional vehicle miles traveled (VMT) through land use planning and consequent transportation patterns. ARB released the regional targets in September 2010.

The Metropolitan Transportation Commission (MTC) is the MPO for the nine counties that comprise the San Francisco Bay Area and the SFBAAB, which includes the City of Livermore. The per capita GHG emissions reduction targets for the SFBAAB are seven percent by 2020 and 15 percent by 2035 from 2005 levels (California Air Resources Board, 2011). MTC adopted an SCS as part of their regional transportation plan (RTP) for the SFBAAB in 2013 known as Plan Bay Area. The plan exceeds the regional per capita targets, achieving 10 percent and 16 percent reduction in per capita GHG emissions by 2020 and 2035, respectively (Association of Bay Area Governments and Metropolitan Transportation Commission, 2012). On July 26, 2017, the strategic update to this plan, known as Plan Bay Area 2040, was adopted by the Association of Bay Area Governments (ABAG) and the MTC. As a limited and focused update, Plan Bay Area 2040 builds upon the growth pattern and strategies developed in the original Plan Bay Area but with updated planning assumptions that incorporate key economic, demographic, and financial trends since 2013. Plan Bay Area 2050 is under development by ABAG and MTC and is tentatively scheduled for adoption in summer 2021. Building upon the previous iterations of Plan Bay Area, Plan Bay Area 2050 will focus on coordinating housing and job growth while achieving the goals of making a more resilient and equitable future for the Bay Area. Plan Bay Area 2050 will include an updated long-range Regional Growth Forecast.

SB 375 includes provisions for streamlined CEQA review for certain types of mixed-use and transit priority projects that meet specific criteria established by SB 375. According to State CEQA Guidelines Section 15183.5, quantified plans, such as the RTP/SCS EIR, “may be used in the cumulative impacts analysis of later projects.” More specifically, “[l]ater project-specific environmental documents may tier from and/or incorporate by reference” the “programmatic review” conducted for the GHG reduction plan. Section 15183.5 also states:

An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project.

Environmental documents prepared for residential and mixed-use projects that are consistent with the RTP/SCS EIR are not required to reference, describe, or discuss the following in their GHG impact analysis (Public Resource Code Section 21159.28):

- Growth-inducing impacts;
- A reduced-density alternative to address impacts on transportation or climate change of increased car and truck VMT induced by the project; or
- Any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network.

Senate Bill 97 (2009)

SB 97 required the Governor’s Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bills 1078/107 and Senate Bill X1-2 (2011)—Renewables Portfolio Standard

SBs 1078 and 107, California's Renewables Portfolio Standard (RPS), obligates investor-owned utilities (IOUs), energy service providers (ESPs), and Community Choice Aggregations (CCAs) to procure an additional one percent of retail sales per year from eligible renewable sources until 20 percent is reached, no later than 2010. The California Public Utilities Commission (CPUC) and CEC are jointly responsible for implementing the program. SB X1-2 (2011), called the California Renewable Energy Resources Act, obligates California electricity providers to obtain at least 33 percent of their energy from renewable resources by 2020. The RPS has been extended by SB 350, discussed further below, to 50 percent for 2030.

Senate Bill 350—De Leon (Clean Energy and Pollution Reduction Act of 2015) (2015)

SB 350 was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions are to require the following by 2030: (1) a renewables portfolio standard of 50 percent and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of the California Public Utilities Commission and California Energy Commission.

Senate Bill 32 and Assembly Bill 197 (2016)

SB 32 requires the ARB to ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 levels by 2030. The companion bill, AB 197, creates requirements to form a Joint Legislative Committee on Climate Change Policies, requires the ARB to prioritize direct emission reductions and consider social costs when adopting regulations to reduce GHG emissions beyond the 2020 statewide limit, requires ARB to prepare reports on sources of GHGs and other pollutants, establishes six-year terms for voting members of ARB, and adds two legislators as non-voting members of ARB.

Pursuant to SB 32, ARB updated the prior AB 32 Scoping Plan to address implementation of GHG reduction strategies to meet the 2030 reduction target. The final plan was approved in December 2017. The 2017 plan continues the discussion from the original scoping plan and 2014 update of identifying scientifically-backed policies within six of the state's economic sectors to reduce GHGs. The updated Scoping Plan includes various elements, including doubling energy efficiency savings, increasing the low carbon fuel standard from 10 to 18 percent, adding 4.2 million zero-emission vehicles on the road, implementing the Sustainable Freight Strategy, implementing a post-2020 Cap-and-Trade Program, creating walkable communities with expanded mass transit and other alternatives to traveling by car, and developing an Integrated Natural and Working Lands Action Plan to protect land-based carbon sinks.

Local Regulations

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) has local jurisdiction over air quality in the SFBAAB, including projects in the City of Livermore. BAAQMD has adopted advisory emission thresholds to assist CEQA lead agencies in determining the level of significance of a project's GHG emissions, including long range plans (e.g., general plans, specific plans), which are outlined in its California Environmental Quality Act: Air Quality Guidelines (CEQA Guidelines). The CEQA Guidelines also outline methods for quantifying GHG emissions, as well as potential mitigation measures.

City of Livermore Climate Action Plan

The City of Livermore adopted a CAP in 2012 to support the State's implementation of AB 32. Consistent with the State's objectives outlined in AB 32, the CAP set out specific policies and actions to be undertaken by the City to reduce GHG emissions under the control of the City to a level 15 percent less than 2008 conditions. The City's CAP includes existing State and proposed local measures that would result in GHG emission reductions within the community. The reduction measures are grouped into eight broad emission sectors, and include programs that improve building energy efficiency beyond statewide mandates, increase transit and alternatives to vehicular travel, increase use of renewable energy, reduce water conveyance and waste, and other measures. Table 3.3-5 summarizes the GHG reduction measures included in the City's CAP.

It should be noted that because the City's CAP was prepared to comply with the 2020 GHG reduction goal established by AB 32, the CAP would not be applicable to be used to quantitatively evaluate the GHG emissions of the proposed Project beyond 2020, since the proposed Project has interim and full buildout years in the post-2020 period. However, the proposed Project can still be analyzed qualitatively against the CAP reduction measures to evaluate whether implementation of the proposed Project would be in line with the CAP's goals and policies to reduce and minimize GHG emissions.

The City has commenced a 2020 CAP update that will include updated policy goals to reduce energy consumption and GHG emissions and will adopt new standards for climate adaptation. The CAP update is anticipated to be completed in 2021.

Table 3.3-5. City of Livermore CAP Reduction Measures

<i>Measure Number</i>	<i>Measure Description</i>
<i>Building Energy</i>	
Energy-1	Energy Efficiency Voluntary Programs to Promote Retrofits for Existing Residential Buildings
Energy 2	Energy Efficiency Voluntary Programs for Existing Commercial Development
Energy-3	Exceed Title 24 Requirements for New Buildings
Energy-4	Streetlights
<i>Renewable Energy</i>	
Energy-5	Voluntary Residential and Non-Residential Rooftop Solar
Energy-6	Voluntary Solar Over Parking Areas Program
<i>Land Use and Transportation</i>	
On Road-1	Idling Restrictions
On Road-2	Transit Oriented Development
On Road-3	Transit Enhancements
On Road-4	Traffic Signal Synchronization
On Road-5	Bicycles and Pedestrian Improvements
On Road-6	Car Sharing Programs
<i>Water Conveyance</i>	
Water-1	Reduce Per Capita Urban Water Use 20% below 2005 per Capita Levels
<i>Wastewater Treatment</i>	
Wastewater-1	Aeration Diffuser
<i>Solid Waste Generation</i>	
Waste-1	Waste Diversion
<i>Urban Forestry and Conservation</i>	
Urban Forestry-1	Urban Shade Trees
<i>Municipal Programs</i>	
Municipal-1	Municipal Energy-Efficiency Actions

Source: City of Livermore 2012 Climate Action Plan.

Impact Analysis

SIGNIFICANCE CRITERIA

Energy

Based on Appendix F of the CEQA Guidelines, environmental considerations related to energy may include those listed below:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak- and base-period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

The CEQA Guidelines recommend that the analysis of energy impacts focus on whether the project would result in the wasteful, inefficient, or unnecessary consumption of energy. Efficient projects that incorporate conservation measures to avoid wasteful energy usage facilitate long-term energy planning and avoid the need for unplanned or additional energy capacity. Accordingly, based on the criteria outlined in Appendix F of the CEQA Guidelines, the proposed Project's potential impacts related to energy can be assessed based on whether it would lead to a wasteful, inefficient, and unnecessary usage of direct or indirect energy.

As discussed in the Regulatory Setting section, energy legislation, policies, and standards adopted by the federal, State, and local governments were enacted and promulgated for the purpose of reducing energy consumption and improving efficiency (i.e., reducing wasteful and inefficient use of energy). Therefore, for the purposes of this analysis, inconsistency with legislation, policies, or standards designed to avoid wasteful and inefficient energy usage is used as the basis for evaluating whether the proposed Project would result in a significant impact related to energy resources and conservation.

Greenhouse Gases and Climate Change

Climate change is a global problem and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors), which are primarily pollutants of regional and local concern. Given their long atmospheric lifetimes (refer to Table 3.3-2), GHGs emitted by countless sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger

global climate change on its own. Rather, climate change is the result of the individual contributions of countless past, present, and future sources. Therefore, GHG impacts are inherently cumulative.

In accordance with Appendix G of the CEQA Guidelines, implementation of the proposed Project would have a potentially significant adverse impact if it would:

- Criterion 1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. For the purposes of this analysis, a “significant impact” from GHG emissions would occur if emissions exceed thresholds described below.
- Criterion 2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. For the purposes of this analysis, applicable plans include the AB 32 Scoping Plan for 2020, the City’s CAP, and the 2017 Scoping Plan for 2030 (for SB 32 implementation) (consistency with the goals in EO B-30-15, EO S-3-05, and SB 375 and Plan Bay Area 2040 is also evaluated).

Threshold Approach

A number of lead agencies throughout the state have drafted and/or adopted various threshold approaches and guidelines for analyzing 2020 operational GHG emissions in CEQA documents consistent with AB 32 reduction requirements. These different thresholds include compliance with a qualified GHG reduction strategy (i.e., a CAP), performance-based reductions,⁴ numeric bright-line thresholds, and efficiency-based thresholds. The recent California Supreme Court’s Newhall Ranch decision confirmed that there are multiple potential pathways for evaluating GHG emissions consistent with CEQA, depending on the circumstances of a given project.⁵ While the decision did not foreclose other methodologies that may be used by lead agencies, it affirmed that “thresholds only define the level at which an environmental effect ‘normally’ is considered significant; they do not relieve the lead agency of its duty to determine the significance of an impact independently.” Additionally, the decision also identified the need to analyze both near-term and post-2020 emissions, as applicable, stating that an “EIR taking a goal-consistency approach to CEQA significance may in the near future need to consider the project’s effects on meeting longer term emissions reduction targets.”

As the proposed Project is located within the SFBAAB, which is under jurisdiction of BAAQMD, GHG emissions are evaluated using guidance and thresholds outlined in BAAQMD’s CEQA Guidelines (Bay Area Air Quality Management District, 2017). However, it should be noted that these thresholds currently only account for consistency with GHG reduction targets for 2020 established in AB 32, while the future buildout year for the proposed Project is in 2040. As such, GHG emissions will be evaluated by modifying the existing BAAQMD GHG threshold for 2020

⁴ Performance-based reductions include the “percent below Business as Usual” threshold approach, which has been used widely in the past. This approach was the subject of the Newhall Ranch case and presently is subject to uncertainty until the issues raised in the Supreme Court ruling are resolved.

⁵ *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, known as the Newhall Ranch decision

(per AB 32) to the 2040 period, taking into account the GHG reduction targets in SB 32 for 2030 and EO S-3-05 for 2050, as discussed below. Additionally, as part of this analysis and similar to the traffic impact analysis for the proposed Project, which analyzed traffic conditions under an “interim” buildout year in 2028 (Valley Link opening year), the existing BAAQMD GHG threshold for AB32 was also modified to the 2028 period to evaluate the proposed Project’s emissions in 2028. The development of these threshold criteria to assess the proposed Project’s GHG emissions in 2028 and 2040 are discussed below.

Threshold Criteria

BAAQMD’s CEQA Guidelines do not identify a GHG emission threshold for the evaluation of plan- or project-level impacts from construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, and that a determination regarding the significance of these GHG emissions be made with respect to whether a project is consistent with the AB 32 GHG emission reduction goals. BAAQMD further recommends incorporation of BMPs to reduce GHG emissions during construction, as feasible and applicable.

With respect to operational GHG emissions, BAAQMD’s guidelines establish two potential analysis criteria for plan-level projects (e.g., general plans, community plans, specific plans, regional plans, congestion management plans, etc.) relative to 2020:

- Compliance with a Qualified GHG Reduction Strategy, with a goal consistent with AB 32;⁶ or
- Compliance with a GHG efficiency threshold of either 6.6 metric tons (MT) CO₂e per service population (SP) (employees + population) for general plans, or a GHG efficiency threshold of 4.6 MT CO₂e per SP for all other plans (e.g., specific plan, congestion management plans, etc.).

BAAQMD thresholds are based on the AB 32 GHG reduction goals and a “gap analysis” that attributes an appropriate share of GHG emissions reductions to new land use development projects in BAAQMD’s jurisdiction. The efficiency threshold (4.6 MT of CO₂e per service population) was calculated by dividing the AB 32 GHG reduction target for land use development emissions in California by the estimated 2020 population and employment level. Thus, BAAQMD thresholds are tied directly to AB 32 and statewide emissions reduction goals for 2020 (Bay Area Air Quality Management District, 2017). However, given that the proposed Project’s interim and future buildout years would occur beyond 2020, threshold criteria that are tied to the State’s post-2020 reduction goals should be used to evaluate the proposed Project’s GHG emissions. As discussed previously, long-term goals for 2030 have been statutorily established in SB 32 and long-term goals for 2050 have been articulated in EO S-3-05.⁷ SB 32 extends the 2020 statewide target and requires a 40 percent reduction below 1990 levels by 2030. The 2030 Scoping Plan includes per capita reduction targets consistent with SB 32, which are 6 metric tons CO₂e per capita by 2030 and 2

⁶ As the City of Livermore’s CAP was prepared for the City’s 2020 GHG reduction goal, it would not be applicable to the proposed Project, which has a 2040 buildout year.

⁷ Executive orders are binding only on State agencies.

metric tons CO₂e per capita by 2050 (California Air Resource Board, 2017b). Although not legislatively adopted, EO S-3-05 outlines a long-range target of 80 percent below 1990 emissions levels by 2050.

The Association of Environmental Professionals (AEP) Climate Change Committee recommended in a 2016 white paper that CEQA analyses for multiple-phase projects with post-2020 development, such as the proposed Project, not only “consider consistency with the 2020/AB 32 based framework, but also analyze the consequences of post-2020 GHG emissions in terms of their impacts on the reduction trajectory from 2020 toward 2050.” AEP further recommends that the “significance determination...should be based on consistency with “substantial progress” along a post-2020 trajectory.” The 2016 AEP white paper is advisory only and is not binding guidance or an adopted set of CEQA thresholds. However, the CEQA Guidelines do authorize a lead agency to consider thresholds of significance recommended by experts such as members of the AEP Climate Change Committee, which consists of leaders of climate action planning practices from consulting firms and agencies that have lead many of the local GHG reduction planning efforts across California.

While BAAQMD’s current efficiency threshold only accounts for consistency with AB 32’s established GHG reduction targets for 2020, efficiency-based thresholds can also be derived to assess a project’s consistency with the State’s post-2020 reduction targets. Efficiency-based thresholds consist of identifying a GHG efficiency level needed for new development that would support statewide reduction planning for future milestones. Projects that attain the efficiency target, with or without mitigation, would result in less-than-significant GHG emissions. While the Newhall Ranch decision did not specifically recommend the efficiency-based approach, the ruling did note that numerical threshold approaches may be appropriate for determining significance of GHG emissions and to emphasize the consideration of GHG efficiency. Efficiency-based thresholds are typically calculated by dividing emissions associated with residential and commercial uses (also termed the land use sector in the AB 32 Scoping Plan) within the state by the sum of jobs and residents within the same geography. The sum of jobs and residents is called the service population, and a project’s service population is defined as the people that work and live within the project site. This methodology has been primarily targeted to residential, commercial, and mixed-use projects with GHG emissions resulting from a mixture of building energy, transportation, solid waste, and other emissions similar in proportion to that of the overall land use sector and that occur in a roughly linear relationship to the number of employees and/or residential population. Because typical efficiency-based thresholds are based on the land use sector (residential and commercial uses) and only account for land use-related emissions and residential population and employment, they are applicable to use for land use developments/plans such as the proposed Project.

For the purpose of this analysis, GHG efficiency thresholds based on the emissions reduction targets under AB 32, SB 32, and EO S-3-05 that are applicable to the geographical area under the jurisdiction of the BAAQMD, which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, and portions of Solano and Sonoma counties, are first established. To establish these metrics, the 1990 GHG emissions for BAAQMD’s geographical jurisdiction were obtained from BAAQMD’s 2011 GHG emissions inventory (BAAQMD, 2011) and used to calculate the mass emission targets based on the percent reduction targets for future statewide milestone years (i.e., 1990 emission levels by 2020; 40 percent below 1990 emission levels by 2030; and 80 percent below 1990 emission by 2050). Population and employment data obtained

from ABAG's Projections 2013⁸ (ABAG, 2013) for milestone years 2020, 2030, and 2050 are then used to calculate the efficiency metrics for those years, where the milestone mass emissions are divided by the corresponding milestone service population values. For projects that have buildout years that fall outside of milestone years 2020, 2030, and 2050, GHG efficiency thresholds can be estimated for those years by interpolating the mass emission targets between the appropriate milestone years and using service population obtained for those years from ABAG. As such, for the proposed Project, the mass emission target for 2028 is calculated by interpolating a 32 percent reduction below 1990 emission levels between milestone years 2020 and 2030, while the mass emission target for 2040 is calculated by interpolating a 60 percent reduction below 1990 emission levels between milestone years 2030 and 2050. Using service population values for 2028 and 2040 obtained from ABAG, applicable GHG efficiency thresholds are then established to evaluate future GHG emission impacts from the proposed Project. The GHG efficiency thresholds calculated for milestone years 2020, 2030, and 2050 for BAAQMD's jurisdictional area along with the corresponding efficiency thresholds for the proposed Project's interim 2028 and future 2040 buildout years are shown in Table 3.3-6.

In summary, because both the interim and future buildout years for the proposed Project occur beyond 2020, and consistent with the general scientific understanding that there will be a need for deeper reductions in GHG emissions in the post-2020 period, this EIR evaluates the proposed Project's operational GHG emissions using the metrics listed below:

- 2028 – 3.1 MT CO₂e per service population.

Proposed Project operational emissions at interim buildout year 2028, the Valley Link opening year, are compared to a “substantial progress” efficiency indicator of 3.1 MT CO₂e per service population that is based on the 2030 reduction target established by SB 32. Emissions in excess of this “substantial progress” efficiency indicator could conflict with the trajectory of long-term GHG reduction goals.

- 2040 – 1.7 MT CO₂e per service population.

Proposed Project operational emissions at future buildout year 2040 are compared to a “substantial progress” efficiency indicator of 1.7 MT CO₂e per service population that based on the 2050 reduction target articulated in EO S-3-05. Emissions in excess of this “substantial progress” efficiency indicator could conflict with the trajectory of long-term GHG reduction goals.

Through the use of these efficiency thresholds, the analysis of substantial progress through 2040 on a trajectory toward 2050 reduction targets is used in this EIR to disclose consistency of the proposed Project with the long-term reductions called for in EO-S-3-05. Furthermore, although the proposed Project's buildout would occur in the post-2020 period, consistency of the proposed Project with the 2020/AB 32 based framework is addressed by analyzing the proposed Project's consistency with the City's 2012 CAP.

⁸ Projections 2017 is the most recent in ABAG's series of statistical compendia on demographic, economic, and land use changes in the San Francisco Bay Area. However, Projections 2013 is used in this analysis as it is contemporary to existing conditions.

Table 3.3-6. Operational GHG Thresholds/Substantial Progress Efficiency Metrics for BAAQMD

<i>Year</i>	<i>Land Use Sector GHG Emissions (Metric Tons CO₂e)^a</i>	<i>Total Service Population^b</i>	<i>Threshold/Metric (MT CO₂e per service population)^c</i>	<i>Threshold Basis</i>
2020	48,400,000	10,073,327	4.8	GHG emissions reduced to 1990 levels by 2020 per AB 32
2025	38,720,000	10,442,686	3.7	GHG emissions reduced to 20 percent below 1990 levels (interpolated between 2020 and 2030)
2028	32,912,000	10,673,537	3.1	GHG emissions reduced to 32 percent below 1990 levels (interpolated between 2020 and 2030)
2030	29,040,000	10,827,438	2.7	GHG emissions reduced to 40 percent below 1990 levels per SB 32
2040	19,260,000	11,745,220	1.7	GHG emissions reduced to 60 percent below 1990 levels (interpolated between 2030 and 2050)
2050	9,680,000	12,663,002	0.8	GHG emissions reduced to 80 percent below 1990 levels per Executive Order S-3-05

Note:

The emissions from BAAQMD's 2011 GHG emissions inventory for 1990 is used to represent the GHG emissions in 2020, as the emission reduction target under AB 32 requires GHG emissions to be reduced to 1990 levels by 2020. The GHG emissions for all subsequent years in this table are calculated from the 1990 emission level value and factoring in the Statewide milestone reduction targets. The total service population for each year analyzed in the table is calculated by summing the residential and employment population data obtained from ABAG's Projection 2013. The GHG efficiency threshold is calculated by dividing the total GHG emissions by the total service population.

Source: Bay Area Air Quality Management District 2011; Association of Bay Area Governments 2013.

METHODOLOGY AND ASSUMPTIONS

Energy Consumption

The energy analysis for the proposed Project evaluates the following sources of energy consumption associated with existing conditions and implementation of the proposed Project:

- Short-term construction – gasoline and diesel consumed by vehicles and off-road construction equipment associated with new land uses in the Planning Area.
- Operational building energy – electricity and natural gas consumed by the existing and new land uses in the Planning Area.
- Operational on-road vehicles – gasoline consumed by the existing and future service populations.

With an anticipated buildout year of 2040, construction of new land use developments allowable under the proposed Project would occur intermittently in the Planning Area throughout the course of the buildout period. As the timing and intensity of future development projects is not known at this time, the energy consumption resulting from construction activities associated with buildout of the Planning Area cannot be accurately quantified at this time. Thus, the evaluation of potential construction-related impacts related to energy consumption from implementation of the proposed Project is conducted qualitatively in this EIR.

