Chapter 3
NEPA and CEQA Transportation Operation Analysis

3.1 Introduction

This chapter includes a transportation analysis of the operational impacts of the following:

- The National Environmental Policy Act (NEPA) Alternatives based on *VTA's BART Silicon Valley—Phase II Extension Project Transportation Impact Analysis of the BART Extension Only* ("BART Extension TIA") (Hexagon 2017~~6~~a).
- The California Environmental Quality Act (CEQA) Alternatives based on *VTA*'s *BART Silicon Valley – Phase II Extension Project Transportation Impact Analysis of the BART Extension and VTA's Transit-Oriented Joint Development* ("BART Extension with TOJD TIA") (Hexagon 2017~~6~~b).

Accordingly, this chapter analyzes the transportation-related impacts of three alternatives: the No Build Alternative (for NEPA and CEQA purposes), the BART Extension Alternative (for NEPA and CEQA purposes), and the BART Extension with Transit-Oriented Joint Development (TOJD) Alternative (for CEQA purposes only). Refer to Chapter 2, *Alternatives*, for a full description of the NEPA and CEQA Alternatives. Each of these alternatives is evaluated under 2015 Existing and 2035 Forecast Year conditions.

This chapter presents the regulatory setting for transportation and the 2015 Existing conditions for transit, bicycle, and pedestrian facilities; the study intersections near the BART stations; freeway segments; and freeway ramps. Existing and projected future transit services, forecasts of transit patronage, and effects on travel patterns and the transportation environment are also described, and the projected adverse transportation impacts under NEPA or CEQA, as appropriate, are quantified. Circulation, parking, and non-motorized conditions near the BART stations/TOJD sites are also addressed. Traffic operations during the peak hours are evaluated, with emphasis on intersection and freeway levels of service (LOS), and measures are identified for mitigating substantial adverse effects on the roadway network for the 2015 Existing and 2035 Forecast Year.

The BART Extension TIA also analyzed the 2025 No Build and 2025 BART Extension conditions. Similarly, the BART Extension with TOJD TIA analyzed the 2025 No Build and 2025 BART Extension with TOJD conditions. Those analyses were prepared for comparative purposes and can be reviewed in the TIAs. Because traffic volumes are projected to be greater in 2035 than in 2025, mitigation requirements have been based on a worst case condition.

Construction-phase transportation effects are discussed in Chapter 5, *NEPA Alternatives Analysis of Construction*. The CEQA analysis of cumulative and growth-inducing transportation impacts is provided in Chapter 7, *Other NEPA and CEQA Considerations*.

3.2 Regulatory Setting

~~There are no relevant state regulations for identifying environmental effects on transportation.~~ On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 in order to further the state's commitment to its climate change goals. Environmental review of transportation impacts currently focuses on the delay that vehicles experience at intersections and on roadway segments (known as "level of service" or LOS). Under SB 743, the focus of transportation impact analysis will shift from driver delay to reduction of greenhouse gas (GHG) emissions, creation of multimodal networks, and promotion of a mix of land uses. SB 743 requires the Governor's Office of Planning and Research (OPR) to amend the State CEQA Guidelines (Title 14 of the California Code of Regulations, Division 6, Chapter 3, Sections 15000-15387) to provide an alternative to LOS for evaluating transportation impacts.

Pursuant to SB 743, OPR released a *Preliminary Discussion Draft of Updates to the CEQA Guidelines* in August 2014 and a *Revised Proposal on Updates to the CEQA Guidelines* in January 2016. These documents propose Vehicle Miles Traveled (VMT) as the replacement metric for LOS. In light of the growing importance of VMT as a basis for analyzing transportation impacts, discussion of VMT is included in this chapter.

However, because OPR has not yet adopted new CEQA Guidelines, LOS is still used as the primary metric for evaluating impacts on intersections and freeways in this SEIS/SEIR. Level of service is still the adopted metric for analyzing impacts in the City of San Jose, the City of Santa Clara, and by VTA, in its capacity as the Congestion Management Agency for Santa Clara County.

