

CHAPTER 3 ENVIRONMENTAL ANALYSIS

A. INTRODUCTION TO ENVIRONMENTAL ANALYSIS

This chapter provides the environmental analysis for the Proposed Project and Alternatives and describes background information that will assist the reader in understanding the analysis.

This introductory section of the chapter outlines the chapter organization, presents an overview of the study area for the analysis, and describes the scenarios used in the analysis, including the cumulative projects list.

1. Organization of the Environmental Analysis

Chapter 3 is organized into 15 environmental topic sections, which generally correspond to the resource topics contained in Appendix G of the CEQA Guidelines.¹ The 15 topics are listed below with their EIR section number and title (with abbreviation in parentheses):

- 3.B Transportation (TRAN)
- 3.C Land Use and Agricultural Resources (LU and AG)
- 3.D Population and Housing (PH)
- 3.E Visual Quality (VQ)
- 3.F Cultural Resources (CUL)
- 3.G Geology, Soils, Seismicity, Mineral and Paleontological Resources (GEO and PALEO)
- 3.H Hydrology and Water Quality (HYD)
- 3.I Biological Resources (BIO)
- 3.J Noise and Vibration (NOI)
- 3.K Air Quality (AQ)
- 3.L Greenhouse Gas Emissions (GHG)
- 3.M Energy (EN)
- 3.N Public Health and Safety (PHS), which includes Electromagnetic Fields
- 3.O Community Services (CS), which includes Recreation
- 3.P Utilities (UTIL)

¹ California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387.

a. Organization of the Sections

Each of the environmental topic sections included in this chapter—i.e., Sections 3.B through 3.P—is organized as follows:

- **Introduction.** This subsection provides an overview of the environmental topic, introduces the critical issues and concerns considered in the analysis, and briefly summarizes the comments (if any) received in response to the Notice of Preparation (NOP) for the EIR or during the scoping meeting.
- **Existing Conditions.** This subsection presents setting information for the environmental resource topic, including applicable regional and study area information. The NOP for the BART to Livermore Extension Project was issued in August 2012, and this is typically the period in which existing conditions were noted. The description of existing conditions has been updated with more recent information or surveys to provide the most current information available, as noted in each section. In most cases, the existing conditions constitute the environmental baseline for identifying environmental impacts, which is defined as changes to the baseline conditions that would result from the Proposed Project or Alternatives. In some cases, for topics that are quantitative in nature (i.e., transportation, air quality, noise and vibration, greenhouse gas [GHG] emissions, and energy), a different baseline is used in the analysis, as explained below. All other resource topics sections are qualitative in nature.
- **Regulatory Framework.** This subsection identifies relevant federal, State of California (State), and local regulations governing the environmental topic. As noted in some of the individual sections that follow, under State law (Government Code Section 53090 et seq.), BART is not required to comply with all local land use policies and ordinances; however, these policies and ordinances are discussed in certain sections for informational purposes, to describe the extent to which the BART to Livermore Extension Project conforms to them.
- **Impacts and Mitigation Measures.** This subsection analyzes how the environmental resources would be affected by the Proposed Project and Alternatives, and is organized as follows:
 - *Standards of Significance.* This subsection describes the criteria by which an impact is determined to be significant, and thus whether mitigation measures (actions to reduce or eliminate the effects) are required. The criteria are largely based on the CEQA Guidelines as well as applicable State or federal standards.
 - *Impact Methodology.* This subsection describes the approach used in the impacts analysis, including any specialized computer models, techniques, or methodologies.

- *No Project Conditions*. For the resource topics where the No Project Conditions are used in connection with a quantitative analysis methodology, those conditions are described in this subsection (see the Analysis Years – 2025 and 2040 subsection below).
- *Summary of Impacts*. Impacts of the Proposed Project and Alternatives are summarized for each impact corresponding to the standards of significance.
- *Environmental Analysis*. The environmental analysis identifies and describes the effects of the Proposed Project and Alternatives on the environmental resource. Impacts that would occur during construction (either short-term or long-term/permanent) are analyzed first, for the Proposed Project and each of the Build Alternatives; this is followed by an analysis of construction-related cumulative impacts. The analysis then examines any additional operational impacts of the Proposed Project and each Alternative, followed by an analysis of the potential operational cumulative impacts. (See the Cumulative Analysis subsection, below, for further information about the cumulative impacts.)

The impacts of the Proposed Project and each Alternative are analyzed separately when impacts are unique to the Proposed Project and/or an Alternative. However, when the impacts would be similar among the Proposed Project and/or an Alternative, the impacts analysis provides a combined impact discussion.

Each impact analysis title uses the abbreviation for the environmental topic listed above, is numbered sequentially, and is shown in ***bold italics***. For example, ***Impact LU-1*** denotes the first project impact analysis in the Land Use subsection. Cumulative impacts are distinguished from project impacts by the addition of “CU”; thus, ***Impact LU-2(CU)*** denotes a cumulative impact analysis for Land Use.

Mitigation measures are enumerated with the corresponding impact number. For example, **Mitigation Measure HYD-3** would correspond to **Impact HYD-3**. A brief title is included to identify the topic of the mitigation measure and indicate whether the measure applies to the Proposed Project and/or any of the Alternatives. For example, **Mitigation Measure HYD-3: Hydraulic Capacity for Non-Flood Hazard Area Crossings (Conventional BART Project and DMU Alternative)** denotes that the measure would apply to the Proposed Project and the DMU Alternative only.

b. Significance Determinations

Environmental impacts are identified as the changes to environmental resources that would be caused by the BART to Livermore Extension Project. The severity of these effects is classified as shown below, with the abbreviation for the impact’s level of significance indicated in parentheses.