Energy use associated with fuel consumption during operations (vehicle trips) by existing uses and future land uses under the proposed Project was calculated by converting GHG emissions predicted by the GHG analysis using the rate of CO₂ emissions emitted per gallon of combusted gasoline (8.78 kilograms/gallon) and diesel (10.21 kilograms/gallon) (Climate Registry, 2017). The estimated fuel consumption was converted to BTUs, assuming an energy intensity of 122,364 BTUs per gallon of gasoline and 138,490 per gallon of diesel (United States Department of Energy, 2014).

Operational electricity and natural gas consumption for the existing uses and future land uses under the proposed Project was drawn from the modeling performed to support the GHG analysis. CalEEMod outputs for natural gas consumption are provided in BTU; outputs for electricity consumption, which are provided in kWh, were converted to BTU assuming an energy intensity of 3,414 BTU per kWh (United States Department of Energy, 2014).

The proposed Project's incremental (net) increase in energy consumption is determined by comparing the future with proposed Project conditions against existing conditions. To determine whether the proposed Project would result in wasteful and inefficient energy usage, a per capita energy consumption value is determined for the proposed Project by dividing its net increase in energy use by its service population. This value is then compared to the per capita energy consumption under existing (2013) conditions to ascertain whether energy use would increase or decrease under the proposed Project.

Greenhouse Gas Emissions

GHG emissions associated with the proposed Project would result from operation of future land uses that would be developed in the Planning Area and from traffic volumes generated by these new developments. These emissions would not occur at once but over the course of the proposed Project's buildout period. Construction activities would also generate GHG emissions within the Planning Area and on roadways resulting from construction-related traffic.

For this analysis, impacts of the proposed Project on GHG emissions and energy resources from construction were assessed qualitatively, while impacts from operations were assessed quantitatively using standard and accepted software tools, techniques, and emission factors. The primary assumptions and key methods used to quantify emissions and estimate potential impacts are described below. Model inputs and calculation files are provided in Appendix C: Air Quality and Greenhouse Gas Data.

This analysis provides a program-level overview of construction and operational emissions that could occur with buildout of the proposed Project. Subsequent project-level environmental review, including quantification of construction GHG emissions, would be conducted during the processing of individual applications for future projects associated with the proposed Project.

Construction GHG Emissions

Land uses that could be developed under the proposed Project would generate construction-related GHG emissions from mobile and stationary construction equipment exhaust and employee and haul truck vehicle exhaust. With an anticipated buildout year of 2040, development of the various land uses associated with the proposed Project would occur over an extended period of time and would depend on factors such as local economic conditions, market demand, and other financing considerations. However, the specific size, location, and construction techniques and scheduling that would be utilized for each individual development project occurring within the Planning Area from implementation of the proposed Project is not currently known. Without specific project-level details it is not possible to develop a refined construction inventory,⁹ and the determination of construction emission impacts associated with GHGs for each individual development project, or a combination of these projects, would require the City to speculate regarding such potential future project-level environmental impacts. Thus, in the absence of the necessary construction information required to provide an informative and meaningful analysis, the evaluation of potential construction-related impacts resulting from implementation of the proposed Project is conducted qualitatively in this EIR and assessed against applicable BAAQMD criteria.

Operational GHG Emissions

Operation of the land uses introduced by the proposed Project would generate long-term emissions of CO₂, CH₄, and N₂O. Five types of GHG sources are expected during operation of the land uses associated with the proposed Project: area, energy, mobile, waste, and water. Area sources include

⁹ Project-level information includes details such as the size and scale of the project to be constructed, construction schedule, equipment fleet, construction worker crew estimates, and demolition and grading quantities.

landscaping activities and consumer products (e.g., personal care products). Energy sources include electricity consumption and natural gas combustion for lighting and heating requirements. Mobile sources are vehicle trips that are generated by the service population associated with the proposed Project. The waste category refers to CH₄ from the decomposition of waste generated from the new land use developments in the Planning Area. Finally, the water source includes electricity consumption for the supply, treatment, and distribution of water for the new land uses.

Operational emissions of GHGs under the proposed Project were quantified using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Mobile-source emissions of GHGs were modeled based on the daily vehicle trips and VMT data provided by Kittelson & Associates, the proposed Project's traffic engineers. Daily VMT data for existing (2013) conditions along with both interim buildout (2028) and future buildout (2040) year conditions with the proposed Project were provided. VMT data for the proposed Project account for trip reductions achieved by proposed policies that increase proximity to transit and mixed-use design.

Area, energy, water, and waste emissions were modeled according to the size and type of land uses proposed. Emissions were quantified for existing (2013) conditions along with both interim (2028) and future (2040) buildout conditions with and without the proposed Project based on current and anticipated land uses. CalEEMod defaults were assumed, with the exception of wood burning stoves and fireplaces, which were assumed to be prohibited for all new development under the proposed Project per BAAQMD Regulation 6, Rule 3. Additionally, the City's 2013 solid waste diversion rate of 77 percent was accounted for under the existing (2013) conditions, while the most recent City solid waste diversion rate of 75 percent in 2015 was used in both the 2028 and 2040 buildout conditions, although it is expected that the actual diversion rates in 2028 and 2040 in the City would exceed 75 percent due to increasingly stringent State standards. The proposed Project's operational emissions estimates also assume implementation of applicable State regulations designed to reduce GHG emissions, primarily passenger vehicle emission standards (Pavley) and the RPS. Please refer to Appendix C for the land use assumptions and CalEEMod output files.

The proposed Project's incremental (net) increase in GHG emissions is determined by comparing the future with proposed Project conditions against existing conditions. To determine whether the proposed Project would result in significant GHG emissions, a per service population value is determined for the proposed Project by dividing its net increase in GHG emissions compared to existing conditions by the change in service population compared to existing conditions. The resultant metric is then compared to the GHG efficiency metrics described above for 2028 and 2040.

IMPACTS

Impact 3.3-1 Implementation of the proposed Project would not lead to wasteful, inefficient, or unnecessary consumption of energy. (*Less than significant*)

As noted above, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. As noted in Appendix F of the CEQA Guidelines, the means of achieving the goal of conserving energy include the following:

- Decreasing overall per capita energy consumption.
- Decreasing reliance on fossil fuels such as coal, natural gas, and oil.
- Increasing reliance on renewable energy sources.

Construction associated with future developments under the proposed Project would consume gasoline and diesel fuel through operation of heavy-duty, off-road construction equipment and on-road vehicles. The amount of fuel consumed by these activities would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of personnel. Because the proposed Project does not propose any specific development projects, the precise level and intensity of construction activities that would occur in the Planning Area is currently unknown.

For the purposes of this analysis, it is assumed that the types of land uses envisioned under the proposed Project, which includes residential (all multi-family), office, business park, neighborhood commercial, and general commercial uses, would involve construction activities typical of most land use developments within the Planning Area and in the SFBAAB. None of the proposed land uses are expected to require an extraordinary amount of energy consumption during construction, as may occur with large, industrial facilities, like new power plants or dams, because no such land uses are proposed or permitted by the proposed Project. Additionally, because construction emissions are considered to be relatively short-term emissions that would cease once construction of a project is complete, they would represent a relatively short demand on local and regional fuel supplies that would be easily accommodated. The proposed Project policies designed to reduce air quality impacts during construction would also often achieve complementary reductions in construction-related energy use. Therefore, construction activities associated with the proposed Project would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy.

Once operational, future development under the proposed Project would generate vehicle trips, which would consume gasoline and diesel. Developments would also result in the consumption of electricity and natural gas for power, heating, and cooking. Operational energy consumption (expressed in terms of million BTU or MMBTU) under existing (2013) and future with proposed Project buildout (2040) conditions is summarized in Table 3.3-7. The future with proposed Project buildout condition in 2040 includes fuel savings achieved by proposed Project policies that increase proximity to transit (i.e., future Valley Link Station at Isabel Avenue) and mixed-use design in the Planning Area, which in turn reduces the overall VMT. Table 3.3-8 shows the estimated energy

consumption per capita under the existing (2013) and future with the proposed Project (2040) conditions.

As shown in Table 3.3-7, implementation of the proposed Project would result in a net energy consumption increase of 1,131,372 million BTUs at buildout in 2040. This energy use increase corresponds to the net new development introduced by the proposed Project into the Planning Area, which consists of a total of 4,095 multi-family residential dwelling units consisting of a variety housing types such as townhomes, duplexes, complexes/building clusters of three or more units, courtyard apartments, and multi-story condominium buildings, and 2,104,200 square feet of non-residential development at buildout in 2040. As shown in Table 3.3-8, although net new energy consumption would occur under the proposed Project, a decrease in the per capita energy consumption would occur under the proposed Project when compared against existing (2013) conditions. Whereas the per capita energy consumption is currently 141 million BTUs per year under existing (2013) conditions, the per capita energy consumption associated with the net new development introduced by the proposed Project at buildout in 2040 would be 87 million BTUs per year, which is approximately 64 percent lower when compared to existing conditions.

Table 3.4-7 is replaced with Table 3.3-7 as follows.

Table 3.3-7. Estimated Operational Energy Consumption for the Proposed Project

<i>Analysis Condition/Source</i>	<i>Million BTU/Year</i>
<i>Existing (2013)</i>	
Electricity	193,522
Natural Gas	107,230
Mobile (gasoline and diesel)	1,771,980
Total	2,072,732
<i>2040 With Proposed Project</i>	
Electricity	657,551
Natural Gas	251,340
Mobile (gasoline and diesel)	2,295,213
Total	3,204,104
Net Increase with Proposed Project	1,131,372

Source: Dyett & Bhatia, 2020.

Table 3.4-8 is replaced with Table 3.3-8 as follows.

Table 3.3-8. Estimated Energy Consumption Efficiency for Existing and Proposed Project Conditions

	<i>Existing (2013)</i>	<i>2040 With Proposed Project</i>	<i>Net Proposed Project</i>
Energy consumption (million BTUs)	2,072,732	3,204,104	1,131,372
Service population ^a	14,671	37,000	22,329
Million BTUs per capita	141	87	51
Percent change from Existing	--	-39%	-64%

Note:

a. The service population values for the Existing (2013), 2040 No Proposed Project, and 2040 With Proposed Project conditions were obtained from data provided by the traffic engineer for the proposed Project.

Source: Dyett & Bhatia, 2020.

It should be noted that the per capita energy consumption estimated for the proposed Project is considered to be a conservative estimate because the mobile source energy results presented in Table 3.3-7 only account for trip benefits achieved by mixed-used design and transit-oriented development in proximity to the future Valley Link Station. It is possible that implementation of other land use and transportation measures in the proposed Project would further reduce energy consumption from mobile sources. However, these reductions are not quantified or factored into the impact analysis. For instance, Policies P-TRA-19 and P-TRA-24 require the employment of Transportation Demand Management (TDM) strategies and programs that could promote increased use of alternative modes of transportation other than passenger vehicles. Additionally, because operational energy use for the proposed Project was estimated using CalEEMod and default assumptions for the potential future land use types, this estimate likely overestimates actual energy consumption associated with development under the proposed Project because it does not account for other energy savings that would be achieved through implementation of the environmentally-sensitive design guidelines and standards promoted under the proposed Project, such as the incorporation of green building techniques. Energy reductions resulting from implementation of these design guidelines and standards cannot be accurately quantified in CalEEMod without a detailed energy forecast by land use type. As such, the actual energy consumption by the future land uses under the proposed Project would likely be lower than what is presented in this analysis.

Overall, by decreasing demand for energy- and fuel-related energy resources on a per capita basis, operation of future land uses associated with the proposed Project would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy. Therefore, this impact is considered less than significant.

Proposed Project Goals and Policies that Reduce the Impact

Land Use Chapter

- P-LU-3: Establish a neighborhood-serving retail center anchored by a grocery store. This center shall:
- Be visible and accessible from the Valley Link station and Main Street;
 - Not preclude a potential future shared surface parking facility; and
 - Incorporate a major public space such as a plaza or park.
- P-LU-9: The location of the Ground Floor Retail/Flex Space Overlay on the BART property north of I-580 is diagrammatic only on Figure 2-1. As the Plan is implemented, the Overlay shall apply to all building frontages along the Isabel Path between the north end of the Valley Link pedestrian bridge and Isabel Avenue.
- P-LU-43: Help connect businesses to the Valley Link station through existing and emerging transportation technologies.

Traffic and Transportation Chapter

- P-TRA-1: Create a walkable street grid within a half-mile radius of the Valley Link station (Neighborhood core area).
- Block sizes within this area should range from 300-400 feet, with a maximum length of 600 feet. Where block lengths exceed 400 feet, mid-block crossings shall be installed.*
- P-TRA-3: Connect existing uses, new development, the Main Street, Valley Link station, bus stops, parks, natural areas, Las Positas College, and other key destinations with sidewalks, pedestrian and bicycle trails, and bicycle facilities.
- P-TRA-4: Create a continuous trail loop within the Isabel Neighborhood and links to the regional trail network outside of the Planning Area.
- Partner with LARPD, East Bay Regional Parks District, and Alameda County to identify funding opportunities.
 - Advocate for a pedestrian and bicycle trail as the top priority for the bicycle connection along the future North Canyons Parkway/Dublin Boulevard extension, followed by a buffered bike lane as a second priority (as opposed to a traditional Class II facility).
- P-TRA-6: Provide pedestrian bridges and undercrossings to enhance the connectivity of the trail network and provide direct access to the Valley Link station.
- Orient pedestrian bridges to be as short, direct, and publicly visible as possible.

- P-TRA-7: Provide multiple safe bicycle and pedestrian crossings of I-580 within the Isabel neighborhood.
- Encourage Valley Link station pedestrian bridges to be available for non-Valley Link patron use when the station is open.
- P-TRA-9: Implement on-street improvements such as new crosswalks and bike lanes to enhance the safety and convenience of walking and biking in the outer portions of the Planning Area and to provide interim connections along the proposed trail loop before major off-street improvements are in place.
- P-TRA-10: Provide bike parking areas at trailheads and major destinations and bicycle-signals at major intersections.
- P-TRA-13: Require development to meet the on-site bicycle parking requirements listed in Table 3-3. Development applications shall show bicycle parking on site plans, including spaces to be provided within garages of individual dwelling units. Bicycle stalls shall meet the following requirements:
- Stalls shall be capable of supporting a bicycle in an upright or hanging position and enable a user to lock his bicycle to such a device.
 - The areas containing stalls shall be surfaced with hardscape or paving.
 - When located within a parking area, stalls shall be protected by curbs, fences, planter areas, bumpers, or similar barriers for the mutual protection of bikes, automobiles and pedestrians, unless deemed by the City to be unnecessary.
 - Where required, “secured, covered” bicycle parking may include garages, lockers, storage rooms, or fenced areas with restricted access.
 - Publicly accessible bicycle parking may include uncovered racks.
- P-TRA-14: Encourage Valley Link station infrastructure to be integrated into the Neighborhood’s circulation and land use networks.
- P-TRA-16: Support direct, comfortable, shaded, safe, visible, and well-lit walking paths between the Valley Link platform and surrounding development.
- P-TRA-17: Support the research, piloting, and deployment of emerging technologies and new services such as real-time parking availability signage, real-time bus arrival updates, and rideshare matching.
- P-TRA-19: Employ a range of Transportation Demand Management (TDM) strategies to help make alternative modes of transportation as convenient, affordable, and safe as solo driving. Strategies include sponsored transit passes, parking cash-out programs, sponsored rideshare programs, bicycle commuter tax reimbursement, and bikeshare programs.

P-TRA-21: Establish partnerships with transit operators, developers, technology providers, corporate shuttles, Transportation Network Companies, bike share operators, and other entities.

P-TRA-22: With the exception of business park users outside of the Core, require property owners, residents, and tenants, to form a Transportation Management Association (TMA) for the Isabel Neighborhood. Required actions shall be determined by the TMA and may include but are not limited to the following:

- Monitor and manage the vehicular and bicycle parking supply for all retail uses north of I-580, rather than on a project or site basis.
- Work with LAVTA and Valley Link to alter or add bus routes and/or provide free shuttle service between the Valley Link station and major destinations such as Las Positas College.
- Establish neighborhood-wide car-sharing and/or bike sharing programs.
- Implement programs for streetscape maintenance and beautification projects along Main Street, Pedestrian Streets, and Bike Streets.
- Implement informational campaigns using brochures, boards/kiosks, or other communication outlets.
- Provide technical support to businesses and homeowner associations in the implementation of TDM measures.
- Implement a wayfinding signage program for motorists, bicyclists and pedestrians.

P-TRA-23: Require Office and Business Park projects exceeding 15,000 square feet within a half-mile of the Valley Link station to implement the following site design measures:

- Integration of passenger loading zones near the main building entrance on large sites;
- Access to electrical vehicle charging stations for 10 percent of residential parking spaces and two percent of commercial or industrial parking spaces;
- On-site showers and lockers for employees; and
- Preferential parking for carpools, vanpools, and low emission vehicles.

P-TRA-24: Following station opening, require businesses within a half-mile of the Valley Link station to participate in the TMA and implement at least two of the following TDM programs (to be implemented through the initial Site Plan Design Review process for new development or through the Zoning Clearance process after construction):

- Parking cash-out for employees that do not drive to work.
- Transit passes (such as the Clipper Card) for employees.
- Car-sharing or bike-sharing program.
- Carpool and vanpool ride-matching services.

- Guaranteed ride home for transit users and car/vanpoolers.
- Flexible work schedules, shortened work weeks, or options to telecommute.

Parks, Public Facilities, and Infrastructure Chapter

- P-PF-22 Work with the School District, LARPD, Livermore Amador Valley Transit Authority (LAVTA), property owners, and developers to create and/or improve safe walking/biking routes to the public schools serving the Isabel Neighborhood
- P-PF-23 Incorporate school access into the Neighborhood's Transportation Demand Management program (described in Chapter 3). Strategies to consider include school busing, carpooling programs, Walk/Bike to School Days, a Walking School Bus program, and bicycle trains.

Urban Design Chapter

- DS-8: A pedestrian- and bicycle-only pathway shall be provided between the north end of the Valley Link pedestrian bridge and the corner of Gateway Avenue and Main Street, crossing Isabel Avenue and passing through the Retail Center block. (See Isabel Neighborhood Plan figures 5-4, 5-5, and 5-9 for a conceptual route of the "Isabel Path" and the applicable dimensions.)
- DS-9: The Isabel Path shall be designed to be as direct, flat, and visually unobstructed as possible to maximize accessibility and reduce the walking distance to and from the Valley Link Station.
- DS-10: The City shall coordinate with Valley Link and the property owner/developer of the Retail Center block for crossing Isabel Avenue along the Isabel Path. Considerations may include: grading, pedestrian safety, directness, utility relocation.
- DS-12: The following pedestrian amenities shall be provided along the Isabel Path:
- Seating such as benches and terraced steps;
 - Public art;
 - Lighting;
 - Drinking fountains;
 - Trash/recycling receptacles; and
 - Additional/specialty landscaping.
- DS-29: Site plans shall establish well-defined, accessible, direct, and well-lit pedestrian links between buildings, sidewalks, parking areas, trails, and any on-site or nearby public spaces such as bus stops and the Valley Link station.
- DS-30: Large-scale developments shall be broken up by pedestrian paths that connect to the street grid.

DS-54: Windows shall be operable to the extent possible, to allow natural ventilation and potentially eliminate the need for mechanical ventilation.

Environmental Resources and Conservation Chapter

P-ENV-13: Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.

P-ENV-14: Require construction projects to implement the following measures recommended by the BAAQMD, as applicable:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- All visible mud or dirt 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;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator; and
- A publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measures

None required.

Impact 3.3-2 Implementation of the proposed Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. (*Less than Significant with Mitigation*)

Construction

Construction activities associated with future individual development projects under the proposed Project would result in the temporary generation of GHG emissions. BAAQMD has not established a quantitative threshold for assessing construction-related GHG emissions. Rather, the air district recommends evaluating whether construction activities would conflict with statewide emission reduction goals and implement feasible BMPs.

As discussed in Section 3.1: Air Quality, development projects within the Planning Area under the proposed Project would be required to use renewable diesel for all off-road diesel-powered equipment, pursuant to Mitigation Measure AQ-1. Implementation of this measure would reduce lifecycle GHG emissions (i.e., those produced by the extraction, refining, processing, and combustion of diesel) by 67 percent, relative to traditional diesel (DieselHPR n.d.). Additionally, Policy P-LU-60 of the proposed Project would require construction projects in the Planning Area to implement BMPs that include limiting equipment idling times to five minutes; limiting vehicle speeds to 15 mph or less; and performing proper equipment maintenance and tuning in accordance with manufacturer specifications. Additionally, Policy P-ENV-15 from the proposed Project would help further reduce construction-related emissions of GHGs from future development in the Planning Area by requiring implementation of BAAQMD's recommended BMPs related to GHG emissions by all development projects associated with the proposed Project. With implementation of proposed Project policies, as well as Mitigation Measure AQ-1, new development projects under the proposed Project would reduce their respective construction emissions consistent with BAAQMD guidance and statewide emission reduction goals. Accordingly, this impact is less than significant with the incorporation of mitigation.

Operation

The operation of the land uses introduced by the proposed Project would generate direct and indirect GHG emissions. Sources of direct emissions would include mobile vehicle trips, natural gas combustion, and landscaping activities. Indirect emissions would be generated by electricity consumption, waste and wastewater generation, and water use. The proposed Project's GHG emissions are evaluated under two time horizons to account for the interim buildout year in 2028 and the future buildout year in 2040. The proposed Project's net GHG emissions during these two buildout years are determined by taking the difference in operational emissions between the "future with proposed Project" conditions (i.e., 2028 and 2040) and existing emissions. The proposed Project's net GHG emissions in 2028 and 2040 are then divided by the change in service population values for the Planning Area compared to existing conditions and compared against the GHG efficiency thresholds of 3.1 and 1.7 MT CO₂e per service population, respectively (refer to Table 3.3-6).

Table 3.3-9 presents the estimated operational emissions under the proposed Project's buildout conditions and under existing (2013) conditions. As discussed above, operational emissions associated with the proposed Project account for emissions benefits achieved through proximity to

public transit (i.e., future Valley Link Station at Isabel Avenue) and mixed-use design in the Planning Area, both of which would contribute to reductions in the overall VMT associated with Plan operation.

As shown in Table 3.3-9, although the new development that would be introduced by the proposed Project into the Planning Area would result in net increases in GHG emissions, the proposed Project's net emissions per service population in both 2028 and 2040 would be lower than the per service population emissions associated with existing (2013) conditions. This is attributed to the transit-oriented development and mixed-use design in the Planning Area resulting from full buildout of the proposed Project. Thus, implementation of the proposed Project would aid current efforts to curtail GHG emissions statewide to meet future milestone reduction targets.