At a local level, the City of San Jose has adopted a mode shift goal and a VMT/GHG reduction goal as part of the *Envision San Jose 2040 General Plan*. *Vision Zero*, adopted in 2015, serves as the climate action plan for the City of San Jose and also includes transportation-related goals and policies. The City of Santa Clara's General Plan, adopted in 2010, and its Climate Action Plan, adopted in 2013, include goals and policies related to all travel modes and strategies for reducing VMT and GHG.

The following regional and local regulations and planning policies and guidelines are relevant to the alternatives analysis. Discussion of the documents relevant to implementation is included in Chapter 6, Section 6.11, *Land Use*.

- Santa Clara Valley Transportation Authority
  - *Valley Transportation Plan 2040*
  - Community Design and Transportation Program

- Metropolitan Transportation Commission (MTC)
  - *Transportation 2035 Plan for the San Francisco Bay Area*
  - *Plan Bay Area*
  - Resolution 3434
  - *2008 Strategic Plan*
  - Transportation for Livable Communities Program
- San Francisco Bay Area Rapid Transit District
  - *BART Strategic Plan*
  - BART System Expansion Policy

The *Santa Clara Countywide Bicycle Plan* (Bicycle Plan), adopted by VTA in August 2008, identifies various existing and/or planned cross-county bicycle corridors in the vicinity of the BART stations. The purpose of the cross-county bicycle corridors, as described in the Bicycle Plan, is to provide continuous connections between Santa Clara County jurisdictions and to adjacent counties, and to serve the major regional trip-attractors in the County. The *San Jose Bike Plan 2020* was adopted on November 17, 2009, and includes a vision statement of becoming "a city where bicycling is safe, convenient, and commonplace." The *San Jose Bike Plan 2020* includes specific goals and performance measures for achieving that vision throughout the City.

In addition, VTA's *Transportation Impact Analysis Guidelines*, most recently adopted in October 2014, are used by local agencies when analyzing the transportation impacts of projects on the transportation system. The City of San Jose has prepared the *2009 Traffic Impact Analysis Handbook* for use in conducting traffic studies for proposed projects in the City of San Jose. The Handbook includes all of the City's transportation-related policies, including the City's LOS standards and criteria for significant impacts.

3.2.1 Methods of Analysis

This section presents a summary of the methods used to determine the traffic conditions for each alternative. It includes descriptions of the data requirements, the analysis methodologies, and the applicable LOS standards. A description of the stations where intersection analysis was conducted under each alternative and the number of study intersections to which the LOS standards are applied under each alternative is also provided. A more detailed description of assumptions and analysis approaches is provided in the BART Extension TIA and the BART Extension with TOJD TIA.

3.2.1.1 Data Collection

The data required for the analysis were obtained from new traffic counts, previous traffic studies, the Cities of San Jose and Santa Clara, the Congestion Management Program (CMP)

Annual Monitoring Report, and field observations. The following data were collected from these sources.

- Existing traffic volumes.
- Existing and planned lane configurations.
- Signal timing and phasing (for signalized intersections only).
- Traffic volumes, average speed, and density (for freeway segments under 2015 Existing conditions).
- Traffic from approved but not yet completed developments.

3.2.1.2 VTA Travel Demand Forecasting Model

The model chosen for use in the analysis is VTA's 2012 PD Phase II, December 2014 Travel Demand Forecasting Model, hereafter referred to as the VTA Model. The VTA Model was developed as an extension and refinement of the Metropolitan Transportation Commission's (MTC's) Regional Model (MTC Model). The VTA Model relies extensively upon MTC Model structure, coding conventions, and calculation procedures. This was done to ensure consistency between the two modeling systems. The VTA Model expands on the MTC Model structure in order to provide significantly more detail and forecasting precision within and surrounding Santa Clara County.

3.2.1.3 Intersection Turning Movement Adjustments

Adjustments were made to the forecasted model volumes to account for the coarse turn-movements produced by the VTA Model. Although the VTA Model used for this analysis was updated to include all of the study intersections, the general regional roadway network used by the VTA Model does not represent all minor streets. The lack of coding of these minor streets causes the VTA Model to over-assign traffic volumes to those facilities that are represented in the network. This results in inaccurate forecasted turn-movement volumes that require adjustments to calibrate them with actual travel patterns and use of proper facilities. The adjustment process begins by comparing and adjusting base model forecasts (2015 Existing forecasts representing existing conditions) with existing traffic counts. By adjusting the base model forecasts with existing volumes, model projections are calibrated with actual travel patterns and use of proper facilities. Once the base model forecasts are calibrated, future model forecasts are developed for the 2035 Forecast Year. These are all considered raw model volume forecasts, which on their own do not represent future volume conditions, but are simply used to forecast growth and travel pattern changes expected in the future.