- **Significant Impact (S)** includes adverse impacts that exceed or have the potential to exceed the identified thresholds of significance.
- **Less-than-Significant Impact (LS)** includes adverse effects that do not exceed the identified thresholds of significance.
- **No Impact (NI)** includes conditions under which the BART to Livermore Extension Project would not result in any impacts to a resource.
- **Beneficial Impact (B)** includes effects that enhance or improve the baseline conditions. For example, reductions in energy use due to fewer vehicle trips with implementation of the Proposed Project or an Alternative would constitute a beneficial effect related to energy use and conservation.

For each impact identified as being significant, this Draft EIR suggests mitigation measures to reduce or eliminate the impact, and describes whether the mitigation measures individually or collectively would reduce effects to a less-than-significant level. In this case, the following significance conclusion is made:

- **Less than Significant with Mitigation (LSM)** includes impacts where the significant impact can feasibly be reduced to less than significant through the identified mitigation measures. For cumulative impacts, any mitigation measures identified for project-specific impacts are taken into account in evaluating the significance of the project's contribution to the cumulative impact. The LSM abbreviation is used for cumulative impacts when further mitigation is added specifically to mitigate the cumulative impact. If no additional mitigation is required, the LS abbreviation is used, even though project-specific mitigation continues to apply.

However, if the significant or potentially significant impact cannot be reduced to less than significant, the following significance conclusion is made:

- **Significant and Unavoidable (SU)** impacts exceed the defined significance criteria and cannot be eliminated or reduced to a less-than-significant level through feasible mitigation measures or alternatives.

2. Footprint, Study Areas, and Project Corridor

The BART to Livermore Extension Project would be located in eastern Alameda County, extending along the Interstate (I-) 580 corridor from the cities of Dublin and Pleasanton, through a portion of unincorporated Alameda County to the city of Livermore. See Chapter 1, Introduction, for information about the regional context of the area, including growth trends and transportation.

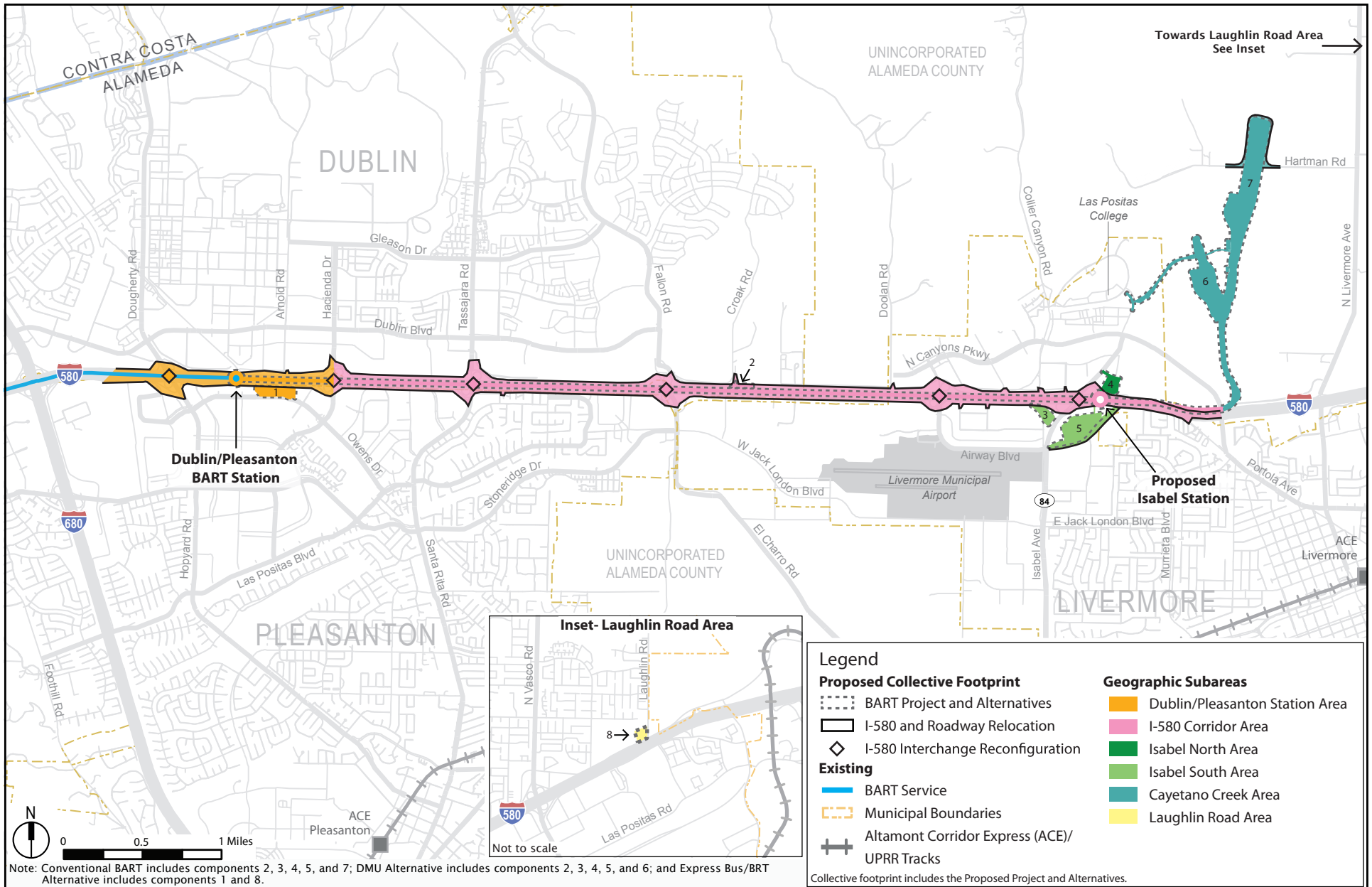
For the purposes of this Draft EIR, the following terms—footprint, study area, and project corridor—are used to describe the geographic area that could be affected by the Proposed Project and Alternatives.