As discussed previously, because both interim and full buildout of the proposed Project would occur post-2020, it is appropriate to evaluate the proposed Project against metrics that take into account the long-term reductions needed to meet the statewide milestone reduction targets to abate the more consequential aspects of climate change. As shown in Table 3.3-9, the proposed Project's net operational GHG emissions in 2028 would not exceed the "substantial progress" efficiency metric of 3.1 MT CO₂e per service population. Thus, development under the proposed Project in 2028 would be consistent with the statewide GHG emissions reduction trajectory for 2030 under SB 32. However, the proposed Project's net operational GHG emissions in 2040 would exceed the "substantial progress" efficiency metric of 1.7 MT CO₂e per service population that was derived based on the 2050 reduction target articulated in EO S-3-05. As such, operational GHG emissions from full buildout of the proposed Project in 2040 could conflict with the GHG emissions reduction trajectory for 2050 under EO S-3-05. Because the long-term climate change policy and regulatory changes to meet the 2050 emissions reduction target are unknown at this time, the extent to which the proposed Project's emissions and resulting impacts would be mitigated through implementation of statewide (and nationwide) changes is not known, and any calculation of post-2030 emissions cannot take into account future State or federal actions that may be taken to achieve long-term reductions.

As discussed below in the analysis of consistency with the goals of SB 32 and S-03-05, the achievement of long-term GHG reduction targets will require substantial change in terms of how energy is produced and consumed, as well as other substantial economy-wide changes, many of which can only be implemented by the State and federal government. As such, placing the entire burden of meeting long-term reduction targets on local government or new development would be disproportionate and likely ineffective. Nevertheless, given that the proposed Project's emission levels would exceed the applicable "substantial progress" metric for 2040, the proposed Project would result in a potentially significant impact on GHG emissions.

Table 3.4-9 is replaced with Table 3.3-9 as follows.

Table 3.3-9. Estimated Unmitigated Proposed Project Operational GHG Emissions^a

Condition/Source	CO ₂	CH ₄	N ₂ O	CO ₂ e
Existing (2013)				
Area Sources	41	0	0	41
Energy Sources	16,707	1	0	16,806
Mobile Sources	128,647	9	0	128,868
Waste Generation	326	19	0	808
Water Consumption	1,414	31	1	2,400
<i>Total Existing^b</i>	<i>147,135</i>	<i>60</i>	<i>1</i>	<i>148,922</i>
2028 With Proposed Project				
Area Sources	90	0	0	91
Energy Sources	35,742	2	1	36,013
Mobile Sources	120,007	4	0	120,109
Waste Generation	839	50	0	2,079
Water Consumption	2,909	89	2	5,775
<i>Total 2028 With Proposed Project^b</i>	<i>159,587</i>	<i>145</i>	<i>3</i>	<i>164,067</i>
2040 With Proposed Project				
Area Sources	161	0	0	163
Energy Sources	26,716	3	1	27,016
Mobile Sources	166,786	5	0	166,920
Waste Generation	877	52	0	2,173
Water Consumption	1,986	90	2	4,880
<i>Total 2040 With Proposed Project^b</i>	<i>196,527</i>	<i>150</i>	<i>3</i>	<i>201,152</i>
Existing (2013) Emissions				
Mass Emissions				148,922
Service Population ^c				14,671
Emissions per Service Population				10.2
Proposed Project Emissions 2028				
Mass Emissions				164,067
Net Mass Emissions (Over Existing Conditions)				15,045
2028 Service Population ^d				24,192
Net Service Population (Over Existing Conditions)				9,521
Net Emissions per Net Service Population				1.6
Proposed Project Emissions 2040				
Mass Emissions				201,152
Net Mass Emissions (Over Existing Conditions)				52,230
2040 Service Population ^e				37,000

Table 3.3-9. Estimated Unmitigated Proposed Project Operational GHG Emissions^a

Net Service Population (Over Existing Conditions)	22,329
Net Emissions per Net Service Population	2.3
2025 “Substantial Progress” Efficiency Metric (MT/Service Population)	3.7
2040 “Substantial Progress” Efficiency Metric (MT/Service Population)	1.7

Notes:

Exceedances of applicable thresholds are shown in underline

^a Metric tons/year

^b Values may not add due to rounding

^c A service population of 14,671 persons based on data provided by the proposed Project traffic engineer

^d A service population of 24,192 persons in the Planning Area under “2028 with proposed Project” conditions, based on data provided by the proposed Project traffic engineer

^e A service population of 37,000 persons in the Planning Area under “2040 with proposed Project” conditions, based on data provided by the proposed Project traffic engineer

Source: Dyett & Bhatia, 2020.

To reduce the proposed Project’s operational GHG emissions in 2040, Mitigation Measure GHG-1 is recommended, which includes strategies derived directly from the proposed Project’s policies to promote traffic-calming measures as part of neighborhood enhancements, development of affordable housing, transit improvements, water conservation, and solid waste recycling and diversion. Affordable housing is a qualitative factor that decreases GHG emissions^{10,11,12}, but is not explicitly reflected in the emission estimate. The proposed Project’s resulting net operational emissions in 2040 with implementation of Mitigation Measure GHG-1 are shown in Table 3.3-10. The proposed Project’s mitigated emissions presented include emissions benefits achieved by strategies 1 through 5 in Mitigation Measure GHG-1. Strategies 6 and 7 would achieve additional GHG savings, although reductions have not been explicitly quantified since they depend on program participation.

Table 3.4-10 is replaced by Table 3.3-10 as follows.

10 National Center for Sustainable Transportation. Affordable Housing in Transit-Oriented Developments: Impacts on Driving and Policy Approaches. April 2017.

11 Newmark, G.L.; Hass, P.M. Income, Location Efficiency, and VMT: Affordable Housing as a Climate Strategy. December 2015.

12 Transform. Why Creating and Preserving Affordable Homes Near Transit is a Highly Effective Climate Protection Strategy. May 2014.

Table 3.3-10. Estimated Mitigated Proposed Project Operational GHG Emissions^a

Condition/Source	CO ₂	CH ₄	N ₂ O	CO ₂ e
2040 With Proposed Project – Mitigated				
Area Sources	161	0	0	163
Energy Sources	26,716	3	1	27,016
Mobile Sources	119,901	4	0	120,009
Waste Generation	526	31	0	1,304
Water Consumption	1,693	76	2	4,153
<i>Total 2040 With Proposed Project^b</i>	<i>148,997</i>	<i>115</i>	<i>3</i>	<i>152,644</i>
Proposed Project Emissions 2040 - Mitigated				
Net Mass Emissions (Over Existing Conditions) ^c				3,722
Net Service Population (Over Existing Conditions)				22,329
<i>Net Emissions per Net Service Population</i>				<i>0.2</i>
2040 “Substantial Progress” Efficiency Metric (MT/Service Population)				1.7

Notes:

^a Metric tons/year

^b Values may not add due to rounding

^c As shown in Table 3.3-9, the total GHG emissions under existing conditions is 148,922 MT CO₂e per year. As the proposed Project would result in GHG emissions of 152,644 MT CO₂e per year with mitigation, the net increase in emissions would be 3,722 MT CO₂e per year

Source: Dyett & Bhatia, 2020.

As shown in Table 3.3-10, with implementation of the identified strategies in Mitigation Measure GHG-1, the proposed Project’s net operational GHG emissions in 2040 would be reduced to a level that would be less than the 2040 “substantial progress” efficiency metric. Therefore, the proposed Project’s operational GHG emissions in 2040 would be reduced to a less-than-significant level.

Proposed Project Goals and Policies that Reduce the Impact

Refer to policies, design standards, and design guidelines identified under Impact 3.3-1 in addition to the following:

Land Use Chapter

- P-LU-1: Establish a new Main Street through the center of the Planning Area that accommodates neighborhood-serving businesses and places for social gathering, and that helps create a sense of place for the Isabel Neighborhood.
- P-LU-2: Require buildings on Main Street between Constitution Drive and Portola Avenue to provide active ground floor uses facing Main Street that are publicly accessible and that generate walk-in clientele.

- P-LU-36: Pursue grant opportunities funds for transit-oriented development such as those using cap and trade.

Traffic and Transportation Chapter

- P-TRA-8: Provide four-legged crosswalks at new signalized or stop-controlled intersections.
- P-TRA-11: Incorporate traffic calming measures to slow vehicle speeds and increase the visibility of pedestrian crossings, particularly along Pedestrian Streets, Bicycle Streets, and Main Street.
- P-TRA-15: Prioritize pedestrian safety when designing roadways serving the Valley Link station.

Parks, Public Facilities, and Infrastructure Chapter

- P-PF-30: Require all new development to participate in all City, County, and State diversion programs and construction regulations in effect at the time of issuance of building permits.
- P-PF-31: Work with residents, businesses, LARPD, and Livermore Sanitation (or current franchise hauler) to exceed the City's 75 percent waste diversion goal in the Isabel Neighborhood.
- Design new development to make recycling, composting, and organic material collection as convenient as possible for residents, employees, and visitors.
 - Reduce the amount of solid waste that must be processed through implementation of recycling programs, composting, source reduction (such as packaging), purchasing policies, and manufacturing processes.
 - Continue to implement educational and outreach programs on available diversion programs and best practices.
 - Encourage businesses to participate in the Bay Area's Green Business Program.
 - Support the expansion of organics capacity in Alameda County.
- P-PF-36: Require new development to install water efficient appliances and fixtures such as low-flow faucets and toilets.
- P-PF-37: Require new development to comply with State and City's mandatory water efficient landscape ordinance (WELO).
- P-PF-38: Require new development within the Municipal Water service area to connect to the recycled water system and to use recycled water for landscape irrigation, where economically feasible.
- P-PF-39: Allow the use of rainwater harvesting systems, consistent with regional permit requirements.

- P-PF-40: Restaurants and other uses that discharge grease into the wastewater treatment system shall be required to reduce impacts through individual or collective pretreatment facilities.
- P-PF-41: Design new streetscape and landscaped areas in the public right-of-way for stormwater management and the efficient use of water through:
- The installation of low-maintenance, drought-resistant plant palettes;
 - Use of large retention basins;
 - Use of low-flow irrigation systems; and/or
 - Use of bioswales and rain gardens in planting areas, curb extensions, and other green infrastructure.
- P-PF-42: Require new development to incorporate low impact landscape design, such as natural drainage systems and groundwater recharge features, consistent with stormwater permit requirements.

Urban Design Chapter

- DS-8: Traffic-calming measures, such as zebra striping for crosswalks, speed tables, and bulb-outs shall be employed along the bus loop north of I-580.
- DS-26: Buildings shall be oriented such that frontages and entrances are visible and accessible from the public right-of-way, on-site common areas, pedestrian pathways, parks, and/or plazas.
- DS-81: A variety of site furnishings shall be considered and incorporated into site plans to promote a sense of comfortable outdoor living space for the pedestrian realm. Examples of such features include but are not limited to seating, freestanding planters, ornamental trash/recycling containers, cigarette ash receptacles, drinking fountains including pet basins, fountains or other water features, bollards, kiosks for information or artwork, sculptures, bicycle racks, and/or newspaper racks.

Environmental Resources and Conservation Chapter

- P-ENV-15: Ensure that all applicants proposing new development projects within the Planning Area require their contractors, as a condition of contract, to reduce construction-related GHG emissions through implementation of the Bay Area Air Quality Management District's recommended best practices, including but not limited to the following measures (based on BAAQMD's 2017 CEQA Guidelines):
- Ensuring alternative fueled (e.g. biodiesel, electric) construction vehicles/equipment make up at least 15 percent of the fleet;
 - Ensuring at least 10 percent of building materials are local building materials (sourced from within 100 miles of the Planning Area); and
 - Recycling or reusing at least 50 percent of construction waste or demolition materials.

Mitigation Measures

MM-GHG-1: Operational GHG Emissions Reduction Measures. Implement the following GHG emissions reduction strategies to guide future development within the Planning Area:

1. Require that a minimum of 20 percent of housing allowed under the proposed Project be affordable (below market-rate) housing.
2. Incorporate street and intersection traffic calming measures to a minimum of 25 percent of streets and intersections in the Planning Area. Street traffic calming features may include, but are not limited to, on-street parking, planter strips with street trees, chicanes, horizontal shifts (lane centerline that curves or shifts), bollards, rumble strips, and woonerfs. Intersection traffic calming measures may include, but are not limited to, marked crosswalks, count-down signal timers, curb extensions, channelization islands, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, and traffic circles or mini-circles.
3. Expand the existing local bus network in the Planning Area by a minimum of 25 percent by adding or modifying bus routes to increase accessibility to the Valley Link station at Isabel Avenue.
4. Require all new development to install indoor water efficient appliances and fixtures to achieve a minimum of 15 percent reduction in water usage and require applicants for new development to submit landscape and irrigation plans capable of achieving a minimum of 10 percent reduction in outdoor water usage. The percent reductions should be achieved over baseline water use conditions in the City at the time of development.
5. Require a minimum solid waste diversion rate of 85 percent to be achieved by 2040.
6. Require employers with more than 50 employees to provide a suite of travel demand reduction measures (TDM) capable of reducing single-vehicle trips by at least 20 percent compared to normal trip generation rates.

Impact 3.3-3 Implementation of the proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. (*Less than Significant with Mitigation*)

Two plans have been adopted for the purposes of reducing GHG emissions that are relevant to the proposed Project: the AB 32 Scoping Plan and the City of Livermore CAP. Proposed Project consistency with these two plans is reviewed below. In addition, the proposed Project's consistency with the 2017 Scoping Plan (for SB 32 implementation), SB 32, EO S-03-05, SB 375 and Plan Bay Area, and other applicable State regulations is also reviewed.

As demonstrated in the following analysis, the proposed Project would not conflict with the City of Livermore CAP, current AB 32 Scoping Plan, 2017 Scoping Plan, SB 375 and Plan Bay Area, or SB 32. While the proposed Project's operational emissions in 2040 could potentially conflict with the GHG emissions reduction trajectory for 2050 articulated under EO S-3-05, implementation of Mitigation Measure GHG-1 would reduce the proposed Project's GHG emissions in 2040 to a level that would be below its applicable efficiency metric and render these emissions to be consistent with the GHG emissions reduction trajectory for 2050. Thus, with mitigation, implementation of the proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and this impact would be less than significant.

Consistency with the City of Livermore Climate Action Plan

As discussed above, the City of Livermore adopted a CAP in 2012 to reduce community and municipal GHG emissions (City of Livermore, 2012). The City's CAP is a roadmap that outlines a path for the City to achieve its 2020 GHG reduction goal of 15 percent below 2008 GHG emissions levels. The CAP features 17 GHG reduction measures within seven sectors of the County's community and municipal operations (energy, on-road transportation, water, wastewater, waste, urban forestry, and municipal energy efficiency). Because the CAP analysis was prepared for the City's 2020 GHG reduction goal, its use in quantitatively evaluating the significance of the GHG emissions of the proposed Project is not appropriate. Buildout of the proposed Project is anticipated in 2040, which is a 20-year later timeline than that of the CAP. Consequently, the CAP is used qualitatively for this analysis to determine if the proposed Project would be consistent with the CAP measures.

The consistency of the proposed Project with the measures in the City's CAP is analyzed in Table 3.3-11.

Table 3.3-11. Consistency of Proposed Project with CAP Measures

No.	CAP Measure	Applicable?	Proposed Project Implementation	Consistent?
<i>Building Energy Use Measures</i>				
Energy-1	Existing Residential Energy Efficiency Voluntary Retrofits	No	This measure calls for the City to develop a promotional program that supports voluntary energy efficiency retrofits of existing residential buildings to achieve reductions in natural gas and electricity usage. This measure applies to existing development and would not be applicable to the construction of new development in the proposed Project. The proposed Project would not inhibit implementation of this measure.	NA
Energy 2	Existing Commercial Energy Efficiency Voluntary Retrofits	No	This measure applies to existing development and would not be applicable to the construction of new development in the proposed Project.	NA
Energy-3	Exceed Title 24 Requirements	No	This measure, which applies to the City's adopted energy efficiency standards, calls for the City to periodically update its standards to exceed the State's mandatory standards. New development in the proposed Project would comply with the City's energy efficiency standards, but it is the City's responsibility to fulfill this measure by adopting standards that are more stringent than the state standards.	NA
Energy-4	Streetlights	Yes	The proposed Project would add approximately 20,000 feet of new public streets, including street lights lining the streets. The new streetlights would be equipped with newer lighting fixture technology than the City's existing streetlights.	Yes
Energy-5	Voluntary Rooftop Solar	Yes	Design guideline DG-22 calls for the installation of solar panels to reduce energy demand.	Yes

Table 3.3-11. Consistency of Proposed Project with CAP Measures

No.	CAP Measure	Applicable?	Proposed Project Implementation	Consistent?
Energy-6	Voluntary Solar Over Parking Areas	Yes	Design guideline DG-22 calls for the installation of solar panels to reduce energy demand.	Yes
<i>Transportation and Land Use Measures</i>				
On Road-1	Idling Restrictions	Yes	Policy P-ENV-11 requires that new large commercial projects prepare a loading plan aimed to minimize truck idling during and the associated diesel particulate emissions. Policy P-ENV-12 limits idling time to 5 minutes, per the California Code of Regulations airborne toxics control measure.	Yes
On Road-2	Transit Oriented Development	Yes	The primary purpose of the proposed Project is to support regional goals of integrating transit and land use policies. The 2020 INSP is the guidance document to developing the Isabel Neighborhood around the planned Valley Link station. Thus, the primary purpose of the proposed Project is consistent with transit oriented development.	Yes
On Road-3	Transit Enhancement	Yes	The primary purpose of the proposed Project is to support regional goals of integrating transit and land use policies. The planned Valley Link station will bring a major transit enhancement to the Isabel neighborhood. Additionally, the planned Valley Link station will result in enhanced service from other transit providers (i.e. LAVTA and BART) serving the new station and neighborhood. The planned Valley Link station will support regional transit goals and reduce regional traffic resulting from Bay Area commuters coming from the Tri-Valley and San Joaquin Valley.	Yes
On Road-4	Traffic Signal Synchronization	No	This measure applies to existing traffic signals that may not be	NA

Table 3.3-11. Consistency of Proposed Project with CAP Measures

No.	CAP Measure	Applicable?	Proposed Project Implementation	Consistent?
			adequately synchronized to existing traffic conditions. The proposed Project would add new traffic signals that would, by default, be programmed to current or predicted traffic conditions.	
On Road-5	Bicycles and Pedestrian Improvements	Yes	The proposed Project would create new streets that are oriented specifically for pedestrian and bicyclists. Existing streets would be improved for pedestrians as well through new signalized intersections and crosswalks. The proposed Project would also build a pedestrian and bicycle trail network that is separated from cars. Additionally, a number of policies that are part of the plan would improve pedestrian and bicycle circulation, including P-TRA-6 and P-TRA-7 (both require safe crossings and connections for bikes and pedestrians); P-TRA-8 (requires four-legged crosswalks at new signalized intersections); P-TRA-9 (requires on-street safety improvements for bicycles and pedestrians); P-TRA-10 (requires bike parking areas at trailheads and major destinations, and bike signals at major intersections); P-TRA-11 (requires traffic calming measures to slow vehicle speeds); P-TRA-13 (requires development to meet on-site bicycle parking requirements)	Yes
On Road-6	Car Sharing Programs	Yes	Policy P-TRA-22 calls for a neighborhood-wide car-sharing program.	Yes
<i>Water Conveyance Measures</i>				
Water-1	Per Capita Urban Water Use Reduction	Yes	The proposed Project includes a number of policies that are intended to reduce water use in new development. These	Yes

Table 3.3-11. Consistency of Proposed Project with CAP Measures

No.	CAP Measure	Applicable?	Proposed Project Implementation	Consistent?
			policies include P-PF-36 (requires new development to install water efficient appliances and fixtures), P-PF-37 (requires new development to comply with State and city water efficient landscape ordinances), P-PF-38 (requires new development within the municipal water service area to use recycled water for landscape irrigation), and P-PF-39 (allows the use of rainwater harvesting systems)	
<i>Wastewater Treatment Measures</i>				
Wastewater-1	Aeration Diffuser	No	This measure is applicable to the City's operational control of the Livermore water reclamation plant. While the proposed Project would increase wastewater treatment demand at the plant, operational control is maintained by the City's water resources division.	N/A
<i>Solid Waste Generation Measures</i>				
Waste-1	Waste Diversion	Yes	Policy P-PF-30 requires that all new development participate in all City, County, and State diversion programs and construction regulations. Policy P-PF-31 calls for the exceedance of the City's 75 percent diversion goal by designing new development to maximize recycling and composting; implementing recycling programs, purchasing policies, and manufacturing processes to reduce solid waste; implementing educational programs for diversion efforts and best practices; and supporting organic waste processing capacity in the county and state.	Yes

Table 3.3-11. Consistency of Proposed Project with CAP Measures

No.	CAP Measure	Applicable?	Proposed Project Implementation	Consistent?
<i>Urban Forestry and Conservation</i>				
Urban-1	Urban Shade Trees	Yes	Design standard DS-4 calls for shade trees at retail uses.	Yes
<i>Municipal Energy-Efficiency Measures</i>				
Municipal-1	Municipal Energy Efficiency Actions	No	This measure only applies to the City's municipal facilities.	N/A
Note: N/A = not applicable				

As shown in Table 3.3-11, the proposed Project would be consistent with all applicable measures in the City's CAP. Six of the measures are not applicable to the proposed Project, and thus consistency with these measures does not apply. The proposed Project would be consistent with all relevant measures. For some measures, such as On-Road-2 (Transit Oriented Development), the proposed Project would be a substantial indicator of CAP progress, because the primary purpose of the proposed Project is to develop the Planning Area around the future Valley Link station at Isabel Avenue. For measure On-Road-3 (Transit Enhancement), the proposed Project would be a substantial indicator of CAP progress because the planned Valley Link station would support regional transit goals.

Because the proposed Project is consistent with all applicable CAP measures, it would not conflict with the City's CAP.

Consistency with Current AB 32 Scoping Plan

AB 32 codifies the State's GHG emissions reduction targets for 2020. Because buildout of the proposed Project is anticipated in 2040, consistency with the current AB 32 Scoping Plan is discussed primarily for informational purposes. A discussion of the proposed Project's consistency with guidance documents and regulations with timelines more consistent with the buildout year of 2040 is needed for a comprehensive evaluation of GHG impacts.

The ARB adopted the 2008 Scoping Plan and 2014 First Update as a framework for achieving the AB 32 targets. The 2008 Scoping Plan and 2014 First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. Some reductions would need to come in the form of changes pertaining to vehicle emissions and mileage standards. Some would come from changes pertaining to sources of electricity and increased energy efficiency at existing facilities. The remainder would need to come from State and local plans, policies, or regulations that will lower carbon emissions, relative to business as usual conditions.

The proposed Project includes numerous policies to minimize GHG emissions. For example, the proposed Project contains policies to encourage increased water conservation, solid waste

diversion, renewable energy production, bicycle and pedestrian trips, and carpooling. The proposed Project, generally speaking, will develop a neighborhood around the planned Valley Link station, which is inherently transit-oriented development. The proposed Project would also support regional transit efforts and minimize regional GHG emissions generated by Bay Area commuters from the Tri-Valley and San Joaquin Valley regions. These policies are consistent with strategies identified in the 2008 Scoping Plan and 2014 First Update, as well as statewide goals to improve energy efficiency, reduce building energy consumption, and increase renewable energy generation. Accordingly, the proposed Project would not conflict with the AB 32 Scoping Plan.