To obtain the final traffic volume forecasts, raw model volume forecasts in conjunction with existing count data are used. Future traffic volume forecasts are developed by adding to the existing traffic count data the projected growth between the base (2015 Existing) and the

future (2035 Forecast Year) model volume forecasts. The final traffic volume forecasts are then used as input to the analysis of intersections, freeway segments, and freeway ramps.

3.2.1.4 Stations Analyzed

The Phase II BART Extension includes four stations: Alum Rock/28th Street, Downtown San Jose, Diridon, and Santa Clara. However, different stations and different numbers of study intersections were analyzed for the No Build Alternative, the BART Extension Alternative, and the BART Extension with TOJD Alternative. The reasons for the differences are highlighted here to assist the reader in later sections of this chapter.

The BART Extension Alternative includes intersection analyses at three of the four Phase II BART Extension stations: Alum Rock/28th Street, Diridon, and Santa Clara. The Downtown San Jose Station (East and West Options) was not included in the intersection LOS or parking analysis because it would not include any kiss-and-ride (KNR) or park-and-ride (PNR) facilities and therefore would not generate a significant amount of vehicular traffic on the surrounding roadway network or parking demand. This station would be analogous to BART stations in downtown San Francisco and Oakland, as all station facilities would be below grade, and patrons would access BART by walking, biking, and taking transit.

The BART Extension with TOJD Alternative analyzes intersections in the vicinity of two stations: Alum Rock/28th Street and Santa Clara. The Downtown San Jose Station (East and West Options) and the Diridon Station (South and North Options) were not included in the BART Extension with TOJD TIA intersection or parking demand analysis because they are in the Downtown Core Area as defined by the City of San Jose's *Downtown Strategy 2000 Environmental Impact Report*, and the office and retail uses proposed for the TOJD at these stations are fully consistent with that environmental impact report (EIR). More information on the *Downtown Strategy 2000* is included in the Section 3.5.3, *BART Extension with TOJD Alternative*.

In order to provide a means of comparison for the stations covered under both of the above alternatives, the No Build Alternative includes intersection analysis for three stations: Alum Rock/28th Street, Diridon, and Santa Clara.

3.2.1.5 Study Intersections

For the two stations (Alum Rock/28th Street and Santa Clara) that are analyzed under both the BART Extension Alternative and the BART Extension with TOJD Alternative, the study areas around the stations are the same, but the TOJD has the potential to affect additional intersections due to the estimated number of trips generated by the TOJD. Thus, there are more intersections discussed near the Alum Rock/28th Street Station and Santa Clara Station under the BART Extension with TOJD Alternative than under the BART Extension Alternative because the additional traffic generated by the TOJD would result in more intersections where there may be more than 10 additional vehicles per lane per hour.

The BART Extension Alternative analyzes the LOS at 63 intersections in the vicinity of three stations, as follows (CMP intersections are those that are designated for inclusion in VTA's CMP [more information on the CMP is included in Section 3.2.1.6]).

- Alum Rock/28th Street Station: 17 intersections (including 3 CMP intersections).
- Diridon Station (South and North Options): 29 intersections (including 10 CMP intersections).
- Santa Clara Station: 17 intersections (including 6 CMP intersections).

The BART Extension with TOJD Alternative analyzes the LOS at 62 intersections in the vicinity of two stations.

- Alum Rock/28th Street Station: 27 intersections (including 7 CMP intersections).
- Santa Clara Station: 35 intersections (including 15 CMP intersections).

For the 2015 Existing and 2035 Forecast Year No Build Alternative, a total of 91 intersections are analyzed in order to provide a means of comparison for all intersections in both of the other alternatives.

- Alum Rock/28th Street Station: 27 intersections (including 7 CMP intersections).
- Diridon Station: 29 intersections (including 10 CMP intersections).
- Santa Clara Station: 35 intersections (including 15 CMP intersections).