- **Footprint.** The footprint of the Proposed Project includes the area that would be either permanently altered through construction of the Proposed Project or temporarily altered through the use of land for construction staging areas. Figure 2-2 in Chapter 2, Project Description, contains a schematic representation of the Proposed Project. Similarly, the DMU Alternative and Express Bus/BRT Alternative would result in permanent and temporary alterations. Plans for the DMU Alternative and Express Bus/BRT Alternative are shown on Figure 2-14 and Figure 2-20, respectively, in Chapter 2, Project Description. A more detailed representation of the footprints of the Proposed Project, DMU Alternative, and Express Bus/BRT Alternative are shown in Appendix B. This area is generally considered to be the area of potential direct impacts, as analyzed in the Sections 3.B through 3.P of this EIR.

In addition, the bus routes and bus infrastructure improvements for the Enhanced Bus Alternative (as well as for the feeder buses for the Proposed Project and other Build Alternatives) that are expected to extend within the street ROWs, are addressed at a programmatic level in this EIR, as described in Chapter 2, Project Description. While the proposed bus routes for the Enhanced Bus Alternative, as well as the Proposed Project and other Build Alternatives, are shown in Chapter 2, the routes are conceptual and were developed for the analysis of BART ridership and operational costs. Similarly, the candidate locations for bus infrastructure improvements are identified in this EIR to document the availability of such locations and for purpose of programmatic impact analysis.

Thus, there is no final physical footprint for the Enhanced Bus Alternative or for the bus improvements for the feeder buses under the Proposed Project and other Build Alternatives. Following implementation of the adopted project, specific routes would be developed by the bus operators based on detailed service planning. At that time, the routes and bus infrastructure improvements could be subject to subsequent environmental review, if required.

In addition, a representative collective footprint is used in this Draft EIR to identify the maximum extent of ground disturbance that could occur with implementation of the Proposed Project, the DMU Alternative, or the Express Bus/BRT Alternative, as they require the greatest amount of infrastructure. This proposed collective footprint is shown in Figure 3.A-1. The Existing Conditions subsections describe the environmental resources within the vicinity of the collective footprint for each respective resource topic.



Source: Arup, 2017.

Figure 3.A-1
 Introduction to Environmental Analysis
 Project Corridor and Geographic Subareas

- **Study Area.** Each section in this chapter defines a study area specific to the respective environmental resource topic for the purposes of identifying environmental resources that may be affected by the Proposed Project or Alternatives. The study area encompasses the Proposed Project and Alternatives footprints and generally includes a specified area beyond the footprints, as noted in the respective sections for each resource topic. The study area informs the analysis of both direct and indirect impacts that could result from implementation of the Proposed Project and Alternatives.
- **Project Corridor.** The project corridor is used to refer to the area along I-580 through which the Proposed Project and Alternatives footprints extend, and typically includes the study area. The corridor generally extends from east of I-680 to east of the I-580/Portola Avenue overcrossing, and includes the area near Laughlin Road and I-580. The project corridor is represented by six geographic subareas that correspond to different components of the Proposed Project and Alternatives. The subareas, shown in Figure 3.A-1, are as follows:
 - Dublin/Pleasanton Station Area – From west of Dougherty Road/Hopyard Road/I-580 overcrossing to just west of Hacienda Drive/I-580 overcrossing
 - I-580 Corridor – From Hacienda Drive/I-580 overcrossing to Portola Avenue/I-580 overcrossing; this area includes the Isabel Station within the I-580 median and tail track tunnel under westbound I-580
 - Isabel North Area – At Isabel Avenue, north of I-580; the area that is proposed to have the BART pedestrian touchdown structure, bus transfer facility, and access loop
 - Isabel South Area – At Isabel Avenue, south of I-580; the area that is proposed to have the BART pedestrian touchdown structure, parking garage/surface parking lots, and wayside facility at Kitty Hawk Road
 - Cayetano Creek Area – North of I-580, from Portola Avenue/I-580 overcrossing through Cayetano Creek area; the area that is proposed to have the storage and maintenance facility and access road from Campus Hill Drive
 - Laughlin Road Area – North of I-580, at Laughlin Road and Northfront Road, the area that is proposed to have a park and ride lot under the Express Bus/BRT Alternative

3. Environmental Analysis Scenarios

The level and severity of impacts from the Proposed Project and Alternatives is determined based on the changes that the Proposed Project and Alternatives would have on the environmental resources. This EIR uses several scenarios to evaluate the effects of the Proposed Projects and Alternatives. The following scenarios are used in the impacts analysis:

- **No Project Conditions.** The No Project Conditions constitute the scenario prior to implementation of the Proposed Project or an Alternative. Typically, the No Project Conditions are the existing conditions at the time of the NOP. As noted in Existing Conditions above, some setting information has been updated since the date the NOP was issued (2012). Furthermore, a future No Project Conditions (for 2025 and 2040) is used for five of the environmental resource sections, as described below.
- **Project.** The Project Conditions describe the impacts the project would have on the environment. This evaluation is conducted for the Proposed Project and the three Build Alternatives: DMU Alternative, Express Bus/BRT Alternative, and Enhanced Bus Alternative.
- **Cumulative.** The cumulative scenario evaluates the impacts from implementation of the Proposed Project (or an Alternative) combined with the impacts of past, present, and reasonably probable future projects. The Cumulative Conditions are discussed in the Cumulative Analysis subsection below.

a. Analysis Years – 2025 and 2040

Two future years are used in the analysis. The BART to Livermore Extension Project could be constructed and in operation by 2026. However, the analysis assumes opening year in 2025, for consistency with the land use projections used in the Alameda County Transportation Commission Countywide Travel Demand Model (Travel Demand Model). The baseline year for this analysis is considered to be 2025. Although operation may begin in 2026, it may take some time before BART patrons become acquainted with the new Isabel Station and adjust their travel patterns to make the best use of it. By 2040, the BART to Livermore Extension Project would be in full operation; therefore, that year is used as the project's horizon year. The Metropolitan Transportation Commission and the Alameda County Transportation Commission also analyzed 2025 and 2040 for their transportation modeling; 2040 is also the horizon year for Plan Bay Area 2013 (Plan Bay Area),² the regional land use plan produced by the Association of Bay Area Governments (ABAG). For most topics in this EIR, impacts would be greater in 2040 than in 2025; thus, the analysis focuses on the impacts to the environment in 2040. For five of the sections (Transportation, Air Quality, Noise and Vibration, GHG, and Energy), the analysis includes both 2025 and 2040.

² Association of Bay Area Governments (ABAG), and Metropolitan Transportation Commission (MTC), 2013. Plan Bay Area 2013. Available at: http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/Plan_Bay_Area.pdf

b. Use of Future Analysis Years

In accordance with CEQA requirements, an EIR must describe the existing physical environmental conditions in the vicinity of the project. The existing conditions at the time that CEQA review commences “will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant” (CEQA Guidelines §15125[a]). However, “normally” does not mean “always.” Where environmental conditions have varied over time, past conditions or a representative range of past variation can constitute the proper baseline, rather than a snapshot of conditions as of the date of the Notice of Preparation of an EIR.

For long-range transit projects such as the Proposed Project or Build Alternatives, which would not begin operation for approximately 10 years, the use of existing conditions as a baseline could be misleading because many existing conditions (for example, background traffic volumes and transit ridership) would change by the opening of passenger service. In *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, the California Supreme Court approved the use of a future baseline for determining the significance of a proposed project’s impacts under CEQA, where using an existing conditions baseline would be misleading. The Court explained that CEQA analysis must employ a realistic baseline that provides the most accurate picture practically possible of potential environmental impacts. In particular, the Court found, for “a large-scale transportation project like that at issue here, to the extent changing background conditions during the project’s lengthy approval and construction period are expected to affect the project’s likely impacts, the agency has discretion to consider those changing background conditions in formulating its analytical baseline.” However, noting the uncertainties involved in projecting future baselines, the Court also required that an agency using a future baseline for a long-term project must find, based on substantial evidence in the record, that analysis of impacts of the long-term project on currently existing conditions would be uninformative or misleading to decision-makers and the public.

In the case of the Proposed Project and Build Alternatives, use of the existing conditions baseline would be misleading as the existing conditions will not adequately represent the anticipated population in the Tri-Valley Area at the time of the assumed opening year of the Proposed Project or Build Alternatives (2025). As shown in Table 3.A-1, the population of Alameda County is projected to increase by approximately 11 percent by 2025, and San

TABLE 3.A-1 GROWTH PROJECTIONS FOR THE PROJECT CORRIDOR THROUGH 2040

Population^a	Existing	2025	Percent Increase (Existing to 2025)	2040	Percent Increase (Existing to 2040)
Alameda County (total)	1,559,308	1,730,100	11%	1,987,900	27%
Dublin	49,694	58,700	18%	73,800	49%
Pleasanton	73,164	80,200	10%	91,800	25%
Livermore	83,901	91,700	9%	104,300	24%
San Joaquin County	742,781	872,051	17%	1,070,486	44%
Households	Existing	2025		2040	
Alameda County (total)	551,734	624,300	13%	705,330	28%
Dublin	16,476	19,200	17%	23,610	43%
Pleasanton	25,222	28,730	14%	32,300	28%
Livermore	29,956	33,970	13%	38,940	30%
San Joaquin County	231,693	267,262	15%	319,756	38%
Jobs^b	Existing	2025		2040	
Alameda County (total)	746,688	850,610	14%	947,650	27%
Dublin	19,138	25,620	34%	31,650	65%
Pleasanton	64,152	64,320	0%	69,640	9%
Livermore	44,953	47,860	6%	53,210	18%
San Joaquin County	219,330	248,748	13%	299,717	37%

Notes:

^a Existing population and households for Alameda County and municipalities are from the 2010-2014 American Community Survey 5-Year Estimates. Existing population and households for San Joaquin County are 2015 estimates from the SJCOG Regional Transportation Plan/Sustainable Communities Strategy.