Consistency with 2017 Scoping Plan

In general, the proposed Project is built around the concept of sustainability. This is manifested through increased density, mixed-use and transit-oriented development, and green-building principles, including an emphasis on energy efficiency, water conservation, and waste reduction. Although the measures included in the updated scoping plan are necessarily broad, the proposed Project is generally consistent with the goals and desired outcomes of the updated Scoping Plan (i.e. increasing energy efficiency, water conservation, waste diversion, transportation sustainability, etc.). The consistency of the proposed Project with the policies in the 2017 Climate Change Scoping Plan to achieve the 2030 GHG target is analyzed in Table 3.3-12.

Table 3.3-12. Consistency of Proposed Project with 2017 Scoping Plan Policies^a

<i>Policy</i>	<i>Primary Objective</i>	<i>Proposed Project Consistency Analysis</i>
SB 350	Reduce GHG emissions in the electricity sector through the implementation of the 50 percent RPS, doubling of energy savings, and other actions as appropriate to achieve GHG emissions reductions planning targets in the Integrated Resource Plan process.	This policy is a State program that requires no action at the local or project level. Nonetheless, development of new land uses under the proposed Project would be consistent with the energy saving objective of this measure. The proposed Project's Urban Design Chapter identifies some of the various environmentally-sensitive design guidelines and standards that would be used for new development in the Planning Area, which include maximizing natural cooling and passive solar heating through building placement and orientation, orienting building windows and balconies to maximize solar access, using vegetation to shade buildings to limit direct solar gain and glare, using plantings on building exteriors to insulate and cool interiors, and installing solar panels and/or solar hot water systems. These design guidelines and standards would reduce energy demands. In particular, design guideline DG-22 calls for the installation of solar panels to reduce energy demand and DG-26 calls for the incorporation of green roofs to manage stormwater runoff and reduce energy consumption through insulation.
Low Carbon Fuel Standard	Transition to cleaner/less-polluting fuels that have a lower carbon footprint.	This policy is a State program that requires no action at the local or project level. Nonetheless, implementation of the proposed Project would support reducing the carbon footprint associated with vehicle travel. The proposed Project's support for transit-oriented development around the proposed Valley Link station and other transit nodes throughout Livermore, along with numerous policies that promote mixed-use development and the provision of a street network consisting of trails, bike lanes, pedestrian crossings, and other facilities that support a walkable street grid within proximity of the future Valley Link station, would

Table 3.3-12. Consistency of Proposed Project with 2017 Scoping Plan Policies^a

<i>Policy</i>	<i>Primary Objective</i>	<i>Proposed Project Consistency Analysis</i>
		result in reduced vehicle trips. Additionally, to reduce dependency on vehicle travel and congestion on neighborhood, Policy P-TRA-21 requires the establishment of partnerships with transit operators, developers, technology providers, corporate shuttles, Transportation Network Companies, bike share operators, and other entities to enhance transit efficiency. Policy P-TRA-24 requires businesses within a half-mile of the Valley Link station to implement at least two of the following TDM programs, one of which could be carpool and vanpool ride-matching services. The planned Valley Link station would also reduce the carbon footprint associated with regional vehicle travel from Bay Area commuters.
Mobile Source Strategy (Cleaner Technology and Fuels [CTF] Scenario)	Reduce GHGs and other pollutants from the transportation sector through transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of VMT.	This policy is a State program that requires no action at the local or project level. Nonetheless, as discussed above, the proposed Project would support the reduction of VMT by supporting transit-oriented development around the future Valley Link station and other transit nodes throughout Livermore, and by designating the majority of new development or redevelopment in the Planning Area to occur within the half-mile radius – or walking distance – of the future Valley Link station. The Valley Link station area will be well-served by buses, with routes to destinations throughout Livermore, including Las Positas College, Downtown, national labs, and the Altamont Corridor Express (ACE) and Dublin/Pleasanton BART stations. In addition to Policies P-TRA-21 and P-TRA-24 (discussed above), Policy P-TRA-22 calls for the formation of a Transportation Management Association (TMA) for the Isabel Neighborhood that would work with LAVTA and the Tri-Valley San Joaquin Valley Regional Rail Authority to alter or add bus routes

Table 3.3-12. Consistency of Proposed Project with 2017 Scoping Plan Policies^a

<i>Policy</i>	<i>Primary Objective</i>	<i>Proposed Project Consistency Analysis</i>
		and/or provide free shuttle service between the Valley Link station and major destinations such as Las Positas College, which would further support the reduction in VMT. The planned Valley Link station would also reduce VMT and mobile GHG emissions associated with regional vehicle travel from Bay Area commuters.
SB 1383	Approve and Implement Short-Lived Climate Pollutant strategy to reduce highly potent GHGs.	This policy is a State program that requires no action at the local or project level, and is not applicable to the proposed Project.
California Sustainable Freight Action Plan	Improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system.	This policy is a State program that requires no action at the local or project level, and is not applicable to the proposed Project.
Post-2020 Cap-and-Trade Program	Reduce GHGs across largest GHG emissions sources.	This policy is a State program that requires no action at the local or project level, and is not applicable to the proposed Project.

Note:

N/A = not applicable

^a The Scoping Plan policies included in this table are those representing the State strategy for meeting the 2030 GHG target of SB 32

As shown, the proposed Project would not conflict with or hinder the implementation of the policies the 2017 Climate Change Scoping Plan.

Consistency with SB 32 and Executive Order EO S-3-05

As discussed above, SB 32 adopted a GHG reduction target of 40 percent below 1990 levels by 2030, and EO S-3-05 established a long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050. Achieving these long-term GHG reduction policies will require systemic changes in how energy is produced and used.

The systemic changes that will be required to achieve the GHG reduction goals of SB 32 and EO S-3-05, if legislatively adopted, will require significant policy, technical, and economic solutions. Decarbonization of the transportation fuel supply will require electric and plug-in hybrid electric vehicles to make up the vast majority of light-duty vehicles. Some changes, such as the use of alternative fuels (e.g., biofuels) to replace petroleum for aviation, cannot be accomplished without action by the federal government. Further, achieving the 2050 GHG reduction goals will require California to dramatically increase the amount of electricity that is generated by renewable

generation sources and, correspondingly, advance significantly the deployment of energy storage technology and smart-grid strategies, such as price-responsive demand and the smart charging of vehicles. This would entail a significant redesign of California's electricity system, which can only be accomplished through State action.

In evaluating the proposed Project's emissions for consistency with SB 32 and EO S-3-05, it is important to note that many of these broad-scale shifts in how energy is produced and used are unknown at this time, and ultimately are outside of the scope of the proposed Project. Consequently, the extent to which the proposed Project's emissions and resulting impacts would be mitigated through implementation of such statewide (or nationwide) changes is not known. Furthermore, implementation of such additional policy and regulatory changes is in the jurisdiction of State-level agencies (e.g., ARB) and federal-level agencies, not the City or the proposed Project. However, some of the measures recommended as part of SB 32 and EO S-3-05 (e.g., decarbonization, energy efficiency, reduced fossil-fuel-based VMT, etc.) can be facilitated to some extent through implementation of specific GHG reduction measures in large, plan-level developments such as the proposed Project. Plan Policies P-ENV-15 and Mitigation Measure GHG-1, for instance, would require the proposed Project to implement feasible GHG reduction measures within its control to put the project on the path toward the 2050 reduction goal of EO S-3-05.

As discussed under Impact 3.3-2, because the proposed Project's GHG emissions in 2028 would not exceed the applicable "substantial progress" efficiency metric, development under the proposed Project in 2028 would be consistent with the statewide GHG emissions reduction trajectory for 2030 under SB 32. In addition, implementation of Mitigation Measure GHG-1 would reduce the proposed Project's GHG emissions in 2040 to a level below its applicable efficiency metric, which would render operational GHG emissions from full buildout of the proposed Project to be consistent with the GHG emissions reduction trajectory for 2050 under EO S-3-05. Thus, the proposed Project's emissions would be consistent with the goals in SB 32 and EO S-3-05 with implementation of mitigation, and this impact would be less than significant.

Consistency with SB 375 and Plan Bay Area

Climate protection and transportation system effectiveness are two of seven goals addressed in MTC's Plan Bay Area. Plan Bay Area provides a long-range framework to minimize transportation impacts on the environment, improve regional air quality, protect natural resources, and reduce GHG emissions. The plan supports smart growth principles, promotes infill development, and proactively links land use, air quality, and transportation needs in the region. Plan Bay Area is consistent with SB 375, which requires MTC to adopt an SCS that outlines policies to reduce per capita GHG emissions from automobiles and light trucks. The SCS policies include a mix of strategies that encourage compact growth patterns, mixed-use design, alternative transportation, transit, mobility and access, network expansion, and transportation investment.

Implementation of the SCS is intended to improve the efficiency of the transportation system and achieve a variety of housing types throughout the Bay Area that meet market demands in a balanced and sustainable manner. The proposed Project is built around the concept of sustainability. Density would be increased in appropriate locations, mixed-use development would be promoted, and

green-building and transit-oriented development would be encouraged, as would energy efficiency, water conservation, and waste reduction.

The proposed Project would allow development of residential land uses to help meet forecasted growth within the Planning Area. Consistent with MTC goals, the proposed Project would create a mixed-use, pedestrian/bicycle-friendly community. The land use design, transportation network efficiency improvements, and transit priority enhancements would help reduce vehicle trips and support alternative transportation. The proposed Project policies would also encourage active transportation by providing safer pedestrian crossings, a connected bicycle network, and improved streetscapes. These policies would support alternative transportation within the Isabel Neighborhood, which could help reduce per capita GHG emissions from passenger vehicles consistent with Plan Bay Area. Thus, the proposed Project would be consistent with the goals of SB 375 and Plan Bay Area, and this impact would be less than significant.

Consistency with Other State Regulations

As discussed above in the analysis of consistency with SB 32 and EO S-3-05, systemic changes will be required at the State level to achieve the statewide future GHG reduction goals. Regulations, such as future amendments to the low carbon fuel standard; the SB 350-mandated 50 percent RPS and potential legislation to achieve 100 percent RPS by 2045 (SB 100); and future updates to the State's Title 24 standards, will be necessary to attain the magnitude of reductions required for the State's goals. The proposed Project would be required to comply with these regulations in new construction (in the case of updated Title 24 standards), or would be directly affected by the outcomes (proposed Project vehicle trips and energy consumption would be less carbon intensive due to statewide compliance with future low carbon fuel standard amendments and increasingly stringent RPSs). Thus, for the foreseeable future, the proposed Project would not conflict with any other State-level regulations pertaining to GHGs in the post-2020 era, and this impact would be less than significant.

Proposed Project Goals and Policies that Reduce the Impact

Refer to policies, design standards, and design guidelines identified under Impact 3.3-2.

Mitigation Measures

Mitigation Measure GHG-1: Operational GHG Emissions Reduction Measures. Refer to Impact 3.3-2.

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3.4 Noise and Vibration

Environmental Setting

PHYSICAL SETTING

Noise

Characterization and Measurement

Noise is commonly defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Because noise is an environmental pollutant that can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a proposed project.

Sound is mechanical energy (vibration) transmitted by pressure waves over a medium such as air or water. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient (existing) sound level. Although the decibel (dB) scale, a logarithmic scale, is used to quantify sound intensity, it does not accurately describe how sound intensity is perceived by human hearing. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called A-weighting, written as dBA and referred to as A-weighted decibels. Table 3.4-1 defines sound measurements and other terminology used in this chapter, and Table 3.4-2 summarizes typical A-weighted sound levels for different noise sources.

In general, human sound perception is such that a change in sound level of 1 dB cannot typically be perceived by the human ear, a change of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level, if sound levels increase or decrease, respectively.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (such as L_{10} , L_{20}), the day-night sound level (L_{dn}), and the community noise equivalent level (CNEL). L_{dn} and CNEL values differ by less than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such. These measurements are defined in Table 3.4-1.

For a point source such as a stationary compressor or construction equipment, sound attenuates (lessens in intensity) based on geometry at a rate of 6 dB per doubling of distance. For a line source such as free flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance (California Department of Transportation, 2013a). Atmospheric conditions including wind, temperature gradients, and humidity can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs

acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface such as grass attenuates at a greater rate than sound that travels over a hard surface such as pavement. The increased attenuation is typically in the range of 1–2 dB per doubling of distance. Barriers such as buildings and topography that block the line of sight between a source and receiver also increase the attenuation of sound over distance.

Surrounding Land Uses and Existing Noise Sensitive Receptors

There are a wide variety of land uses located throughout the Planning Area, including noise-sensitive land uses. Noise-sensitive land uses, or sensitive receptors, are those uses that are most sensitive to high noise levels, including residences, religious facilities, schools, childcare centers, hospitals, long-term health care facilities, convalescent centers, and retirement homes. All of these land use types, except hospitals, long-term health care facilities, and convalescent centers, occur within the Planning Area.

Existing Noise Environment

The different types of noise sources that typically occur in an urban environment are discussed at a general level in this section. The sources of noise include traffic noise, aircraft overflights, and stationary noise at existing land uses.

Table 3.6-3 and Figure 3.6-3 are removed as noise monitoring conducted for the Draft BART to Livermore Extension Project EIR are not relevant to this EIR.

Table 3.4-1: Definition of Sound Measurements

<i>Sound Measurements</i>	<i>Definition</i>
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
C-Weighted Decibel (dBC)	The sound pressure level in decibels as measured using the C-weighting filter network. The C-weighting is very close to an unweighted or <i>flat</i> response. C-weighting is only used in special cases when low-frequency noise is of particular importance. A comparison of measured A- and C-weighted level gives an indication of low frequency content.
Maximum Sound Level (L _{max})	The maximum sound level measured during the measurement period.
Minimum Sound Level (L _{min})	The minimum sound level measured during the measurement period.
Equivalent Sound Level (Leq)	The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy.
Percentile-Exceeded Sound Level (L _{xx})	The sound level exceeded xx % of a specific time period. L ₁₀ is the sound level exceeded 10% of the time. L ₉₀ is the sound level exceeded 90% of the time. L ₉₀ is often considered to be representative of the background noise level in a given area.
Day-Night Level (L _{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
Peak Particle Velocity (Peak Velocity or PPV)	A measurement of ground vibration defined as the maximum speed (measured in inches per second) at which a particle in the ground is moving relative to its inactive state. PPV is usually expressed in inches/second.
Frequency: Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.

Table 3.4-2: Typical A-weighted Sound Levels

<i>Common Outdoor Activities</i>	<i>Noise Level (dBA)</i>	<i>Common Indoor Activities</i>
	—110—	Rock band
Jet flyover at 1,000 feet	—100—	
Gas lawnmower at 3 feet	—90—	
Diesel truck at 50 feet at 50 mph	—80—	Food blender at 3 feet Garbage disposal at 3 feet
Noisy urban area, daytime	—70—	Vacuum cleaner at 10 feet Normal speech at 3 feet
Gas lawnmower, 100 feet	—60—	
Commercial area	—50—	Large business office Dishwasher in next room
Heavy traffic at 300 feet	—40—	Theater, large conference room (background)
Quiet urban daytime	—30—	Library Bedroom at night, concert hall (background)
Quiet urban nighttime	—20—	
Quiet suburban nighttime	—10—	Broadcast/recording studio
Quiet rural nighttime	—0—	Lowest threshold of human hearing

Notes:

dBA = A-weighted decibel

Source: California Department of Transportation, 2013a.

Existing Noise Sources

Traffic Noise

The dominant source of noise in the Planning Area and in most urban areas is noise from vehicle traffic on roadways. There are several major roadways in and adjacent to the Planning Area, including I-580, Isabel Avenue, Airway Boulevard, North Canyons Parkway, Portola Avenue, and Collier Canyon Road. However, vehicle traffic on smaller roadways is the dominant source of noise in most areas of the Planning Area. This analysis of impacts resulting from the proposed Project

evaluates traffic noise levels on a detailed basis for a number of roadways in the Planning Area with and without the proposed Project.

Airport Overflight Noise

The greatest potential for noise intrusion from airports occurs when aircraft land, take off, or run their engines while on the ground. The Livermore Municipal Airport is located adjacent to the project site, with runways approximately 0.25 miles south of the Planning Area. The Livermore Municipal Airport is owned and operated by the City, as a division of the Public Works Department. Noise contours developed in the 2012 Airport Land Use Compatibility Plan (ALUCP) for the airport shows noise contours of 65 dB CNEL associated with the airport extending to the Planning Area (Alameda County Airport Land Use Commission, 2012). Figure 3.4-1 shows the existing airport noise contours in the vicinity of the Planning Area.

Stationary Source Noise

Noise from stationary sources includes noise generated by residential activity and commercial and other non-residential uses. Such noise would be primarily limited to noise generated by heating, ventilation, and air conditioning (HVAC), and other noise at commercial and industrial land uses. Many potential sources of stationary source noise exist in the Planning Area.

Ground Vibration

Characterization and Measurement

While sound is the transmission of energy through the air, groundborne vibration is the transmission of energy through the ground or other solid medium and is perceived by humans as motion (of the ground, floor, or building). Vibrations can also generate noise by transmitting energy through the air.

Groundborne vibration can be quantified in two main ways. One commonly used descriptor is PPV, or Peak Particle Velocity. As seismic waves travel outward from a vibration source, they cause rock and soil particles to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of the vibration amplitude, referred to as the peak particle velocity (PPV). This type of vibration will be discussed in more detail below under Construction Vibration.

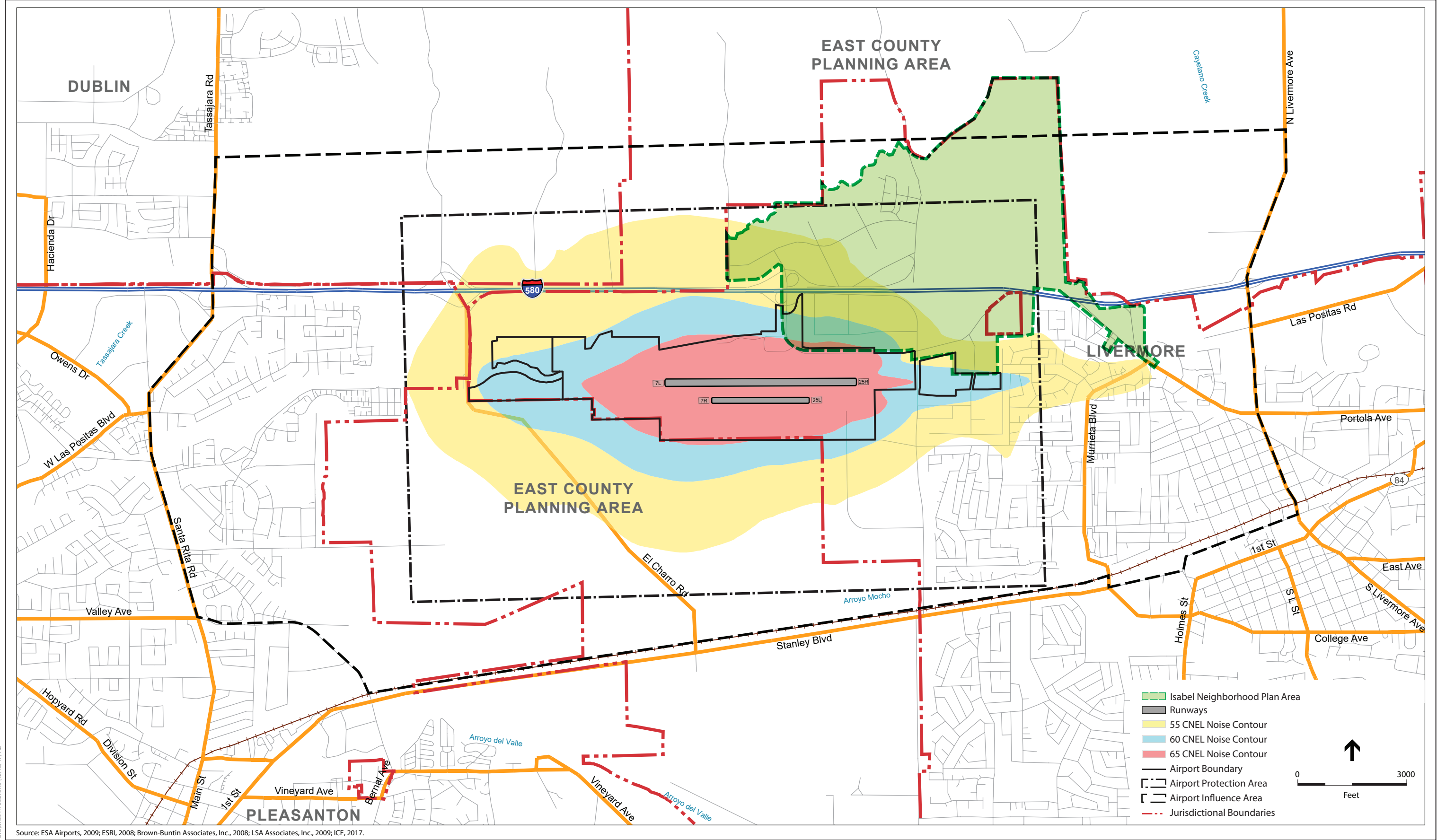


Figure 3.4-1
Existing Airport Noise Contours

Groundborne vibration can also be quantified by the root-mean-square (RMS) velocity amplitudes, which can be useful for assessing human annoyance. The RMS amplitude is expressed in terms of the velocity level in decibel units (VdB). The background vibration velocity level in residential areas is usually around 50 VdB or lower. The vibration velocity level threshold of perception for humans is approximately 65 VdB. Most perceptible indoor vibration is caused by sources within buildings, such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are heavy construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible.

Table 3.4-3 summarizes the typical groundborne vibration velocity levels and average human response to vibration that may be anticipated when a person is at rest in quiet surroundings. If the person is engaged in any type of physical activity, vibration tolerance increases considerably. The duration of the event has an effect on human response, as does its daily frequency of occurrence. Generally, as the duration and frequency of occurrence increase, the potential for adverse human response increases.

Table 3.4-3: Typical Levels of Groundborne Vibration

<i>Human or Structural Response</i>	<i>Vibration Velocity Level (VdB)</i>	<i>Typical Sources (50 feet from source)</i>
Threshold for minor cosmetic damage to fragile buildings	—100—	Blasting from construction project Bulldozer or heavy-tracked construction equipment
Difficulty in reading computer screen	—90—	Upper range of commuter rail
Threshold for residential annoyance for occasional events (e.g., commuter rail)	—80—	Upper range of rapid transit
Threshold for residential annoyance for frequent events (e.g., rapid transit)	—70—	Typical commuter rail Bus or truck over bump
Approximate threshold for human perception of vibration; limit for vibration-sensitive equipment	—60—	Typical rapid transit Typical bus or truck on public road
	—50—	Typical background vibration

Source: Federal Transit Administration, 2006.