^b Existing jobs are shown for 2012 for Alameda County and municipalities, and for 2015 for San Joaquin County.

Sources:

U.S. Census Bureau, 2014. [for existing population and households - Alameda County and municipalities]

U.S. Census Bureau, 2012. [for existing jobs - Alameda County and municipalities]

Association of Bay Area Governments (ABAG), 2013. [for 2025 and 2040 data - Alameda County and municipalities]

Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2013. Draft Plan Bay Area, Final Forecast of Jobs, Population and Housing. July. [for 2025 and 2040 data - Alameda County and municipalities]

San Joaquin Council of Governments (SJCOG), 2014. [for existing, 2025, and 2040 data - San Joaquin County]

Joaquin County is projected to increase by approximately 17 percent.^{3, 4, 5} Similarly, traffic conditions are anticipated to change by 2025 due to the growth in the Tri-Valley Area, San Joaquin County, and other Central Valley counties. Furthermore, elevated growth rates are expected to continue through 2040. The population of Alameda County is expected to grow by 27 percent, and within the Tri-Valley Area, Dublin, Pleasanton, and Livermore would grow by 49 percent, 25 percent, and 24 percent respectively. San Joaquin County is expected to grow by 44 percent by 2040.

I-580 will continue as the one major highway from the Central Valley through the Tri-Valley Area to the East Bay and San Francisco. However, multiple secondary regional routes are planned for extensions or other upgrades that will increase their capacity to support vehicles and their attractiveness to regional travelers, including Dublin Boulevard, which is planned to be extended and will serve as a parallel route to I-580 for local traffic in the Tri-Valley Area, and Isabel Avenue (State Route 84), which is planned to be widened in some sections and will become a more attractive potential alternative route to I-580 and I-680 for those traveling from the Tri-Valley Area to Santa Clara County. Thus, the use of existing conditions baseline for the analysis of transportation and other topics that rely on such metrics as vehicle delay and vehicle miles traveled would be entirely misleading, as the existing conditions would not represent the conditions at the time the project were to begin operations.

There is inevitably some uncertainty regarding the use of projected future conditions as the baseline. However, what is certain is that the project, which will not begin service before 2025, will not operate under the conditions that exist today. Projections represent the best available information assembled by the agencies with jurisdiction and expertise.

For the above reasons, and consistent with Neighbors for Smart Rail, the analysis of operational impacts for the quantitative EIR sections—Transportation, Air Quality, Noise and Vibration, GHG, and Energy—uses a future baseline that represents the anticipated start of project operation (2025) because this most accurately informs decision-makers and the public of the project's potential environmental impacts.

For all other EIR sections (referred to as the qualitative sections), existing conditions are considered to adequately represent the baseline physical conditions by which the significance of operational impacts is assessed. As described above, the description of

³ United States Census Bureau, 2014. 2010-2014 American Community Survey 5-Year Estimates. Available at: <https://factfinder.census.gov/>.

⁴ San Joaquin Council of Governments, 2014. Regional Transportation Plan, Sustainable Communities Strategy. Available at: <http://www.sjcog.org/278/Adopted-2014-RTPSCS>

⁵ Association of Bay Area Governments (ABAG), and Metropolitan Transportation Commission (MTC), 2013. Plan Bay Area 2013. Available at: http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/Plan_Bay_Area.pdf.

existing conditions at the date of the issuance of the NOP (2012) has been updated with more recent information or surveys to provide the most current information available, as noted in each section. Therefore, the existing conditions baseline is considered to range from 2012 to 2017. For all construction impacts, the existing conditions baseline is used, because construction would take place in the near term and be completed by 2026.

c. Land Use Assumptions

The EIR analysis, particularly the transportation and land use sections, is informed by growth projections for the nine-county Bay Area region from Plan Bay Area as well growth projections by the San Joaquin Council of Governments (SJCOG) in its Regional Transportation Plan/Sustainable Communities Strategy.^{6, 7, 8} The growth forecasts provide an overview of regional land use trends with data provided for 5-year increments (for example 2020, 2025, and 2030) and the Travel Demand Model used in the transportation analysis is based on the land use assumptions provided in Plan Bay Area, which is this region's Regional Transportation Plan/Sustainable Communities Strategy.

Table 3.A-1 presents ABAG's population, household and employment growth projections for Alameda County and municipalities along the project corridor (Dublin, Pleasanton, and Livermore) and SJCOG's population, household and employment growth projections for San Joaquin County.

4. Cumulative Analysis

The cumulative impacts from implementation of the Proposed Project or an Alternative combined with the impacts of past, present, and probable future projects also are analyzed. The cumulative scenarios include probable future projects in addition to ABAG's Plan Bay Area projections and SJCOG's Regional Transportation Plan/Sustainable Communities Strategy projections.^{9, 10} For most environmental topics, the cumulative scenario is provided for 2040 only, as 2040 would be the worst-case year cumulative scenario. As development increases in accordance with projected trends, cumulative impacts to a wide range of resources (e.g. biology, cultural resources, etc.) would be expected to worsen. For the quantitative sections, the cumulative analysis is provided for

⁶ Association of Bay Area Governments (ABAG), 2013. Plan Bay Area Projections 2013.

⁷ Association of Bay Area Governments (ABAG), and Metropolitan Transportation Commission (MTC), 2013. Plan Bay Area 2013. Available at: http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/Plan_Bay_Area.pdf.

⁸ San Joaquin Council of Governments, 2014. Regional Transportation Plan, Sustainable Communities Strategy. Available at: <http://www.sjcog.org/278/Adopted-2014-RTPSCS>

⁹ Association of Bay Area Governments (ABAG), 2013. Plan Bay Area Projections 2013.

¹⁰ San Joaquin Council of Governments, 2014. Regional Transportation Plan, Sustainable Communities Strategy. Available at: <http://www.sjcog.org/278/Adopted-2014-RTPSCS>

both 2025 and 2040 to best represent potential cumulative impacts at the beginning of operations and in the horizon year.

The approach to the cumulative impacts analysis is described below, including an overview and the specific projects considered in the analysis.

a. Overview and Approach

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when taken together, are “considerable” or that compound or increase other environmental impacts. A cumulative impact from several projects is the change in the environment that would result from the incremental impact of the project when added to those of other closely related past, present, and probable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines, as follows:

- An EIR shall discuss cumulative impacts of a project when the project’s incremental effect is cumulatively considerable (i.e., incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary). CEQA Guidelines §§ 15064(h)(1) explains that “cumulatively considerable” means that the “incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”
- An EIR should not address impacts that do not result in part from the project evaluated in the EIR.
- A project’s contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The extent of discussion of cumulative impacts depends on their severity and likelihood of occurrence, but need not be as detailed as for the effects attributable to the project alone.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than the attributes of other cumulative projects that do not contribute to the cumulative impact.

Cumulative effects must be considered because, even if the BART to Livermore Extension Project on its own has a less-than-significant impact, its contribution to a potential significant impact combined with other projects can create a collective impact that exceeds the standard of significance. If the BART to Livermore Extension Project’s contribution combined with those of other projects would not exceed the significance

standard, the cumulative impact is less than significant. Additionally, if the project does not make any contribution to an adverse impact, it does not have a significant cumulative impact, even if the effects of other projects are cumulatively significant.

In accordance with CEQA Guidelines Section 15130, cumulative impacts may be analyzed by applying a list-based approach (a list of past, present, and probable future projects, including projects outside the control of the lead agency), a projections-based approach (a summary of projections in an adopted general plan or related planning document), or a reasonable combination of the two.

This EIR uses a combination of the two approaches for the analysis of cumulative impacts; that is, the projections-based approach is used, but is augmented where appropriate with the list-based approach of past, present, and probable future projects in the project area.

b. Cumulative Projections

As described above, population, housing, and employment projections for 2025 and 2040 are based on ABAG's Plan Bay Area and SJCOG's Regional Transportation Plan/Sustainable Communities Strategy. Table 3.A-1 presents population and employment growth projections through 2040, as prepared by ABAG for Alameda County and for municipalities along the project corridor (Dublin, Pleasanton, and Livermore). For the quantitative sections, the cumulative No Project Conditions for 2025 and 2040 are based on the traffic volumes forecast for those years determined by the Travel Demand Model. The Travel Demand Model is a computer model used to forecast travel volumes by different travel modes (BART, bus, automobile, etc.) across a transportation network based on projected land uses. The Travel Demand Model is discussed further in the Impact Methodology subsection of Section 3.B, Transportation.

c. Cumulative Projects and Plans

The proposed Dublin/Pleasanton Station Parking Expansion and the City of Livermore's Isabel Neighborhood Plan (INP) are two specific probable future projects/plans that are focused on in the cumulative analysis. Other probable future projects/plans are also considered in the analysis, as described below.

Dublin/Pleasanton Station Parking Expansion. BART is proposing to expand the amount of parking available at the Dublin/Pleasanton Station. The station currently has 2,890 spaces in a combination of surface parking lots and a six-level, 1,512-space parking structure. This project was initially planned as Phase II of the BART parking structure construction that was part of the Dublin Transit Center project. The initially proposed project would expand the existing parking structure with 655 additional parking spaces. Because an existing surface parking lot would be removed for the garage expansion, the net increase in parking would be approximately 540 spaces, increasing total available

parking from 2,890 to 3,430. BART is considering an alternative to constructing an expanded parking structure, referred to as a hybrid strategy. This strategy also provides approximately 540 spaces through a combination of approaches, as follows: (1) attendant-assisted parking to increase the capacity of the existing parking facilities by approximately 340 spaces; (2) restriping an existing surface parking lot to add approximately 60 spaces; and (3) utilizing 140 spaces of shared parking with nearby businesses. Future phases would replace the attendant-assisted parking with an automated parking system adjacent to the existing parking structure. If approved, the first phase of the hybrid strategy is expected to be completed within 1 to 2 years from the date of project approval by the BART Board of Directors.