Groundborne noise is a secondary component of groundborne vibration. When a building structure vibrates, noise is radiated into the interior of the building. Typically, this is a low-frequency sound that can be perceived as a low rumble. The magnitude of the sound depends on the frequency characteristic of the vibration and the manner in which the room surfaces in the building radiate sound. Groundborne noise is quantified by the A-weighted sound level inside the building. The sound level accompanying vibration is generally 25 to 40 dBA lower than the vibration velocity level in VdB. Groundborne vibration levels of 65 VdB can result in groundborne noise levels of up to 40 dBA, which can disturb sleep. Groundborne vibration levels of 85 VdB can result in groundborne noise levels of up to 60 dBA, which can be annoying to daytime noise-sensitive land uses such as schools (Federal Transit Administration, 2006).

Construction Vibration

As described above, vibration resulting from the operation of heavy construction equipment is often reported in PPV, which is the rate or velocity, in inches per second, at which rock and soil particles oscillate as seismic waves travel outward from a vibration source.

The operation of heavy construction equipment, particularly pile driving equipment and other impact devices (e.g., pavement breakers), creates seismic waves that radiate along the surface of and downward into the ground. These surface waves can be felt as ground vibration. Vibration from operation of this equipment can result in effects ranging from annoyance of people to damage of structures. Variations in geology and distance result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes decrease with increasing distance.

Perceptible groundborne vibration is generally limited to areas within a few hundred feet of construction activities. Vibration amplitude attenuates over distance and is a complex function of how energy is imparted into the ground and the soil or rock conditions through which the vibration is traveling. The following equation is used to estimate the vibration level at a given distance for typical soil conditions (Federal Transit Administration, 2006). PPV_{ref} is the reference PPV at 25 feet (Table 3.4-46-5).

$$PPV = PPV_{ref} \times (25/Distance)^{1.5}$$

Table 3.4-5 summarizes typical vibration levels generated by construction equipment (Federal Transit Administration, 2006) at the reference distance of 25 feet and other distances as determined using the attenuation equation above.

Tables 3.4-5 and 3.4-6 summarize guidelines developed by the California Department of Transportation (Caltrans) for damage and annoyance potential from transient and continuous vibration that is usually associated with construction activity. Equipment or activities typical of continuous vibration include: excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include: impact pile drivers, blasting, drop balls, “pogo stick” compactors, and crack-and-seat equipment (California Department of Transportation, 2013b).

Table 3.4-4: Vibration Source Levels for Construction Equipment

<i>Equipment</i>	<i>PPV at 25 Feet</i>	<i>PPV at 50 Feet</i>	<i>PPV at 75 Feet</i>	<i>PPV at 100 Feet</i>	<i>PPV at 175 Feet</i>
Pile driver (impact) ^a	0.65	0.230	0.125	0.081	0.035
Pile driver (sonic/vibratory) ^a	0.65	0.230	0.125	0.081	0.035
Hoe ram or large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.0041
Jackhammer	0.035	0.0124	0.0067	0.0044	0.0019
Small bulldozer	0.003	0.0011	0.0006	0.0004	0.0002

Note:

a. The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2013b) is used as the source for vibration from a vibratory pile driver.

Source: Federal Transit Administration, 2006.

Table 3.4-5: Vibration Damage Potential Threshold Criteria Guidelines

<i>Structure and Condition</i>	<i>Maximum PPV (inches/second)</i>	
	<i>Transient Sources</i>	<i>Continuous/Frequent Intermittent Sources</i>
Extremely fragile historic buildings, ruins, ancient monuments	0.1	0.1
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.3
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes:

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity.

Source: California Department of Transportation 2013b.

Table 3.4-6: Vibration Annoyance Potential Criteria Guidelines

<i>Human Response</i>	<i>Maximum PPV (inches/second)</i>	
	<i>Transient Sources</i>	<i>Continuous/Frequent Intermittent Sources</i>
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Notes:

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity.

Source: California Department of Transportation 2013b.

Train Vibration

The Federal Transit Administration (FTA)'s Transit Noise and Vibration Impact Assessment is specifically developed for determining significant noise and vibration impacts for mass transit projects involving rail or bus facilities, and includes vibration impact criteria,

Table 3.4-7 summarizes the criteria developed by the FTA for assessing groundborne vibration from train passages. The criteria vary, depending on the frequency of events. Similar to the noise criteria, the criteria presented in Table 3.4-7 are based on type of land use. Category 1 land uses include hospitals and manufacturing facilities that have vibration-sensitive equipment. All types of residential land uses are considered Category 2. Category 3 land uses are institutional, with facilities used primarily during the day, such as schools and churches.

Table 3.4-7: Groundborne Vibration Impact Criteria

Land Use Category	Groundborne Vibration Impact Level (VdB)		
	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
Category 1: Buildings where vibration would interfere with interior operations (research facilities, hospitals with vibration sensitive equipment)	65 ^d	65 ^d	65 ^d
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses (schools, churches)	75	78	83

Notes:

- a. *Frequent Events* is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
- b. *Occasional Events* is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this number of operations.
- c. *Infrequent Events* is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
- d. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research may require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air-conditioning systems and stiffened floors.

N/A = not applicable

Source: California Department of Transportation 2013b.

REGULATORY SETTING

Federal, state, and local agencies regulate different aspects of environmental noise. Generally, the federal government sets noise standards for transportation-related noise sources that are closely linked to interstate commerce. These sources include aircraft, locomotives, and trucks. No federal noise standards are directly applicable to the proposed Project because the City is not receiving federal aid for implementation of the proposed Project. The State government sets noise standards for transportation noise sources such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through performance standards in municipal codes or noise ordinances and General Plan policies. Local general plans identify general principles that are intended to guide and influence development plans. State law mandates the inclusion of several key elements in a general plan including the noise element. The noise element of the general plan typically provides land use compatibility standards for noise. The State and local noise policies and regulations that are applicable to the proposed Project are described below.

State Regulations

California Noise Insulation Standards, California Code of Regulations, Title 24

Part 2, Title 24 of the California Code of Regulations “California Noise Insulation Standards” establishes minimum noise insulation standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than single-family residences. Under this regulation, interior noise levels attributable to exterior noise sources cannot exceed 45 Ldn in any habitable room.

General Plan Consistency with Airport Land Use Compatibility Plans

Public Utilities Code 21675 requires each airport land use commission to formulate an airport land use compatibility plan. California Government Code 65302.3 further requires that general plans be consistent with airport land use compatibility plans. In addition, general plans and applicable specific plans must be amended to reflect amendments to the airport land use compatibility plan.

Local Regulations

Implementation of the proposed Project may affect noise-sensitive uses in Livermore. The following local policies related to noise may apply to implementation of the proposed Project.

City of Livermore General Plan Noise Element

The Noise Element of the City of Livermore’s General Plan establishes goals and policies for ensuring that existing and proposed land uses are compatible with their noise environments. In the General Plan, the City has established compatibility guidelines for exterior noise for different categories of land uses, as shown in Table 3.4-8 (presented in dBA CNEL or Ldn).

In addition, the City’s General Plan Noise Element includes objectives and policies that call for the adoption of design standards and noise attenuation programs to prevent or reduce noise to acceptable levels. The element states that new noise-sensitive developments, such as schools, residences, and hospitals, proposed in high noise level areas undergo acoustical testing to ensure noise levels are acceptable. The General Plan seeks to reduce impacts from ground-borne vibrations from rail operations by setting a minimum distance between the centerline of tracks and the location of habitable buildings, as well as interior noise level limits. Noise mitigation strategies are also outlined for construction practices and temporary uses, such as fairs or exhibits. For construction, the Noise Element outlines decibel levels and time periods where noise is either allowed to exceed standards temporarily or are further restricted.

The Noise Element of the General Plan also addresses noise from traffic, the largest continual noise source in the city. Policies to address traffic noise include ones to support federal and State legislation to attain lower operating noise levels on motor vehicles, restrictions on heavy truck traffic through residential neighborhoods, and proper design of street circulation, coordination of routing, and other traffic control measures. For specific information on noise restrictions regarding construction activities and heavy machinery, see General Plan Noise Element Objective N-1.5.

Table 3.4-8: City of Livermore General Plan Land Use Compatibility Guidelines for Exterior Noise

Land Use Category	Normally Acceptable ^a	Common Noise Exposure (dBA CNEL or Ldn)		
		Conditionally Acceptable ^a	Normally Unacceptable ^a	Clearly Unacceptable ^a
Residential – Low Density, Single Family, Duplex, Mobile Homes	≤60	55-70	70-75	>75
Residential – Multi Family	≤65	60-70	70-75	>75
Transient lodging – Motels, Hotels	≤65	60-70	70-80	>80
Schools, Libraries, Churches, Hospitals, Nursing Homes	≤70	60-70	70-80	>80
Auditoriums, Concert Halls, Amphitheaters	–	<70	-	>65
Sports Arena, Outdoor Spectator Sports	–	<75	-	>70
Playgrounds, Neighborhood Parks	≤70	–	70-75	>75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	≤75	–	70-80	>80
Office Buildings, Businesses, Commercial and Professional	≤70	70-75	75+	–
Industrial, Manufacturing, Utilities, Agriculture	≤75	70-80	75+	–

Table 3.4-8: City of Livermore General Plan Land Use Compatibility Guidelines for Exterior Noise

Land Use Category	Common Noise Exposure (dBA CNEL or Ldn)			
	Normally Acceptable ^a	Conditionally Acceptable ^a	Normally Unacceptable ^a	Clearly Unacceptable ^a

Notes:

Where dBA levels overlap between these categories, determination of noise level acceptability will be made on a project-by-project basis.

a. Normally Acceptable: If the noise level is within the “normally acceptable” level, noise exposure would be acceptable for the intended land use. Development may occur without requiring an evaluation of the noise environment unless the use could generate noise impacts on adjacent uses.

b. Conditionally Acceptable: If the noise level is within the “conditionally acceptable” level, noise exposure would be conditionally acceptable; a specified land use may be permitted only after detailed analysis of the noise environment and the project characteristics to determine whether noise insulation or protection features are required. Such noise insulation features may include measures to protect noise-sensitive outdoor activity areas (e.g., at residences, schools, or parks) or may include building sound insulation treatments such as sound-rated windows to protect interior spaces in sensitive receptors.

c. Normally Unacceptable: If the noise level is within the “normally unacceptable” level, analysis and mitigation are required. Development should generally not be undertaken unless adequate noise mitigation options have been analyzed and appropriate mitigations incorporated into the project to reduce the exposure of people to unacceptable noise levels.

d. Clearly Unacceptable: If the noise level is within the “clearly unacceptable” level, new construction or development should not be undertaken unless all feasible noise mitigation options have been analyzed and appropriate mitigations incorporated into the

Source: City of Livermore, 2013.

City of Livermore Municipal Code

Chapter 9.36 of the City’s Municipal Code contains the City’s Noise Ordinance, which provides descriptions of activities that would constitute a noise disturbance and noise limitations. The City’s Municipal Code regulations below would be applicable to the proposed Project.

9.36.040 Blowers, fans and combustion engines

The operation of any noise-creating blower, power fan or internal combustion engine, the operation of which causes noise due to the explosion of operating gases or fluids, is prohibited, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device to deaden such noise in such a manner so as not to be plainly audible at a distance of either 75 feet from the source of the noise, or between the hours of 6:00 p.m. Saturday to 7:00 a.m. Monday; 8:00 p.m. to 7:00 a.m. on Monday, Tuesday, Wednesday and Thursdays; 8:00 p.m. Friday to 9:00 a.m. on Saturday or at all on City-observed holidays.

9.36.050 Exhausts from engines, boats or vehicles

The discharge into the open air of the exhaust of any steam engine, stationary internal-combustion engine, motorboat or motor vehicle, except through a muffler or other device which will effectively prevent loud or explosive noises therefrom in such a manner so as not to be plainly audible at the distance of either 75 feet from the source of the noise, or the property line, whichever is greater, is prohibited.

9.36.080 Hammers, pile drivers, pneumatic tools and similar equipment.

The operation between the hours of 6:00 p.m. Saturday to 7:00 a.m. Monday; 8:00 p.m. to 7:00 a.m. on Monday, Tuesday, Wednesday and Thursdays; 8:00 p.m. Friday to 9:00 a.m. on Saturday or at all on City-observed holidays of any pile driver, pneumatic tools, derrick, electric hoist, sandblaster or other equipment used in construction, demolition or other repair work, the use of which is attended by loud or unusual noise, is prohibited.

9.36.110 Exceptions

A. The city engineer and/or building official shall have the authority to authorize construction activities during the hours restricted by this chapter for the following reasons:

1. A public agency, other than the city, requires as a condition of a permit that the construction be done during the restricted hours.
2. Public health, safety or welfare requires the work to be done during the restricted hours.

Specific construction activities (such as large concrete foundation pours) can be identified and approved to occur as an exemption to this ordinance in the conditions of approval for a project at the time of the public hearing.

B. If the city engineer and/or building official approves the exception or it is an exception allowed by the conditions of approval for the project, the following shall be done by the contractor or city staff:

1. Notify the Livermore police department, watch commander, at least 24 hours in advance.
2. Notify residents and business owners that are adjacent to the work area at least 24 hours in advance. The limits of this notification shall be determined by the city engineer and/or building official

Impact Analysis

SIGNIFICANCE CRITERIA

Implementation of the proposed Project would have a potentially significant adverse impact if it would:

- Criterion 1: Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.
- Criterion 2: Expose persons to or generate excessive groundborne vibration or groundborne noise levels.
- Criterion 3: Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Criterion 4: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Criterion 5: Be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels.
- Criterion 6: Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

METHODOLOGY AND ASSUMPTIONS

Construction Noise

Because the proposed Project is being evaluated in this EIR at a program level, noise levels associated with construction activities were evaluated qualitatively using general construction noise levels provided by the U.S. Environmental Protection Agency (EPA) for different site categories (e.g., housing, office buildings) and construction phases (e.g., ground clearing, excavation). These general construction noise levels were assumed to be representative of the noise that could occur from the construction of reasonably foreseeable development under the proposed Project, because the noise levels were developed by the EPA to be broadly applicable to construction activities. As such, using the estimates of noise levels for general construction activity from the EPA provides a reasonable estimate of impacts associated with future development under the proposed Project.

Traffic Noise

Peak hour A.M. and P.M. traffic volumes for key intersections within and adjacent to the Planning Area, along with other traffic data used to assess noise impacts, were provided by Kittelson & Associates, Inc. as part of the traffic analysis for the proposed Project. Three project conditions (existing, Year 2040 without-project, and Year 2040 with-project) were modeled to analyze potential traffic noise impacts associated with buildout of the proposed Project. The Year 2040

with-project scenario represents Year 2040 with the development of the INSP as well as the Valley Link project. The Year 2040 without-project scenario represents Year 2040 without the development of the INSP or the Valley Link project.

Note that for the purposes of this analysis the Year 2040 without-project scenario is considered the baseline that is compared to with-project noise levels, as opposed to existing conditions. Using the Year 2040 without-project as the baseline would result in a more reasonable assessment of potential impacts resulting from plan implementation. The Year 2040 without-project scenario includes the buildout of the General Plan as currently planned, and the Year 2040 with-project scenario includes buildout of the proposed Project in place of the General Plan in the Planning Area.

The segment traffic volumes were used to estimate the Ldn levels associated with traffic along each roadway segment. ADT values for I-580 near the Planning Area were used to model traffic noise associated with vehicles on the freeway.

The traffic volumes for each roadway segment were then used along with the FHWA Traffic Noise Model (TNM) Version 2.5 to calculate Ldn at a distance of 50 feet from the roadway centerlines for local roadways, and 150 feet from the roadway centerline for freeway segments. Other inputs to the FHWA model included vehicle travel speeds and the percentages of medium- and heavy-duty truck traffic on each roadway. These data were also provided by the traffic engineer.

In general, traffic noise increases of 3 dB are barely perceptible to people. Thus, the following thresholds are applied to determine the significance of project-related traffic noise increases:

1. In places where the Year 2040 with-project noise level is greater than the Normally Acceptable noise level according to the City of Livermore Land Use Compatibility Guidelines for Exterior Noise (Table 3.4-8), any noise increase relative to the 2040 without-project baseline greater than 3 dBA is considered a significant traffic noise increase; and
2. Along all roadway segments adjacent to the Planning Area that would be considered noise-sensitive, any Year 2040 with-project noise level that is greater than the Normally Acceptable noise level according to the City of Livermore Land Use Compatibility Guidelines for Exterior Noise would be considered potentially significant.

A 3-dB increase over baseline (Year 2040 without-project) noise levels where the without-project or with-project noise environment is greater than “normally acceptable” would be considered a substantial permanent increase in the ambient noise levels (even though it would be expected to be “barely perceptible”). This is because an increase of 3 dB would add to a noise level that already exceeds satisfactory standards for the applicable land use per the Land Use Compatibility Guidelines.

Valley Link Train Noise and Vibration

Noise associated with Valley Link train noise and vibration will be evaluated separately in the Valley Link Project Draft Environmental Impact Report. Completion of the Draft Environmental Impact Report (Draft EIR) is currently planned for Fall of 2020.

Stationary Source Noise

As noted above, this analysis is evaluating impacts associated with the proposed Project at the program level. Accordingly, specific details on future mechanical equipment or HVAC equipment and layout are unknown at this time. Therefore, stationary source impacts are discussed on a qualitative basis.

Construction Vibration

Vibration from construction equipment was evaluated using methods recommended by Caltrans (California Department of Transportation, 2013b) and the Federal Transit Administration (Federal Transit Administration, 2006) using the source levels and criteria shown in Tables 3.4-4 through 3.4-6. Table 3.4-4 specifies the typical human responses in the presence of transient and continuous sources of vibration. As vibration that is clearly felt in a residential or other land use that may be sensitive to vibration would likely be unwanted and considered an annoyance, this analysis assumes that any vibration from construction activity that is distinctly perceptible (0.04 PPV in/sec for continuous/frequent intermittent sources) or stronger, based on Table 3.4-6 would be considered a significant impact

Aircraft Noise

To assess noise associated with aircraft in the Planning Area, noise contours from the Livermore Municipal Airport Land Use Compatibility Plan (Alameda County, 2012) were used to identify aircraft noise exposure in the vicinity of the Planning Area. This airport is located adjacent to the southern border of the Planning Area. Additionally, the nearest private airstrip (Meadowlark Field Airport) was identified, and potential noise from aircraft at this airstrip was also considered.

IMPACTS

Impact 3.4-1 Implementation of the proposed Project could expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies. (Construction, *Less than Significant*; Operation, *Significant and Unavoidable*)

Construction Noise

Implementation of the proposed Project would provide a framework for future development to occur in the Planning Area, and future development would result in noise-generating construction activities. Because specific details with respect to future projects that would be implemented under the proposed Project are not currently available, and because it is assumed that a variety of future projects may be developed under the proposed Project, noise levels associated with construction activities are evaluated qualitatively using general construction noise levels. Table 3.4-9 summarizes typical noise levels produced during key construction phases for various types of projects (U.S. Environmental Protection Agency, 1971).

Table 3.4-9: Noise Levels of Key Construction Phases by Construction Type

Construction Phase	Sound Level at 50 Feet (dBA)			
	Housing	Industrial	Public Works	Non-Residential
Ground clearing	85	87	88	91
Excavation	89	90	90	87
Foundations	82	89	92	87
Building/facility construction	81	85	88	88
Finishing and clean-up	86	89	90	87

Source: U.S. Environmental Protection Agency, 1971.

Construction activities associated with future projects would be temporary and related construction noise impacts would be short-term. Each individual construction activity would have the potential to generate noise levels that could be in excess of applicable local thresholds, or that could cause a disturbance to nearby noise-sensitive receptors. As shown in Table 3.4-9, at 50 feet from the source, the noise levels for all project types and phases would be above 80 dBA.

The severity of construction-related noise impacts depends on the proximity of construction activities to sensitive receptors, the presence of intervening barriers, the number and types of equipment used, and the duration of the activity. While these factors cannot be considered in detail for future projects under the proposed Project, it is assumed that individual projects would be implemented in compliance with City standards. The City noise ordinance allows construction during “daytime hours,” and prohibits construction between the hours of 6:00 p.m. Saturday to 7:00 a.m. Monday; 8:00 p.m. to 7:00 a.m. on Monday, Tuesday, Wednesday and Thursdays; 8:00 p.m. Friday to 9:00 a.m. on Saturday (with no construction allowed on City-observed holidays). Future development under the proposed Project would be required to comply with these restrictions; if a project requests to deviate, the project proponent would need to obtain permission to do so from the city engineer per Municipal Code Section 9.36.110, Exceptions. The City engineer and/or building official has the authority to authorize construction activities during the restricted hours on a case-by-case basis. Construction that complies with the time-of-day restrictions for construction activities would result in less than significant noise impacts with regard to the generation of noise in excess of thresholds. If a project receives authorization to deviate from the allowable hours for construction, then it would still be in compliance with the City Noise Ordinance. Therefore, as all future development projects would either comply with the hourly restrictions for construction activities or receive approval from the City to deviate from these limitations, this impact would be less than significant.

Mitigation Measures

None required.

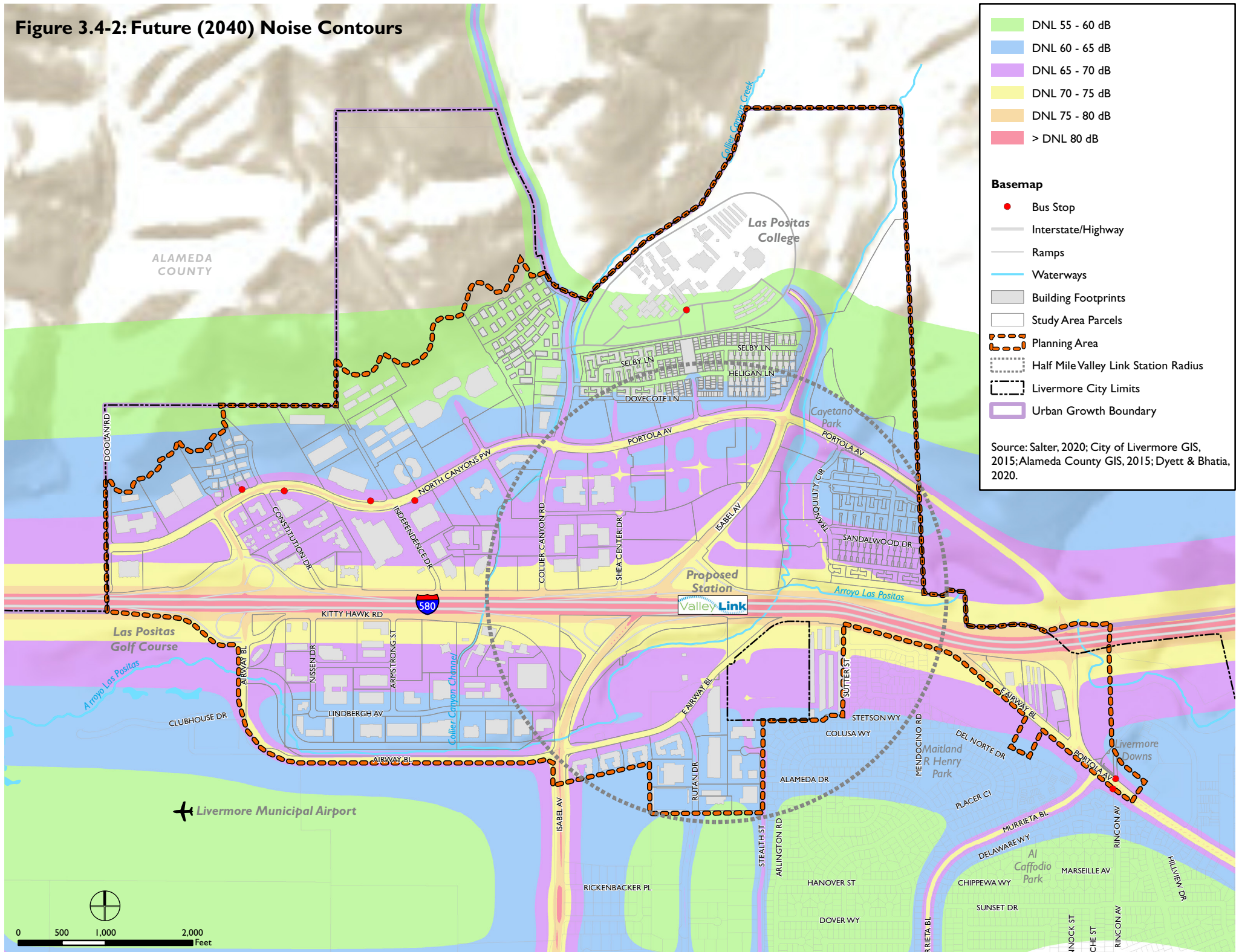
Operational Traffic Noise

Future development associated with the proposed Project would result in an increase in traffic in and adjacent to the Planning Area, development of new roads, and placement of new sensitive receptors within the Planning Area. According to the General Plan Noise Element, a noise level of up to 60 dBA Ldn is considered normally acceptable for low density, single-family, duplex, and mobile homes, and a noise level of 65 dBA Ldn is considered normally acceptable for multi-family residences and transient lodging such as motels and hotels. Noise levels of up to 70 dBA Ldn are considered normally acceptable at schools, libraries, churches, hospitals, playgrounds and parks, office buildings, commercial uses and businesses.

For most residential receptors located adjacent to a roadway, the 60 dBA Ldn noise standard—which applies to low density, single family, duplex, and mobile home residential land uses—from the City Noise Element would apply. Standard building construction can typically provide an exterior-to-interior noise reduction of up to 20 dB. Note that a noise reduction in the range of 25 to 35 dB is achievable with upgraded acoustical treatments and that the Noise Element allows noise levels at residential land uses to be up to 70 dBA Ldn if all needed noise insulation features are included in the design of the building. However, this analysis uses the 60 dBA Ldn allowable noise level of the City Noise Element as the basis for the analysis (where up to a 3-dB increase is allowed for roadways segments with resultant noise levels above this noise level).

An initial analysis was conducted using a reference distance of 50 feet from each roadway segment centerline for local roadways, and 150 feet from the roadway centerline for the I-580 freeway segments in the project vicinity. Refer to Appendix D for these modeling results. Figure 3.4-2 shows future noise contours under the proposed Project.

Figure 3.4-2: Future (2040) Noise Contours



Traffic Noise Impacts to Existing Sensitive Land Uses

Traffic noise impacts along roadways and at intersections with adjacent existing sensitive receptors were analyzed using threshold (1) discussed in the Methodology and Assumptions section on page 3.2-17. Under this threshold, a traffic noise impact is considered to be significant where the Year 2040 with-project noise environment is greater than the “Normally Acceptable” noise level and the Project-related traffic noise increase relative to the 2040 without-project baseline is greater than 3 dB.

Modeling demonstrated that noise levels along one segment (North Canyons Parkway West of Airway Boulevard) would increase by 11 dB to 68 dBA with implementation of the proposed Project. Under existing conditions, this area includes vacant, industrial, business park, and commercial uses and experiences noise levels of 57 dBA Ldn. Under the proposed Project, this area would be redesignated as General Commercial and Business Park. As shown in Table 3.4-8, noise levels are considered “Normally Acceptable” up to 70 dBA at office and commercial land uses and up to 75 dBA at industrial uses. While implementation of the proposed Project would increase noise levels by more than 3 dB along this segment, with-project and existing noise levels (68 dBA and 57 dBA, respectively) would both be considered “Normally Acceptable.” Therefore, the project-related traffic noise increase along this segment would result in a less than significant impact.

Table 3.4-10 presents Year 2040 without-project and Year 2040 with-project noise levels for segments where a potentially significant traffic noise impact would occur due to an increase of 3 dB or more from without-project conditions in areas where Year 2040 with-project noise levels are in excess of the applicable land use compatibility guidelines. The 60 dBA Ldn compatibility guideline was applied in all cases, as all residences in these areas would fit into the “low density, single family, duplex, and mobile home residential land use” category. Modeling results for all segments are included in Appendix D.

As shown in Table 3.4-10 three existing roadway segments would experience a 3 dB or more increase in areas where baseline without-project or resulting baseline with-project noise levels are in excess of the applicable land use compatibility guidelines (60 dBA Ldn in all cases). Potential impacts for the three roadway segments are described in detail below.

PORTOLA AVENUE EAST OF TRANQUILITY CIRCLE

Along the segment of Portola Avenue East of Tranquility Circle, Year 2040 without-project noise levels would be 64.7 dBA Ldn, and Year 2040 with-project noise levels would be 67.7 dBA Ldn under the proposed Project (both of which are in excess of the compatibility guideline). As future noise levels would be in excess of the 60 dBA Ldn, compatibility guidelines for single-family or duplex/townhome-style residences, the project-related traffic noise increase of 3.0 dB along Portola Avenue East of Sandalwood Drive would result in a potentially significant impact.

EAST AIRWAY BOULEVARD EAST AND WEST OF RUTAN DRIVE

Along the segments of East Airway Boulevard east and west of Rutan Drive, Year 2040 without-project noise levels would be 63.2 and 63.9 dBA Ldn (respectively), and Year 2040 with-project noise levels would be 66.5 and 67.0 dBA Ldn (respectively) under the proposed Project (both of which are in excess of the compatibility guideline). As future noise levels would be in excess of the 60 dBA Ldn, compatibility guidelines for single-family or duplex/townhome-style residences, the project-related traffic noise increase of 3.1 to 3.3 dB would result in a potentially significant impact.

EAST AIRWAY BOULEVARD EAST OF SUTTER STREET AND WEST OF VIA MATEO

Under the proposed Project, noise levels along the segment of East Airway Boulevard east of Sutter Street and west of Via Mateo (the entrance to Sun Valley Mobile Estates) would be 61.9 dBA Ldn under Year 2040 without-project conditions whereas Year 2040 with-project noise levels would be 65.2 dBA Ldn (both of which are in excess of the compatibility guideline). Although residences located along some of East Airway Boulevard near Sutter Street would be exposed to noise from I-580, which could overshadow noise from traffic on the local roadway, the existing freeway sound wall located on the south side of the I-580 along East Airway would substantially reduce highway noise. As such, freeway noise would not be expected to overshadow noise from East Airway Boulevard along this segment. As future noise levels would be in excess of the 60-dBA Ldn compatibility guideline along this segment, the project-related traffic noise increase of 3.3 dB would result in a potentially significant impact.

The single-family homes near the intersection of Sutter Street and East Airway Boulevard, however, are located between 200 and 300 feet away from the centerline, which is much further than the modeled standard distance of 50 feet from the roadway centerline. At a distance of 200 feet, the noise level would be reduced from 66 dB Ldn to 60 dB Ldn, not accounting for shielding that is provided by the existing berm (south of East Airway Boulevard) that blocks the line of sight from East Airway Boulevard to these single-family homes. The berm would further reduce the noise level by approximately 5 dB under both Year 2040 without-project and Year 2040 with-project conditions. With the reduction in noise from the berm, noise levels under both with-project and without-project conditions would be less than 60 Ldn. Impacts to the single-family homes located along East Airway Boulevard east of Sutter Street would therefore be less than significant.

The mobile homes located east of this single-family development are much closer to East Airway Boulevard and would be therefore be exposed to higher noise levels. While the mobile homes are protected by a freeway soundwall, it is located further away from them to the north behind existing businesses and would not substantially reduce noise levels along East Airway Boulevard. As the project-related traffic noise increase in this area would be in excess of 3 dB and as noise levels under with-project scenarios would be in excess of 60 Ldn, traffic noise impacts at these mobile homes located along the segment of East Airway Boulevard east of Sutter Street would be potentially significant.

EAST AIRWAY BOULEVARD EAST OF VIA MATEO AND WEST/N OF PORTOLA AVENUE

The segment of East Airway Boulevard west/north of Portola Avenue and east of Via Mateo (the entrance to Sun Valley Mobile Estates) would experience noise levels of 62.9 dBA Ldn under Year 2040 without-project conditions. Noise levels under Year 2040 with-project noise levels would be 68.5 dBA Ldn. Therefore, the project-related traffic noise increase along this segment would be 5.6 dB.

Although the centerline of I-580 is located approximately 130 feet from the centerline of East Airway Boulevard along the western portion of the segment, East Airway Boulevard veers south, away from I-580, along the eastern portion of this segment. Near the intersection of East Airway Boulevard and Portola Avenue, this segment is located over 1,100 feet from the centerline of I-580. Noise from I-580 drops off at a rate of 3 dB per doubling of distance as the roadway veers away from the freeway. Therefore, freeway noise may not overshadow the noise from the local roadway (East Airway Boulevard) in this area. In addition, the existing freeway noise barrier would reduce freeway noise in the area substantially, so freeway noise would be less likely to overshadow noise from the local roadway.

Because Year 2040 noise levels from East Airway Boulevard would be in excess of the 60-dBA Ldn compatibility guideline in this area, the Plan-related traffic noise increase of 45.6 dB that would occur along the segment of East Airway Boulevard west/north of Portola Avenue under the proposed Project would result in a potentially significant impact.

Table 3.6-11 replaced by Table 3.4-10 as follows.

Table 3.4-10: Roadway Segments with Project-related Traffic Noise Level Increases of 3 dB or More

Roadway	Segment Location	Distance (feet)	Existing Land Use Category	Future Land Use Category	Existing Land Use Compatibility Guideline (dBA Ldn)	Existing dB Ldn	Year 2040 Without- Project dB Ldn	Year 2040 + Project dB Ldn	2040 Delta (Ldn)	Significant Impact due to 3 dB increase?
Portola Avenue	East of Tranquility Circle	50	LD/SFR/ Duplex/MH	LD/SFR/ Duplex/ MH	60	64.7	64.7	67.7	3.0	Yes
E. Airway Boulevard	West of Rutan Drive	50	I	C	75	65.5	63.9	67.0	3.1	Yes
E. Airway Boulevard	East of Rutan Drive	50	I	C/MFR	75	63.2	63.2	66.5	3.3	Yes
E. Airway Boulevard	East of Sutter Street and west Via Mateo	50	LD/SFR/ Duplex/MH	LD/SFR/ Duplex/ MH	60	61.9	61.9	65.2	3.3	Yes
E. Airway Boulevard	East of Via Mateo and West/N of Portola Avenue	50	LD/SFR/ Duplex/MH	LD/SFR/ Duplex/ MH	60	62.6	62.6	68.5	5.6	Yes

Notes:

LD/SFR/Duplex/MH= Residential – Low Density, Single Family, Duplex, Mobile Homes

MFR = Multi-Family Residential

C = Office Buildings, Businesses, Commercial and Professional

I = Industrial, Manufacturing, Utilities, Agriculture

NA = no currently developed sensitive use located along this segment.

In areas where multiple uses are located along a single segment, the most stringent (aka 60 dBA Ldn) standard applies.

Source: Salter, 2020.

Conclusions related to Traffic Noise Impacts at Existing Sensitive Land Uses

As described above, potentially significant traffic noise impacts to existing residences would be expected to occur along three roadway segments under the proposed Project. With the exception of the freeway soundwall along Portola Avenue, there are no other intervening soundwalls or other features that would reduce the contribution of future projects under the proposed Project along these segments. Therefore, project-related traffic noise impacts along three roadway segments would be significant.

Implementation of Mitigation Measure NOI-1, described below, could reduce noise levels at impacted receptors along these roadway segments to less than significant levels. However, it may not be feasible in all cases to implement the measures identified in Mitigation Measure NOI-1 (e.g, it may not be possible to build a solid soundwall if there are driveways along the segment). This impact is therefore considered to be significant and unavoidable.

Mitigation Measures

MM NOI-1 Implement Traffic Noise Reduction Measures at Existing Sensitive Receptors.

The City shall implement off-site traffic noise reduction measures along the following three roadway segments such that the Plan-related increase in traffic noise for sensitive receptors is 3 dB or less:

- Portola east of Tranquility Circle
- East Airway Boulevard east of Sutter Street and west of Via Mateo (around the mobile home development)
- East Airway Boulevard east of Via Mateo and West/N of Portola Avenue (around the mobile home development)

Measures that can be implemented include, but are not limited to:

- Construction of solid barriers between the roadway and adjacent residential uses; and
- Installation of “quiet” pavement, such as open-graded asphalt, along the area of the roadway adjacent to residences.

The City shall prepare a noise control plan for impacted existing land uses that identifies the location, design, and effectiveness of the specific treatments to be implemented.

Traffic Noise Compatibility for Future On-site Sensitive Land Uses

Year 2040 with-project traffic would result in noise levels in excess of the land use compatibility standard in some areas. For the purposes of this analysis, all roadway segments modeled to have Year 2040 with-project noise levels in excess of 60 dBA Ldn (which is the most conservative compatibility standard, and applies to low density, single-family, duplex, and mobile home residential land uses) were analyzed more closely to determine potential land use compatibility conflicts for proposed Project land uses.

Note that up to 70 dBA Ldn is considered to be “Conditionally Acceptable” for both multi-family and single-family residential uses, with the inclusion of necessary noise insulation or protection features as determined after a detailed analysis of the noise environment and the project characteristics. These noise insulation features may include measures to protect noise-sensitive outdoor activity areas (e.g., at residences, schools, or parks) or may include building sound insulation treatments such as sound-rated windows to protect interior spaces in sensitive receptors. However, to provide a conservative analysis, the “normally acceptable” noise level of 60 dBA Ldn for low density, single-family, duplex (including townhome-style homes), and mobile home residential uses and 65 dBA Ldn for multi-family residential uses were used.

As described previously, all analyzed roadway segments that were modeled to have Year 2040 with-project noise levels in excess of 60 dBA Ldn were identified as areas with potentially significant effects and analyzed further. Land use diagrams for the proposed Project were reviewed, and the proposed future land uses located along each of the potentially affected roadway segments were identified. The actual land use compatibility guidelines, based on the actual land uses in each area, were then identified for each potentially affected segment, and a more detailed analysis was conducted. This more detailed analysis entailed comparing Year 2040 with-project noise levels to the actual/applicable compatibility guideline for the specific land use located along each roadway segment.

According to this analysis, 28 roadway segments within the Planning Area are expected to have Year 2040 with-project noise levels in excess of the land use compatibility standard that applies to the proposed adjacent land uses. These segments are identified in Table 3.4-11. Refer to Appendix D for all of the modeling results of the Year 2040 with-project traffic noise analysis.

As shown in Table 3.4-11, many of the planned land uses associated with the proposed Project may be located in areas that could be considered incompatible with the Year 2040 with-project noise levels in the area based on this analysis.

Table 3.6-12 replaced by Table 3.4-11 as follows.

Table 3.4-11: Roadway Segments with Project-related Traffic Noise Level Increases of 3 dB or More

<i>Roadway</i>	<i>Segment Location</i>	<i>Future Land Use Type</i>	<i>Land Use Compatibility Guideline (dBA Ldn) for Future Uses</i>	<i>Year 2040 + Project dB Ldn</i>	<i>Exceedance of Compatibility Standard?</i>
North Canyons Parkway	West of Gateway Drive	LD/SFR/Duplex/MH & C	60/70	67.3	Yes
North Canyons Parkway	East of Gateway Drive ^a	LD/SFR/Duplex/MH	60	65.5	Yes
North Canyons Parkway	West of Collier Canyon Road ^a	LD/SFR/DUPLEX/MH	60	67.9	Yes
North Canyons Parkway	East of Collier Canyon Road	LD/SFR/DUPLEX/MH	60	66.1	Yes
Portola Avenue	West of Road 1	LD/SFR/DUPLEX/MH & MFR	60/65	65.9	Yes
Portola Avenue	East of Road 1 and West of Road 2	LD/SFR/DUPLEX/MH & MFR	60/65	65.9	Yes
Portola Avenue	East of Road 2 and West of Main Street	LD/SFR/DUPLEX/MH & MFR	60/65	66.3	Yes
Portola Avenue	East of Main Street and West of Montage Drive/Road 3	LD/SFR/DUPLEX/MH & MFR	60/65	66.3	Yes
Portola Avenue	East of Montage Drive/Road 3 and West of Road 4	LD/SFR/DUPLEX/MH & MFR	60/65	66.2	Yes
Portola Avenue	East of Road 4	MFR	65	66.2	Yes
Portola Avenue	West of Tranquility Circle	LD/SFR/DUPLEX/MH	60	67.9	Yes
Portola Avenue	East of Tranquility Circle	LD/SFR/DUPLEX/MH	60	67.2	Yes

Table 3.4-11: Roadway Segments with Project-related Traffic Noise Level Increases of 3 dB or More

Roadway	Segment Location	Future Land Use Type	Land Use Compatibility Guideline (dBA Ldn) for Future Uses	Year 2040 + Project dB Ldn	Exceedance of Compatibility Standard?
Portola Avenue	North of E. Airway Blvd	LD/SFR/DUPLEX/MH	60	67.2	Yes
Portola Avenue	South of Intersection w E. Airway Blvd	LD/SFR/DUPLEX/MH	60	68.9	Yes
Portola Avenue	West of Murrieta	LD/SFR/DUPLEX/MH	60	68.6	Yes
Portola Avenue	East of Murrieta	LD/SFR/DUPLEX/MH	60	69.0	Yes
E. Airway Boulevard	East of Valley Link Access and West of Stealth Street	MFR	65	66.5	Yes
E. Airway Boulevard	East of Stealth Street	LD/SFR/DUPLEX/MH	60	65.8	Yes
E. Airway Boulevard	West/N of Portola Avenue	LD/SFR/DUPLEX/MH	60	66.3	Yes
Isabel Avenue	North of Portola Avenue	LD/SFR/DUPLEX/MH	60	63.6	Yes
Isabel Avenue	South of Portola Avenue ^b	LD/SFR/DUPLEX/MH	60	68.3	Yes
Isabel Avenue	North of Road 5 ^b	LD/SFR/DUPLEX/MH	60	67.1	Yes
Isabel Avenue	South of Road 5 and North of Valley Link Parking Road/Access (North)	MFR	65	68.2	Yes
Isabel Avenue	South of Valley Link Parking Road/Access ^c	C	70	73.9	Yes
Isabel Avenue	North of WB ramps ^c	C	70	74.5	Yes

Table 3.4-11: Roadway Segments with Project-related Traffic Noise Level Increases of 3 dB or More

Roadway	Segment Location	Future Land Use Type	Land Use Compatibility Guideline (dBA Ldn) for Future Uses	Year 2040 + Project dB Ldn	Exceedance of Compatibility Standard?
Collier Canyon Road	North of N Canyons Pkwy	LD/SFR/DUPLEX/MH	60	63.3	Yes
Valley Link Access	South of E. Airway Boulevard	LD/SFR/DUPLEX/MH & MFR	60/65	60.1	Yes
I-580	From Isabel Avenue to North Livermore Avenue	LD/SFR/DUPLEX/MH & MFR	60/65/70	80.9	Yes

Notes:

LD/SFR/Duplex/MH= Residential – Low Density, Single Family, Duplex, Mobile Homes

MFR = Multi-Family Residential

C = Office Buildings, Businesses, Commercial and Professional

I = Industrial, Manufacturing, Utilities, Agriculture

NA = no currently developed sensitive use located along this segment.

In areas where multiple uses are located along a single segment, the most stringent (aka 60 dBA Ldn) standard applies.

a. These two segments represent North Canyons Parkway between Gateway Drive and Collier Canyon Road. Traffic volumes at each end of the roadway segment are different as a result of driveway access between the two intersections that is not specifically addressed in the traffic analysis.

b. These two segments represent Isabel Avenue between Portola Avenue and Road 5. Traffic volumes at each end of the roadway segment are different as a result of driveway access between the two intersections that is not specifically addressed in the traffic analysis.

c. These two segments represent Isabel Avenue between the Valley Link Parking Road/Access Road and the WB I-580 ramps located north of I-580. Traffic volumes at each end of the roadway segment are different as a result of driveway access between the two intersections that is not specifically addressed in the traffic analysis.

Source: Salter, 2020.

City of Livermore General Plan Policy P2 under Objective N-1.2 calls for the adoption of design standards and the identification of effective noise attenuation programs to prevent noise or reduce noise to acceptable levels in areas with noise levels greater than 65 dBA CNEL:

General Plan Policy P2. The City shall require applicants for new noise-sensitive development, such as private schools, residences, and private hospitals, in areas subject to noise levels greater than 65 dBA CNEL to obtain the services of a professional acoustical engineer to provide a technical analysis and to design mitigation measures to attenuate noise to acceptable levels.

However, some proposed Project land uses are either low density, single family, duplex, or mobile homes (refer to the compatibility guidelines in Table 3.4-8) that are normally compatible with noise levels of 60 dBA Ldn/CNEL or below, lower than the 65 dBA CNEL threshold for the General Plan policy requirement of an acoustical analysis. Therefore, compliance with this General Plan policy would not ensure less than significant impacts for all new land uses associated with the proposed Project. This impact would be considered potentially significant.

Implementation of the proposed Project policies (described below) would ensure that interior noise levels would be within allowable levels for new uses developed under the Plan, and would ensure that exterior noise levels affecting common open space areas within private developments or recreation facilities would be below 70 dBA CNEL/Ldn.