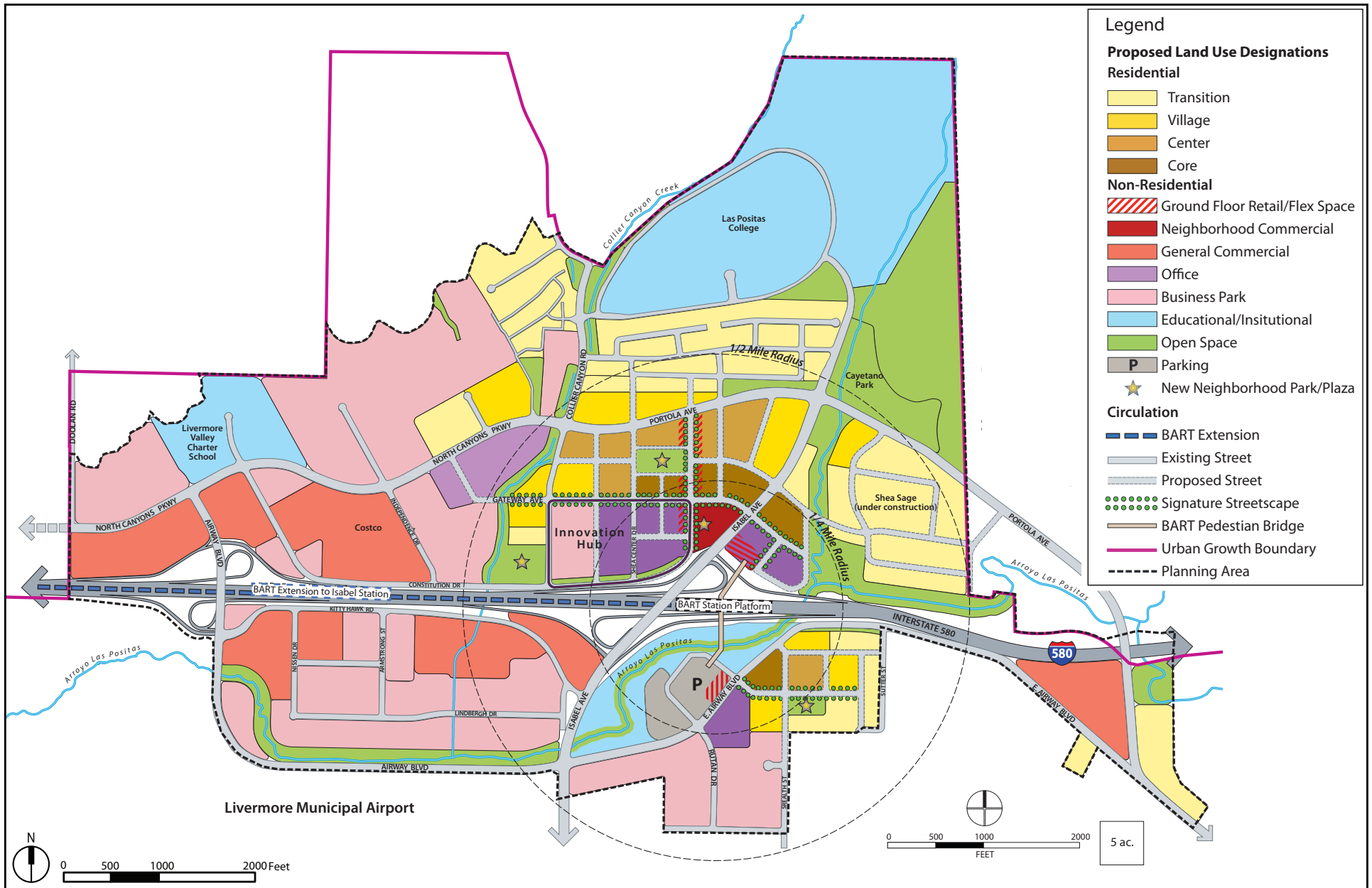
Isabel Neighborhood Plan. As discussed in Chapter 1, Introduction, the INP is a project separate from but related to the BART to Livermore Extension Project. One of BART's requirements for implementation of the Proposed Project is for the City of Livermore to create a Ridership Development Plan for the area around the potential future BART station at Isabel Avenue, consistent with BART's system expansion policy and criteria.^{11, 12} The City of Livermore is preparing the INP to meet the Ridership Development Plan requirement and to serve as the Specific Plan for the station area. The INP will provide for more development around the proposed station area than is currently permitted by either the City of Livermore General Plan or projected by Plan Bay Area.

The INP planning area covers approximately 1,138 acres in the northwest area of Livermore and surrounding the I-580/Isabel Avenue interchange. The INP area and land use changes are shown in Figure 3.A-2. The INP intends to set design standards, create safe and vibrant neighborhoods, create circulation improvements, and promote compatibility with existing development within the 0.5-mile radius of the proposed BART station. At full buildout of the preferred plan, net new development would include the following:

- 4,095 residential housing units
- 1,655,850 square feet of office space
- 240,880 square feet of business park
- 324,310 square feet of neighborhood commercial space
- 296,320 square feet of general commercial space
- 9,148 jobs

¹¹ San Francisco Bay Area Rapid Transit District (BART), 1999. BART System Expansion Policy. Adopted December 2, 1999.

¹² San Francisco Bay Area Rapid Transit District (BART), 2002. System Expansion Criteria and Process. Adopted December 5, 2002.



Source: City of Livermore, 2017.

Figure 3.A-2
Introduction to Environmental Analysis
Isabel Neighborhood Plan

Proposed land uses immediately adjacent to the Isabel Station include office, retail, and residential uses north of I-580, and office, business park, and residential uses south of I-580.

For planning and environmental review purposes, a portion of the planned development is expected to be constructed by 2025, and full buildout of the plan is anticipated by 2040. Table 3.A-2 shows projections for the INP area from the City of Livermore General Plan, Plan Bay Area, and the INP. The INP would result in more development in the area compared to Plan Bay Area and the Livermore General Plan. Under the INP, approximately 48 percent of the households (up to 2,914 households) and 60 percent of the jobs (11,562 jobs) would be established by 2025. By 2040, 100 percent of the households (up to 6,069 households) and 100 percent of the jobs (19,374 jobs) would be established. Compared to the City of Livermore General Plan assumptions for the INP area, which anticipate 2,178 households and 16,337 new jobs by 2040, the INP represents an approximately 179 percent increase in households and 19 percent increase in jobs by 2040. Compared to the Plan Bay Area assumptions for the INP area, the INP would have approximately 6 percent more households and 3 percent more jobs in 2025. By 2040, the INP would have an approximately 42 percent increase in the number of households and 58 percent increase in the number of jobs.