Policy P-LU-19 described below, would help to reduce exterior noise levels at new land uses under the proposed Project by requiring that project applicants for future development prepare a detailed acoustical analysis of the noise environment and project characteristics. However, as it may not be possible to reduce exterior noise to compatible levels in all instances, traffic noise impacts to future land uses developed under the proposed Project would remain significant and unavoidable even with implementation of proposed policies.

Proposed Project Goals and Policies that Reduce the Impact

Land Use Chapter

P-LU-19: Require that project applicants for future development in areas where noise is predicted to exceed compatibility standards prepare a detailed acoustical analysis of the noise environment and project characteristics. The analysis should determine whether noise insulation or protection features are required to achieve consistency with the applicable exterior and interior noise compatibility standards. The City shall review and approve the acoustical analyses for proposed projects prior to the issuance of building permits or as part of the planning entitlement process. Project applicants shall then be required to implement measures to ensure exterior and interior noise compatibility with the applicable standards, where feasible.

Environmental Resources Chapter

- P-ENV-2: All residential building spaces must be improved or constructed in such a manner that noise levels do not exceed a maximum decibel rating of 45 dBA with windows closed. If windows must be closed 100% of the time to achieve this standard, a fresh air ventilation system must be utilized.
- P-ENV-3: Require residential and other noise sensitive land uses within the 60 dBA or higher contours for freeway or major street noise to complete a noise analysis to verify that the interior noise standard can be met.
- P-ENV-4: Although not anticipated, any noise sensitive land uses within the 60 dBA contour for the airport shall incorporate adequate noise attenuation into the design and site planning of the project in order to achieve an interior noise level of not more than 45 dBA CNEL.
- P-ENV-5: Recreational facilities within new public parks and common open space areas on private development sites should be located and designed such that ambient noise levels do not exceed 70 dBA CNEL. This guideline does not apply to multi-use trails or private outdoor spaces within developments (refer to Chapter 2, Land Use, for open space definitions).

Mitigation Measures

No mitigation measures are available to reduce this impact to less than significant levels.

Train Noise from Valley Link

Future train noise associated with the Valley Link train at the Isabel Station will be evaluated in the Valley Link Project Draft Environmental Impact Report, scheduled to be published Fall 2020 by the Tri-Valley San Joaquin Valley Regional Rail Authority.

Mitigation Measures

None required.

Operational Noise from Noise-Generating Stationary Equipment

Development under the proposed Project would have the potential to result in increased noise levels from new stationary noise sources which could be located near sensitive land uses. The development of new residences close to existing noise-generating land uses could also result in the exposure of residential land uses to noise that exceeds the City's noise standards. Stationary sources of noise could include car washes, recycling yards, industrial or manufacturing facilities, and HVAC equipment.

Because this is a program-level analysis, it is not possible at this time to determine the extent that noise sensitive land uses would be exposed to noise from equipment (as the specifics of equipment associated with future development is not known).

Future development under the proposed Project, however, would be required to comply with policies included in the City's General Plan that would help reduce noise effects in the Planning Area. For example, Objective N-1.5 from the General Plan pertains to noise generated by mechanical equipment ("reduce the level of noise generated by mechanical and other noise generating equipment by means of public education, regulation, and/or political action"). Policy P1 under this objective states that the City shall require that industrial and commercial uses be designed and operated so as to avoid the generation of noise effects on surrounding sensitive land uses (e.g., residential, churches, schools, hospitals) from exceeding the following noise levels for exterior environments: (a) 55 dBA L50 (7:00 a.m. to 10:00 p.m.) (b) 45 dBA L50 (10:00 p.m. to 7:00 a.m.).

However, even with General Plan Policy P1 under Objective N-1.5, it is possible that stationary sources (such as mechanical equipment) could result in excessive noise at adjacent noise-sensitive land uses. This impact would be potentially significant.

Implementation of Policy P-ENV-7, listed below, would further reduce noise impacts from stationary sources of noise to less-than-significant levels.

Proposed Project Goals and Policies that Reduce the Impact

Environmental Resources Chapter

P-ENV-7: The following limits shall apply to noise-generating land uses, as measured from the property line:

- In residential areas of the Isabel Neighborhood, exterior noise levels may not exceed 65 dBA from 7:00 a.m. to 12:00 a.m. or 60 dBA from 12:00 a.m. to 7:00 a.m.
- Along Main Street and in the office, commercial, or business park areas of the Isabel Neighborhood, exterior noise levels may not exceed 75 dBA from 7:00 a.m. to 12:00 a.m. or 65 dBA from 12:00 a.m. to 7:00 a.m.

Mitigation Measures

None required.

Special Event Operational Noise

The proposed Project would include the development of parks and plazas which could be used for gatherings or events. The types of potential events that would occur in the Planning Area are not known at this time, so it is not possible to estimate potential noise generated by gatherings in these areas. However, all special events would be required to obtain a special event permit in accordance with the City of Livermore rules. To obtain a permit, event organizers must "be certain that all event activities comply with the local laws applicable to noise abatement" (City of Livermore, 2017a). The general noise compatibility guidelines from the City of Livermore General Plan are shown in Table 3.4-8. As any special event in the City would need to obtain a permit and demonstrate that they would comply with the local applicable noise standards, noise impacts related to special events occurring in the Planning Area would be less than significant.

Mitigation Measures

None required.

Impact 3.4-2 Implementation of the proposed Project could expose persons to or generate excessive groundborne vibration or ground-borne noise levels. (*Significant and Unavoidable*)

Construction Vibration

Future development under the proposed Project would result in construction activities that could generate temporary groundborne vibration. Typical vibration levels are shown in Table 3.4-12 (FTA, 2006). Construction activities associated with new development would be temporary and related vibration impacts would be short-term. Construction activity can result in varying degrees of vibration, depending on the type of machinery used.

Heavy duty equipment associated with some construction activities can produce vibration that may be felt by adjacent uses. The main concern associated with this type of vibration is annoyance. In extreme cases, vibration can cause damage to buildings, particularly those that are old or otherwise fragile. Activities such as pile-driving, blasting, and drilling have the highest potential for creating groundborne vibration impacts. The potential construction-related vibration impacts depend on the proximity of construction activities to sensitive receptors, the presence of intervening barriers, the number and types of construction equipment, and duration of construction equipment use. Perceptible groundborne vibration is generally limited to areas within a few hundred feet of construction activities.

It is not known if and where pile driving or other activities that generate high levels of vibration, such as drilling, may occur. However, it is likely that excavation or the use of a large bulldozer, which also generates vibration, would occur for many future development projects.

Future and existing development adjacent to construction sites could be exposed to excessive groundborne vibration temporarily (i.e. vibration that is distinctly perceptible [0.04 PPV in/sec] or stronger, based on Table 3.4-6). Table 3.4-12 shows that a pile driver, a hoe ram or large bull dozer (which generates vibration levels similar to an excavator), and loaded trucks all have the potential to generate vibration levels greater than the distinctly perceptible level of 0.04 PPV in/sec at a distance of 25 feet. At distances greater than 50 feet, only a pile driver (impact or vibratory/sonic) would be expected to generate distinctly perceptible vibration. An impact pile driver could create distinctly perceptible vibration (0.04 PPV in/sec) at distances of up to approximately 300 feet, and a sonic/vibratory pile driver could generate distinctly perceptible vibration at distances of up to 175 feet.

As construction equipment operating within 25 feet of sensitive land uses could generate distinctly perceptible vibration, non-pile driving construction activities occurring within 25 feet of sensitive uses could result in significant vibration impacts. In addition, pile driving occurring within approximately 175 feet or 300 feet of sensitive uses for vibratory/sonic pile drivers and impact pile drivers, respectively, could also result in significant vibration impacts. As the specific future projects to be developed under the INSP are not known at this time, and as the level of construction activity

that would occur at various locations for future projects is also not known, it is possible the future construction activities could result in significant vibration impacts.

Table 3.4-12. Vibration Source Levels for Construction Equipment

<i>Equipment</i>	<i>PPV at 25 Feet</i>	<i>PPV at 50 Feet</i>	<i>PPV at 75 Feet</i>	<i>PPV at 100 Feet</i>	<i>PPV at 175 Feet</i>	<i>PPV at 300 Feet</i>
Pile driver (impact) ^a	0.65	0.230	0.125	0.081	0.035	0.016
Pile driver (sonic/vibratory) ^a	0.65	0.230	0.125	0.081	0.035	0.016
Hoe ram	0.089	0.0315	0.0171	0.0111	0.0048	0.002
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048	0.002
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.0041	0.002
Jackhammer	0.035	0.0124	0.0067	0.0044	0.0019	0.001
Small bulldozer	0.003	0.0011	0.0006	0.0004	0.0002	0.000

Notes:

The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2013b) is used as the source for vibration from a vibratory pile driver.

PPV = peak particle velocity

Source: Federal Transit Administration 2006.

Proposed policy P-ENV-6 below would help reduce construction vibration effects at future and existing sensitive land uses. This policy would require developers constructing new development in the Planning Area to implement measures to reduce vibration. Such measures could include: operating heavy equipment as far as practical from residential uses; using smaller bulldozers (operating weight less than 20,000 pounds) when grading must occur within approximately 50 feet of residential uses or other vibration sensitive uses; and using quiet pile driving technology when feasible. However, even with these measures, it may not be feasible in all cases to mitigate construction vibration from individual projects to a less-than-significant level. While future developments may be able to achieve the necessary reduction through a combination of various different mitigation strategies, it is not possible to determine with a reasonable degree of certainty that it would be feasible for all future development in the Planning Area to do so. Therefore, this impact would be significant and unavoidable, even with the proposed policy.

Proposed Project Goals and Policies that Reduce the Impact

P-ENV-6: Reduce vibration impacts associated with construction activities by requiring construction contractors to implement measures to help reduce vibration levels at nearby sensitive receptors. Measures to reduce vibration levels include, but are not limited to, the following:

- Operating heavy equipment as far as practical from residential uses;
- Using smaller bulldozers (operating weight less than 20,000 pounds) when grading must occur within approximately 50 feet of residential uses or other vibration sensitive uses; and
- Using quiet pile driving technology (such as predrilling piles, using sonic or vibratory pile drivers, or using more than one pile driver to shorten the total duration of pile driving).

Mitigation Measures

No mitigation measures are available to reduce this impact.

Stationary Source Vibration

As development occurs, there is generally a potential for more operational vibration sources to be developed. However, implementation of the proposed Project would not directly result in an increase of operational sources of vibration in the city. Additionally, should mechanical equipment be installed or new sources of vibration be constructed, the potential vibration effects would be analyzed in a project-specific environmental analysis. Further, vibration from mechanical equipment is generally localized, and it is unlikely that vibration effects would occur outside the immediate vicinity of the vibration-generating mechanical equipment. Stationary source vibration impacts associated with implementation of the proposed Project would be less than significant.

Mitigation Measures

None required.

Traffic Vibration

Groundborne vibration generated by traffic traveling on roadways is generally below the threshold of perception at adjacent land uses, unless there are severe discontinuities in the roadway surface. This analysis assumes that roadways in the Planning Area are or would be reasonably maintained, with no severe discontinuities. Therefore, vibration generated by operational traffic would be less than significant.

Mitigation Measures

None required.

Train Vibration

Future train noise associated with the Valley Link train at the Isabel Station will be evaluated in the Valley Link Project Draft Environmental Impact Report, scheduled to be published Fall 2020 by the Tri-Valley San Joaquin Valley Regional Rail Authority. Vibration from the proposed Valley Link project will likely be evaluated in the EIR using the general vibration assessment approach described in the FTA guidance, which focuses on public disturbance from vibration. The guidance provides information on typical groundborne vibration levels for rapid transit, light rail vehicles, and locomotives as a function of distance. The FTA guidance considers vibration from light rail vehicles and rapid transit vehicles (such as Valley Link) to be similar.

Vibration from rail operations can cause damage to buildings in addition to causing annoyance. However, damage impacts are typically only a concern if the buildings are adjacent to the tracks and constructed of materials that are susceptible to cracking. Given that the tracks are in the middle of I-580, there would be no structures adjacent to the tracks. As such, there would be no impacts related to damage from train vibration within the Planning Area.

The FTA has established vibration-specific screening distance criteria, which are used as a first step to establishing the potential for vibration impacts to sensitive land uses. Table 3.4-13 presents the FTA-recommended screening distances for vibration impacts. According to this analysis, if no sensitive land uses are within the distances noted in Table 3.4-13, no further vibration analysis is needed (FTA, 2006).

Table 3.4-13. Screening Distances for Operational Vibration Assessment

Type of Project Facility	Screening Distance (feet)		
	Category 1	Category 2	Category 3
Rail Rapid Transit (Proposed Project)	600	200	120
Conventional Commuter Railroad	600	200	120

Notes:

Category 1: Buildings where vibration would interfere with interior operations (research facilities, hospitals with vibration sensitive equipment)

Category 2: Residences and buildings where people normally sleep

Category 3: Institutional land uses with primarily daytime uses (schools, churches)

Source: Federal Transit Administration (FTA), 2006.

Although no specific Category 1 facilities (e.g. research facilities, hospitals with vibration sensitive equipment) are proposed to be located within 600 feet of the Valley Link track under the proposed Project, it is possible that a research and development use could be located in the Office or Business Park areas of the plan. Although it is unlikely that vibration-sensitive equipment would be located inside of the Office or Business park portions of the Plan area, it is possible. However, Policy P-LU-20, described below, would ensure that no facilities that include the use of vibration-sensitive equipment would be located within this 600-foot screening distance of the Valley Link tracks.

Note that no Category 2 land uses (residences and buildings where people normally sleep) are proposed to be located within the 200-foot screening distance, and none are closer than approximately 500 from Valley Link tracks. Finally, no Category 3 Land uses (e.g. schools, churches) are proposed to be located within 120 feet of the Valley Link tracks.

As no Category 2 or Category 3 land uses would be located within the FTA screening distances from the Valley Link tracks, and as implementation of Policy P-LU-20 below would ensure that no Category 1 land uses would be located within the applicable screening distance (600 feet) of the Valley Link tracks, vibration impacts from Valley Link operations to the proposed INSP development would be less than significant.

Proposed Project Goals and Policies that Reduce the Impact

P-LU-20: Prohibit Category 1 facilities (according to the FTA guidelines, including research facilities with vibration-sensitive equipment) that use vibration-sensitive equipment that could be affected by Valley Link train vibration in areas located within 600 feet of the Valley Link tracks (Noting that 600 feet is the FTA screening distance for Category 1 land uses). These types of facilities shall be allowed within the Planning Area in locations that are more than 600 feet from the Valley Link tracks.

Mitigation Measures

None required.

Impact 3.4-3 Implementation of the proposed Project could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
(Significant and Unavoidable)

Traffic Noise

As discussed under Impact 3.4-1, proposed Project implementation would result in potentially significant traffic noise increases along some segments within the Planning Area. These impacts could not be reduced to less than significant levels, as implementation of Mitigation Measure NOI-1, described previously, may not always be feasible. Therefore, impacts related to a substantial permanent increase in noise from project-related increased traffic would be significant and unavoidable.

Mitigation Measures

MM NOI-1. Implement Traffic Noise Reduction Measures at Existing Sensitive Receptors.

Stationary Equipment Noise

Noise from mechanical equipment in the Planning Area could include HVAC and other mechanical equipment (e.g., larger mechanical equipment, emergency generators, etc.). As discussed under Impact 3.4-1 above, Policy P1 under Objective N-1.5 in the City General Plan states that the City shall require that industrial and commercial uses be designed and operated so as to avoid the generation of noise effects on surrounding sensitive land uses (e.g., residential, churches, schools, hospitals) from exceeding the following noise levels for exterior environments: (a) 55 dBA L50 (7:00 a.m. to 10:00 p.m.) (b) 45 dBA L50 (10:00 p.m. to 7:00 a.m.).

In addition, Policy P-ENV-8 under the proposed Project, described previously, would ensure that noise from noise-generating land uses, as measured from the property line, would be limited as follows:

- In residential areas of the Isabel Neighborhood, exterior noise levels may not exceed 65 dBA from 7:00 a.m. to 12:00 a.m. or 60 dBA from 12:00 a.m. to 7:00 a.m.
- Along Main Street and in the office, commercial, or business park areas of the Isabel Neighborhood, exterior noise levels may not exceed 75 dBA from 7:00 a.m. to 12:00 a.m. or 65 dBA from 12:00 a.m. to 7:00 a.m.

As discussed previously, noise impacts related to a substantial permanent increase in noise from the use of stationary equipment in the Planning Area would be less than significant with implementation of this policy.

Proposed Project Goals and Policies that Reduce the Impact

Policy P-ENV-7 as listed under Impact 3.4-1 above.

Mitigation Measures

None required.

Impact 3.4-4 Implementation of the proposed Project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
(*Less than Significant*)

Construction Noise

As discussed under Impact 3.4-1, construction associated with future development under the proposed Project would be required to comply with the hourly restrictions (no construction occurring from 6:00 p.m. Saturday to 7:00 a.m. Monday; 8:00 p.m. to 7:00 a.m. on Monday, Tuesday, Wednesday, and Thursday; 8:00 p.m. Friday to 9:00 a.m. on Saturday, and no construction allowed on City-observed holidays). Outside of these hours, construction is allowed in the city and is not governed by a specific noise-level restriction. Therefore, noise increases resulting from construction during exempt hours would not be considered substantial. As development associated with the proposed Project would comply with the hourly restrictions for construction activities,

noise impacts related to a substantial temporary increase noise from construction activities would be less than significant.

Mitigation Measures

None required.

Special Event Noise

As discussed above under Impact 3.4-1, the proposed Project would include the development of parks and plazas which could be used for gatherings or events. The types of potential events are not known at this time, so it is not possible to estimate potential temporary or periodic noise generated by gatherings in these areas. However, all special events would be required to obtain a special event permit in accordance with the City of Livermore rules. To obtain a permit, event organizers must “be certain that all event activities comply with the local laws applicable to noise abatement” (described previously; City of Livermore, 2017a). Any special event in the City would need to obtain a special event permit in accordance with the City of Livermore rules. To obtain a permit, event organizers must “be certain that all event activities comply with the local laws applicable to noise abatement” (City of Livermore, 2017a). Therefore, noise impacts related to special events occurring in the proposed Planning Area would be less than significant.

Mitigation Measures

None required.

Impact 3.4-5 The proposed Project would be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, but would not expose people residing or working in the project area to excessive noise levels. *(Less than Significant)*

The closest public airport to the Planning Area is the Livermore Municipal Airport. This public airport has 459 aircraft based at the field, and is located adjacent to the southern border of the Planning Area. The 65, 60 and 55 CNEL contours for the airport extend at least partially into the Planning Area, as shown in Figure 3.4-1. The noise compatibility criteria for the Livermore Municipal Airport are shown in Table 3.4-14.

The portions of the Planning Area that are within the 65 CNEL contour are either proposed open space or business park land uses under the proposed Project. The portions of the Planning Area that are within the 60 CNEL contour are either proposed business park, open space or general commercial land uses. Finally, the portions of the Planning Area that are within the 55 CNEL contour are either proposed business, commercial, school, open space and residential land uses.

According to the Noise Compatibility Criteria (Table 3-1 in the ALUCP, Table 3.4-14), commercial and industrial uses, school land uses, multi-family residential and hotel land uses, and most agricultural, recreational and outdoor uses are compatible (“permitted”) in areas where noise is less than 65 CNEL, and are considered conditionally compatible in areas where noise is greater than 65

CNEL. Single-family residential is considered permitted in areas where noise is below 60 CNEL and conditionally compatible in areas where noise is below 65 CNEL (Alameda County, 2012). Therefore, as shown in Table 3.4-15, all proposed land uses associated with the Planning Area are located in areas where they would be compatible with the noise from the Livermore Airport.

Although new residential uses under the proposed Project would be located outside the 55 dBA noise contours, occasional overflight noise would likely be audible at proposed future residences. Residents in the vicinity of the airport may consider this airport overflight noise to be an annoyance, in part because peak-hour noise would likely be greater than a 24-hour CNEL noise level. Because of this, even though all proposed land uses in the Planning Area would be located in areas where they would be compatible with airport noise, the proposed Project includes policies to help further address concerns related to annoyance from airport noise.

As all proposed land uses associated with the proposed Project would be located in areas where they would be compatible with the noise from the Livermore Airport, impacts related to the exposure of people residing or working in the Planning Area to excessive noise levels from aircraft at a public airport would be less than significant. In addition, policies included in the proposed Project would help to further reduce any annoyance associated with occasional overflight noise. One policy that would help reduce the annoyance related to aircraft noise at future land uses is Policy P-ENV-4, which states that, although not anticipated, any noise sensitive land uses within the 60 dBA contour for the airport shall incorporate adequate noise attenuation into the design and site planning of the project in order to achieve an interior noise level of not more than 45 dBA CNEL. Policy P-ENV-10 from the INSP would also help to ensure annoyance from aircraft noise would be minimized to the extent practicable, by increasing resident awareness of their proximity to the Livermore Municipal Airport. The policy states that this can be done by sending annual reminders to residents about the proximity of the airport, providing information on the City's website about the APA overlay zone and Airport Land Use Compatibility Plan, and by proactively advising potential home buyers in the overlay zone that their property may be subject to aircraft noise. Although potential impacts related to aircraft noise would be less than significant without implementation of these policies, these policies would help to further reduce potential aircraft-related noise annoyance in the INSP area.

Table 3.4-14. Noise Compatibility Criteria for the Livermore Municipal Airport

Land Use Category ¹	Exterior Noise Exposure (dB CNEL)			
	<55	55-59	60-64	>65
Agricultural, Recreational, and Animal-Related				
Outdoor amphitheaters	P	P	P	X
Zoos; animal shelters; neighborhood parks; playgrounds	P	P	P	X
Regional parks; athletic fields; golf courses; outdoor spectator sports; water recreation facilities	P	P	P	C
Nature preserves; wildlife preserves; livestock breeding or farming	P	P	P	X
Agriculture (except residences and livestock); fishing	P	P	P	P
Residential, Lodging, and Care				
Residential, (including single-family and mobile homes)	P	P	C	X
Residential, (multi-family; retirement homes; residential; residential hotels)	P	P	P	X
Residential hotels; retirement homes; hospitals; nursing homes; intermediate care facilities	P	P	P	X
Hotels; motels; other transient lodging	P	P	P	X
Public				
Schools; libraries	P	P	P	C
Auditoriums; concert halls; indoor arenas; places of worship; cemeteries	P	P	P	P
Commercial and Industrial				
Office buildings; office areas of industrial facilities; medical clinics; clinical laboratories; commercial - retail; shopping centers; restaurants; movie theaters	P	P	P	C
Commercial - wholesale; research and development	P	P	P	C
Industrial; manufacturing; utilities; public rights-of-way	P	P	P	C

Table 3.4-14. Noise Compatibility Criteria for the Livermore Municipal Airport

Land Use Category ¹		Exterior Noise Exposure (dB CNEL)			
		<55	55-59	60-64	>65
Land Use	Acceptability	Interpretation/Comments			
P	Permitted	Indoor Uses: Standard construction methods will sufficiently attenuate exterior noise to an acceptable indoor community noise equivalent level (CNEL).			
		Outdoor Uses: Activities associated with the land use may be carried out with essentially no interference from aircraft noise.			
C	Conditional	Indoor Uses: Building structure must be capable of attenuating exterior noise to the indoor CNEL indicated by the number; standard construction methods will normally suffice.			
		Outdoor Uses: CNEL is acceptable for outdoor activities, although some noise interference may occur; caution should be exercised with regard to noise-sensitive uses.			
X	Incompatible	Indoor Uses: Unacceptable noise interference if windows are open; at exposures above 65 dB CNEL, extensive mitigation techniques are required to make the indoor environment acceptable for performance of activities.			
		Outdoor Uses: Severe noise interference makes outdoor activities unacceptable.			