TABLE 3.A-2 PROJECTED GROWTH IN THE INP AREA THROUGH 2040

Population	2013	2025	2040
City of Livermore General Plan	--	--	--
Plan Bay Area for INP Area	4,187	7,510	11,663
Isabel Neighborhood Plan ^a	--	7,343	15,294
Households			
City of Livermore General Plan	--	2,178	2,178
Plan Bay Area for INP Area	1,519	2,737	4,260
Isabel Neighborhood Plan ^a	--	2,914	6,069
Jobs			
City of Livermore General Plan	--	11,335	16,337
Plan Bay Area for INP Area	3,300	11,265	12,237
Isabel Neighborhood Plan	--	11,562	19,374

Notes:

^a Assumes an average household size of 2.52 persons and an average vacancy rate of 5 percent.

-- = not available or not applicable

Sources:

Cambridge Systematics, 2017.

City of Livermore, 2016. Staff Report, Preferred Plan for the INP. July 5.

As described in Chapter 1, Introduction, the City of Livermore is the lead agency for the INP, which is undergoing a separate environmental review and approvals process from the

BART to Livermore Extension Project. The City of Livermore is preparing the INP to guide future development around a potential Isabel Station. For the purpose of this EIR, implementation of the INP is assumed to be implemented under the Proposed Project or DMU Alternative, but not under the Express Bus/BRT Alternative or Enhanced Bus Alternative.

Other Cumulative Projects and Plans. In addition to the Dublin/Pleasanton Station Parking Expansion and INP described above, a list was developed of other approved or reasonably foreseeable projects in the BART project corridor. The purpose of using a list approach in addition to the projections approach described above was to ensure that the impacts of major projects in the I-580 corridor (particularly construction impacts) would be included in the cumulative analysis. This list includes projects in Dublin, Pleasanton, and Livermore. The list of cumulative projects is provided in Appendix E.

d. ACEforward

The San Joaquin Regional Rail Commission (SJRR) is the designated owner, operator, and policy-making body for the Altamont Corridor Express (ACE) service, which focuses on connecting northern San Joaquin County, the Tri-Valley Area, and Silicon Valley by providing daily train service from Stockton to San Jose. SJRR proposes to implement ACEforward, a phased rail infrastructure and service improvement plan to increase frequency, increase service reliability, and enhance passenger facilities along the existing ACE service corridor from San Jose to Stockton, and to extend ACE service to Modesto and Merced. This improvement plan would provide the foundation for SJRR's long-term vision of intercity/commuter passenger rail services.

ACEforward includes near-term and longer-term improvements. Near-term improvements include plans to increase service to six trains per day and extend service to Modesto. Longer-term improvements include expanding service to 10 trains per day and extending service to Merced. These improvements are considered to be part of the future baseline for purposes of this EIR.

In addition, the ACEforward EIR considers 11 alternatives to connect ACE to BART in the Tri-Valley Area, as follows:

- Alternative P-TV-1a: ACE to BART Isabel Avenue at grade
- Alternative P-TV-1b: ACE to BART Isabel Avenue on elevated structure
- Alternative P-TV-1c: DMU/EMU to BART Isabel Avenue
- Alternative P-TV-1d: Bus shuttle from ACE Livermore to BART Isabel Avenue
- Alternative P-TV-2a: ACE to BART Dublin/Pleasanton at grade
- Alternative P-TV-2b: ACE to BART Dublin/Pleasanton on elevated structure

- Alternative P-TV-2c: DMU/EMU to BART Dublin/Pleasanton
- Alternative P-TV-2d: Existing bus shuttle from ACE Pleasanton to BART West Dublin/Pleasanton
- Alternative P-BART-1: BART to Greenville and ACE Greenville Road
- Alternative P-BART-2: BART to ACE Livermore intermodal and ACE Vasco Road
- Alternative P-BART-3: BART to ACE Livermore and ACE Vasco Road intermodal

Most of these alternatives would connect directly to the BART system. For instance, Alternatives P-TV-1a, b, and c would extend ACE to the proposed Isabel BART Station, and Alternatives P-TV-2 a, b, and c would extend ACE to the Dublin/Pleasanton BART Station. Alternatives P-BART-1, 2, and 3 would extend BART to meet ACE at Greenville, the Livermore intermodal, or the Vasco Road intermodal. The remaining two alternatives would use a bus shuttle to make the ACE-to-BART connection. These alternatives have not been developed enough to permit a comprehensive, detailed evaluation and will not be completed until at least 2023.¹³ The ACEforward EIR does not provide project-level environmental analysis of any BART connection alternative, which must be conducted before SJRCC or another lead agency may decide whether to proceed with a project connecting ACE to BART. Accordingly, at this time the long-term prospect of a future connection between ACE and BART is considered speculative, and not a reasonably foreseeable future project for purposes of the BART to Livermore Extension Project EIR.

¹³ San Joaquin Regional Rail Commission, 2017. ACEforward Draft Environmental Impact Report, Introduction, page 1-14. May.