Note:

1. Land uses not specifically listed shall be evaluated using the criteria for similar uses.

Source: Alameda County Airport Land Use Commission. 2012. Livermore Executive Airport – Airport Land Use Compatibility Plan. August. Available: <https://www.acgov.org/cda/planning/generalplans/airportlandplans.htm>. Accessed: November 17, 2017.

Table 3.4-15. Airport Noise Compatibility for proposed 2020 INSP Land Uses

<i>Airport Noise Contour (CNEL)</i>	<i>Proposed INSP Land Uses Located within Contour</i>	<i>Permitted Land Uses Within Contour</i>	<i>2020 INSP Land Uses Located in Compatible Areas?</i>
55	Business, commercial, school, open space, and residential land uses	All land uses from Table 3.4-17	Yes
60	Business park, open space, and general commercial land uses	All land uses from Table 3.4-17	Yes
65	Business park or open space land uses.	All land uses from Table 3.4-17 except residential land uses (which are conditional)	Yes

Source: Dyett & Bhatia, 2018.

Mitigation Measures

None Required.

Impact 3.4-6 The proposed Project would not be located in the vicinity of a private airstrip or expose people residing or working in the project area to excessive noise levels. (*No impact*)

The closest private airstrip to the Planning Area is the Meadowlark Field Airport. This small private airport has only six aircraft based at the field and is located over 6 miles southeast of the Planning Area. At this distance, and based on the size of this private airstrip, no noise effects would occur in the Planning Area as a result of aircraft operating at this airstrip. There would be no impact related to noise from private airstrips.

Mitigation Measures

None required.

4 CEQA Required Conclusions

This chapter presents a summary of the impacts of the proposed Isabel Neighborhood Specific Plan (proposed Project or 2020 INSP) in several subject areas specifically required by CEQA, including growth-inducing impacts, cumulative impacts, significant irreversible environmental changes, impacts found not to be significant, and significant unavoidable impacts. These findings are based on the analysis provided in Chapter 3: Settings, Impacts, and Mitigation Measures.

4.1 Growth Inducing Impacts

CEQA Guidelines require that an EIR “discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly” (CEQA Guidelines §15126.2(d)). This analysis must also consider the removal of obstacles to population growth, such as improvements in the regional transportation system.

Growth-inducing impacts such as those associated with job increases that might affect housing and retail demand in other jurisdictions over an extended time period are difficult to assess with precision, since future economic and population trends may be influenced by unforeseeable events, such as natural disasters and business development cycles. Moreover, long-term changes in economic and population growth are often regional in scope; they are not influenced solely by changes in policies or specific development projects. Business trends are influenced by economic conditions throughout the state and country as well as around the world.

Another consideration is that the creation of growth potential does not automatically lead to growth. Growth occurs through capital investment in new economic opportunities by the private or public sector. These investment patterns reflect, in turn, the desires of investors to mobilize and allocate their resources to development in particular localities and regions. Despite these limitations on the analysis, it is still possible to qualitatively assess the general potential growth-inducing impacts of the proposed Project.

PROJECTED GROWTH

The proposed Project allows for new residential and commercial development which will result in an increase in population, housing, and jobs.

Population and Housing

The current population within the Planning Area is estimated to be 3,920, constituting 4 percent of the City of Livermore's total population of 90,269 (U.S. Census Bureau, 2018). With the proposed Project, the Planning Area would accommodate a total of 4,095 new housing units in the Planning Area, increasing the number of housing units from 1,380 to 5,475. This increase in housing units would accommodate a population of approximately 13,720 people, an increase of about 9,800 people, representing a 250 percent increase in population. This represents an average annual growth rate of 6.5 percent over 20 years in the Planning Area.

Although the population within the Planning Area is projected to increase substantially, the proposed Project would not be considered to have significant growth-inducing impacts, as it is assumed that it would accommodate a large share of projected growth for the City of Livermore. ABAG projects an increase in citywide population by 2040 from 84,935 people to 113,730 people, a difference of 28,795 people (ABAG, 2017). By accommodating 9,800 new residents, the proposed Project would absorb about 34 percent of this growth. Consistent with regional land use goals and policies, the proposed Project would accommodate a large share of projected growth in an area well served by existing roadways and planned transit, utility infrastructure, and service systems.

As discussed in the 2018 Draft EIR for the Isabel Neighborhood Specific Plan, the City's General Plan allocates about 4,500 dwelling units associated with a Bay Area Rapid Transit (BART) station to the Greenville Road area. Development of the Greenville Transit-Oriented Development (TOD) area is contingent upon preparation of a specific plan and a BART extension to Greenville Road. Since adoption of the General Plan in 2004, the BART Board of Supervisors have rejected plans for both the Isabel Station and Greenville Station. The proposed Project focuses on development of a transit-oriented development area adjacent to the proposed Valley Link Isabel Station. Shifting the capacity associated with a BART station from the Greenville TOD to the Isabel Neighborhood reflects the current status of the Valley Link project. With this shift, there is sufficient capacity under the current General Plan to accommodate the envisioned level of development for the Isabel Neighborhood.

Employment

The number of jobs in the Planning Area would increase by 106 percent from 8,740 to 17,990. The 9,200 new jobs accommodated under the proposed Project would accommodate 84 percent of the 10,930 projected new jobs for Livermore by 2040 (ABAG, 2013).

JOBS-TO-EMPLOYED RESIDENTS RATIO

If the number of jobs in the city equaled the number of employed residents, the city's jobs-to-employed residents ratio would be 1.0. In theory, such a balance would eliminate the need for commuting. More realistically, a balance means that in-commuting and out-commuting are matched, leading to efficient use of the transportation system, particularly during peak hours. The current jobs-to-employed residents ratio for the Planning Area is 4.46. A high jobs-to-employed residents ratio is associated with more in-commuting and higher demand for housing.

Implementation of the proposed Project would make the Isabel Neighborhood a transit center with a greater proportion of the commute borne by public transportation.

While the increase in new jobs would exceed the increase in new employed residents, the combined effect would result in a more balanced ratio of 2.62, reducing in-commuting. Table 4.1-1 shows existing and projected jobs-to-employed residents ratios.

Table 4.1-1: Jobs to Employed Residents, in Planning Area, Existing and Projected

	Existing (2016)	Net New (2040)	Total in 2040
Jobs	8,740	9,200	17,990
Employed Residents ¹	1,960	4,900	6,860
Jobs-to-Employed Residents Ratio	4.46	1.88	2.62

Notes:

Employed residents at buildout were calculated assuming 0.50 employed residents per capita.

Source: ABAG Projections, 2013; Dyett & Bhatia, 2017.

INCREASE IN REGIONAL HOUSING DEMAND

As the employment base in Livermore increases, more people may be drawn to the area, and as a result, housing demand may increase in both Livermore and adjacent areas within commuting distance. The proposed Project would result in development of approximately 4,095 new dwelling units by the year 2040, resulting in a total of 5,475 units in the Planning Area when added to the existing housing stock. This additional housing will help meet some of the increased housing need.

The City of Livermore adopted its most recent Housing Element in March 2015. The purpose of the Housing Element is to ensure that housing is available to meet the needs of future residents. The Housing Element contains an analysis of the community's housing needs, resources, constraints, and opportunities; it also contains goals, policies, and programs for housing and an action plan which details the actions to be taken by the City to respond to the community's evolving housing needs. Given that the Housing Element covers the years 2015-2022, it does not assume any new housing in the Plan area. However, to plan for future Housing Element cycles, Program 1.2.2 in the current Housing Element calls for the development of a "Specific Plan for the area surrounding the future Isabel BART Station, and [revision of] the General Plan and Zoning designations accordingly to allow for residential transit-oriented development." The 2018 INSP proposed development of the area surrounding a future Isabel BART Station and was adopted by the City of Livermore in 2018. However, implementation of the INSP was contingent on BART Board of Supervisors' approval of the BART to Livermore extension, which was denied. Therefore, the approving actions were rescinded by City Council and the INSP has not gone into effect. The proposed Project (2020 INSP) proposes development of the same area surrounding the future Isabel Valley Link Station. In line with Program 1.2.2, the General Plan and Zoning designations will be revised accordingly to allow for residential transit-oriented development following adoption of the proposed Project.

GROWTH MANAGEMENT

State legislature has prohibited growth management programs such as the City's Housing Implementation Program (HIP). Therefore, the phasing program that was presented in the 2018 INSP has not been incorporated into the 2020 INSP.

4.2 Cumulative Impacts

CEQA requires that the EIR examine cumulative impacts. As defined in CEQA Guidelines §15355, a cumulative impact is “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” The analysis of cumulative impacts need not provide the level of detail required of the analysis of impacts from the project itself, but shall “reflect the severity of the impacts and their likelihood of occurrence” (CEQA Guidelines §15130(b)).

The cumulative analysis examines impacts of a proposed project taken together with past, present, and probable future projects producing related impacts. The analysis in this section includes:

- A determination of whether the long-term impacts of all related past, present, and probable future plans and projects—referred to as the “Cumulative Context”—would cause cumulatively significant impacts; and
- A determination as to whether implementation of the proposed Project would have a “cumulatively considerable” contribution to any significant cumulative impact.

The two above determinations are evaluated using two key terms: (1) Cumulative Context and (2) Cumulative Scenario. The Cumulative Context describes past, present, and probable future plans and projects. The Cumulative Scenario describes the assumptions used for the proposed Project for evaluating contributions to any cumulative impacts that would occur under the Cumulative Context. The Cumulative Context and the Cumulative Scenario are described below.

CUMULATIVE CONTEXT

The Cumulative Context represents past, present, and probable future projects that may have impacts to which the project would contribute. For the purposes of evaluative cumulative impacts, the CEQA Guidelines describe two alternative methods to determine the scope of the related projects to be considered:

- List method—A list of past, present, and probable future projects producing related or cumulative impacts, including if necessary, those projects outside the control of the lead agency.
- Plan method—A summary of projections contained in adopted general plans or related planning documents, or in a prior environmental document that has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

This EIR uses a combination of the two approaches. The list of probable future projects/plans considered in the Cumulative Context are given in Appendix G. As appropriate, population, housing,

and employment projections from ABAG's Plan Bay Area Projections and SJCOG's Regional Transportation Plan/Sustainable Communities Strategy help inform analysis of the Cumulative Context, as shown in Table 4.2-1.

Table 4.2-1: Growth Projections Related to the Cumulative Context (2040)

	<i>Existing^{a, b}</i>	<i>2040^c</i>	<i>Percent Increase (Existing to 2040)</i>
Population			
Alameda County (total)	1,671,329	2,092,370	25%
Dublin	63,445	83,595	32%
Pleasanton	82,372	83,115	1%
Livermore	90,269	113,730	26%
San Joaquin County	762,148	1,020,862	34%
Households			
Alameda County (total)	572,870	734,210	28%
Dublin	19,637	26,475	35%
Pleasanton	28,498	30,575	7%
Livermore	31,534	39,675	26%
San Joaquin County	226,727	321,379	42%
Jobs			
Alameda County (total)	690,339	952,940	38%
Dublin	34,778	31,115	-10%
Pleasanton	41,384	75,440	82%
Livermore	47,069	45,870	-3%
San Joaquin County	190,958	337,448	77%

Notes:

- a. Existing population and households for Alameda County and municipalities and San Joaquin County are from the US Census Bureau July 1, 2018 estimates.
- b. Existing jobs for Alameda County and San Joaquin County are from the US Census Bureau July 1, 2018 estimates. Existing jobs for Dublin, Pleasanton, and Livermore are from the cities' websites and are shown for 2019.
- c. 2040 projections for Alameda County and municipalities are from Plan Bay Area 2040. 2040 projections for San Joaquin County are from the 2018 SJCOG Regional Transportation Plan/Sustainable Communities Strategy.

Source: U.S. Census Bureau, 2018; ABAG, 2017; SJCOG, 2018.

CUMULATIVE SCENARIO

The Cumulative Scenario is defined as both the proposed Project and the Valley Link Project. The Valley Link Project is a separate but related project to the proposed Project and is proposed by the Tri-Valley San Joaquin Valley Regional Rail Authority. Valley Link is conceived as a rail-based transit solution to bridge the gap between BART and Altamont Corridor Express (ACE) and improve connections between the greater San Francisco Bay Area and San Joaquin County. The rail connection will include six new and three "infill" stations, including at Greenville Road and Isabel Avenue in Livermore, and a transfer station near the East Dublin/ Pleasanton BART station, all part

of Phase 1. The second phase of the project will extend rail service from the North Lathrop ACE Station to the existing Stockton ACE/San Joaquin Stations. Completion of the Valley Link Project is forecasted between the second quarter of 2027 and the fourth quarter of 2028. Completion of the Draft EIR for the Valley Link Project is planned for Fall 2020.

CUMULATIVE ANALYSIS

Several analyses presented in Chapter 3: Settings, Impacts, and Mitigation Measures represent cumulative analyses of issues because they combine the anticipated effects of the proposed Project with anticipated effects of regional growth and development. By their nature, the air quality; transportation; noise; and energy, greenhouse gas emissions, and climate change analyses presented in Chapter 3 represent a cumulative analysis, because the effects specific to the proposed Project cannot reasonably be differentiated from the broader effects of regional growth and development. Thus, analyses for these topics reflect not just growth in the Planning Area, but impacts of the proposed Project within a larger context of growth and development. The cumulative conclusions are summarized there, and where applicable, significant unavoidable impacts are listed in Section 4.3. Other cumulative impacts are analyzed in the 2018 Draft EIR for the INSP.

4.3 Significant Unavoidable Impacts

Significant unavoidable impacts are those that cannot be mitigated to a level that is less than significant. According to CEQA Guidelines 15126(b), an EIR must discuss any significant environmental impacts that cannot be avoided under full implementation of the proposed program. Chapter 3 of this EIR identified the following significant unavoidable impacts when comparing the proposed Project to existing conditions. The previous Draft EIR also identified significant unavoidable impacts related to Aesthetics, Agricultural Resources, and Cultural and Tribal Resources.

Air Quality

While the proposed Project would be consistent with the Bay Area Air Quality Management District's (BAAQMD's) regional air quality strategy, individual development projects may still generate construction and operational emissions in excess of BAAQMD's project-level thresholds. With respect to construction emissions, however, implementation of Mitigation Measures AQ-1 through AQ-3 in addition to proposed Project policies would reduce construction-related emissions to a less-than-significant level.

With respect to operational emissions, it was determined that only particulate matter (PM₁₀) emissions associated with the proposed Project would exceed BAAQMD's project-level thresholds with implementation of Mitigation Measure GHG-1. However, because the vast majority of these PM₁₀ emissions would be generated from mobile sources (i.e., passenger vehicles) that are not regulated at the City level, no feasible mitigation measures are available to reduce these operational emissions. As such, although implementation of the comprehensive suite of proposed Project policies would reduce the severity of growth-oriented criteria pollutants by reducing VMT, locating uses near the Valley Link station, fostering bicycle and pedestrian infrastructure, and supporting sustainable land use patterns, including mixed-use design and increased density, the proposed Project's

operational emissions of PM10 would remain significant and unavoidable. These operational emissions would also result in a cumulatively considerable air quality impact within the San Francisco Bay Area Air Basin (SFBAAB).

Future projects under the proposed Project may expose sensitive receptors to substantial toxic air contaminant (TAC) concentrations. Based on an inventory of existing stationary and roadway sources, several locations within the Planning Area include sources currently in excess of BAAQMD's project-level and cumulative health risk thresholds. The proposed Project has policies to minimize risks to future residents. Operation of new stationary sources developed under the proposed Project would be subject to the permit authority of BAAQMD, which prohibits sources with health risks in excess of air district thresholds. Construction activities of future development may expose existing and future receptors to significant health risks. Implementation of Mitigation Measure AQ-1 would reduce construction-related emissions, and Mitigation Measure AQ-4 would provide a project-level evaluation of construction-related health risks from future projects within 1,000 feet of sensitive receptors. Despite these measures, there may be instances where project-specific conditions preclude the reduction of health risks below adopted thresholds, resulting in a significant and unavoidable impact.

Noise

The proposed Project would result in significant changes to the existing noise environment in the Planning Area. Specifically, the impacts associated with operation traffic in the Planning Area would be significant and unavoidable. Mitigation Measure NOI-1 requires the implementation of traffic noise reduction measures at existing sensitive receptors, and the proposed Project furthermore establishes policies to require acoustical analyses to determine needed insulation and protection features, as well as limits to the hours of operation of noise-generating land uses. However, the proposed Project would not guarantee that noise generated from traffic operations will be reduced to a less than significant level. While implementation of Mitigation Measure NOI-1 could reduce noise levels at impacted receptors along these roadway segments to less than significant levels, it may not be feasible in all cases to implement the measures identified in Mitigation Measure NOI-1. This impact is therefore considered to be significant and unavoidable.

While the proposed Project requires reduction of vibration impacts associated with construction near sensitive receptors, implementation of the proposed Project may expose persons to or generate excessive ground-borne vibration or ground-borne noise levels to a significant and unavoidable level. The increase in noise levels compared to existing conditions would also result in a significant and unavoidable impact related to a substantial permanent increase in ambient noise levels.

Transportation

For the purposes of this EIR, acceptable roadway conditions are evaluated using level of service (LOS). A negative impact occurs if LOS is reduced from acceptable to unacceptable, or if the segments where the LOS is already deficient under existing conditions experience increased traffic volumes. According to traffic modeling of the proposed Project, under 2028 (Valley Link opening year) and 2040 conditions, intersection operations are expected to degrade due to additional traffic as a result of growth from proposed Project implementation. At the intersection of North Livermore Avenue and Portola Avenue, adding additional left turn lanes to the impacted intersection under 2028 and 2040 Conditions could address impacts to intersection operations. However, the addition of left turn

lanes would require that both roads be widened. Due to roadway right-of-way constraints on North Livermore Avenue and Portola Avenue, the addition of more travel lanes is not feasible. Therefore, no additional improvements would be feasible to address this significant impact, and it remains significant and unavoidable. The proposed Project includes new pedestrian and bicycle connections within the Planning Area that support the policies in the City of Livermore General Plan and the Livermore Active Transportation Plan. However, even considering proposed Project policies and mitigation measures, the impact on the performance on circulation systems remains significant and unavoidable.

Freeway and arterial segments were evaluated according to the Alameda County Transportation Commission Congestion Management Plan criteria. With the implementation of the proposed Project, regional traffic volumes would increase, with notable increases in some corridors and decreases in others during peak periods. While the addition of the Valley Link would relieve some corridors, the increase in land uses associated with the proposed Project increases traffic levels. While the increase in traffic is less than significant for the 2025 conditions, for 2040 buildout, several general purpose freeway and arterial segments would, at times, operate at unacceptable levels. Typical mitigation measures that would address impacts to general purpose freeway segments and arterials entail adding or modifying ramp metering, adding express lanes, and constructing other capacity enhancements such as additional travel lanes. However, the transportation analysis already accounts for these types of planned and programmed operational improvements along the study area segments of I-580. No additional improvements would be feasible to address this significant impact. Specifically, while adding travel lanes to I-580 or arterial segments would increase the capacity of roadways and reduce this impact, physical constraints and the existing ROW along the affected roadways would make this infeasible. Therefore, the impact would remain significant and unavoidable.

4.4 Significant Irreversible Environmental Changes

CEQA Guidelines require the EIR to consider whether “uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely” (CEQA Guidelines Section 15126.2(c)). “Nonrenewable resource” refers to the physical features of the natural environment, such as land, waterways, etc. Irretrievable commitments of non-renewable resources associated with the proposed Project are described below.

WATER CONSUMPTION

As described in the previous Draft EIR, new development under the proposed Project would increase the demand for water supplies for residential, commercial, and industrial uses. It would place a greater demand on the City of Livermore municipal water supply and the California Water Service Company, which purchases water supplies from the Alameda County Flood Control and Water Conservation District (Zone 7). This increased demand for public water represents an irreversible environmental change.

ENERGY SOURCES

Residential and non-residential developments use electricity, natural gas, and petroleum products for lighting, heating, and other indoor and outdoor power demands, while cars use both oil and gas. New development under the proposed Project would result in increased energy use for the construction and operation of new buildings and for transportation. This new development would therefore result in an overall increased use of both renewable and nonrenewable energy resources. To the extent that new development uses more nonrenewable energy sources, this would represent an irreversible environmental change.

CONSTRUCTION-RELATED IMPACTS

Irreversible environmental changes could also occur during the course of constructing development projects made possible by the proposed Project. New construction would result in the consumption of building materials (such as lumber, sand and gravel), natural gas, electricity, water, and petroleum products to process, transport, and build with these materials. Construction equipment running on fossil fuels would be needed for excavation and the shipping of building materials. Due to the non-renewable or slowly renewable nature of these resources, this represents an irretrievable commitment of resources.

LOSS OF IMPORTANT FARMLAND

As described in the previous Draft EIR, the proposed Project is expected to result in the conversion of 27.5 acres of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, as classified by the California Farmland Mapping and Monitoring Program. These designations identify high quality agricultural resources, and the loss of these resources due to conversion of designated land to non-agricultural uses may be considered an irreversible environmental change.

4.5 Impacts Found Not to Be Significant

CEQA requires that an EIR provide a brief statement indicating why various possible significant impacts were determined to be not significant. The Initial Study for the proposed Project documents the determination that no new or more severe significant impacts would occur as a result of project changes for the following topics: Land Use, Population, and Housing; Aesthetics; Biological Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Utilities and Service Systems; Public Services and Recreation; Geology and Soils; Cultural and Tribal Resources; and Agricultural Resources. Chapter 3 of this EIR discusses all potential impacts related to Air Quality; Traffic and Transportation; Energy, Greenhouse Gases, and Climate Change; and Noise, regardless of their magnitude. A similar level of analysis is provided for impacts found to be less than significant as impacts found to be significant. Significance of an impact is assessed in relation to the significance criteria provided in each section in Chapter 3. A summary of all impacts related to Air Quality; Traffic and Transportation; Energy, Greenhouse Gases, and Climate Change; and Noise is provided in the Executive Summary of this EIR. A summary of all other impacts is provided in the Initial Study.

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