Of the 35 study intersections in the vicinity of the Santa Clara Station, 13 are in the City of San Jose and 22 are in the City of Santa Clara. All of the study intersections near the Alum Rock/28th Street Station and the Diridon Station are within the City of San Jose.

The freeway analysis evaluates the same segments under the No Build, BART Extension, and BART Extension with TOJD Alternatives. These freeway segments are on Interstate (I-) 280, I-680, I-880, U.S. 101, and State Route (SR-) 87. The specific segments are identified in the two technical reports referenced at the beginning of this chapter.

3.2.1.6 Intersection Analysis Methodologies and Level of Service Standards

This section presents the analysis methodologies used for signalized and unsignalized intersections. The Cities of San Jose and Santa Clara and VTA in its role as the Congestion Management Agency for the Santa Clara County CMP each have adopted LOS standards for intersections. These standards are used in conjunction with each jurisdiction's definition of significant impact to determine if a project would have a significant impact on an intersection.

As noted above, a total of 91 intersections are analyzed in this chapter, of which 32 have been designated by VTA as intersections included in the Santa Clara County CMP. California state law (State Government Code 65089) mandates the creation of a CMP in all

urban counties and requires them to designate roadways and intersections of regional importance to be monitored. The purpose of the CMP, which was instituted in 1991, is to monitor land use changes within its jurisdiction, develop procedures to alleviate and control congestion, and promote countywide solutions to traffic congestion. CMP intersections are located on the CMP roadway network, which includes freeways and their interchanges, county expressways, and principal arterials. Principal arterials are defined by VTA as roadways that meet one of the following criteria: (a) state highway, (b) six-lane facility, or (c) non-residential arterial with average daily traffic (ADT) of 30,000 vehicles per day or greater. Certain major intersections on this roadway network have been designated as CMP intersections and are included in VTA's biannual CMP Monitoring Report.

Level of Service at Signalized Intersections

All of the signalized study intersections are within the Cities of San Jose and Santa Clara and are therefore subject to their corresponding City's LOS standards. Both Cities' LOS methodologies are based on the *Highway Capacity Manual 2000* (HCM 2000) method for signalized intersections. Signalized intersection operations are evaluated using the HCM 2000 Operations Method and TRAFFIX software. The method evaluates intersection LOS on the basis of average control delay time for all vehicles at the intersection. Because TRAFFIX is also the CMP-designated intersection LOS software, the City of San Jose and City of Santa Clara methodologies employ the CMP default values for the analysis parameters.

The correlation between average delay and LOS is shown in Table 3-1. Many of the terms used in the LOS definitions are included in Chapter 12, *Definitions, Abbreviations, and Acronyms*.

Table 3-1: Signalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Control Delay per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0
Source: Transportation Research Board, 2000		

Level of Service Standards

The City of San Jose LOS standard for all signalized intersections is LOS D or better. The City of Santa Clara LOS standard is LOS D or better at all City-controlled intersections and LOS E or better at all expressway and CMP intersections. The CMP LOS standard for signalized intersections is LOS E or better. Of the 91 total intersections near all three of the stations for which a level of service analysis has been conducted, 32 have been designated as CMP intersections

This chapter evaluates CMP intersections within San Jose under both the City's standard of LOS D and the CMP standard of LOS E. As seen in Table 3-2, for CMP intersections within Santa Clara, there is no difference between the City's standard and the CMP standard. The level of service standards for signalized intersections for this chapter are summarized in Table 3-2.

Table 3-2: Signalized Intersection Level of Service Standards

Jurisdiction or Agency	LOS Standard
City of San Jose	D
City of Santa Clara	
City-Controlled Intersections	D
Expressway or CMP Intersections	E
VTA as Congestion Management Agency (CMP intersections only)	E

City of San Jose Protected Intersection Policy

One of the analyzed intersections, 24th Street and Santa Clara Street near the Alum Rock/28th Street Station, is identified as a Protected Intersection in the City of San Jose's Transportation Level of Service Policy, Council Policy 5-3. Protected Intersections consist of locations (there are a total of 25 in the City of San Jose) that have been built to their planned maximum capacity and where expansion of the intersection would have an adverse effect on other transportation facilities (e.g., pedestrian, bicycle, transit systems). Protected Intersections are, therefore, not required to maintain an LOS D, which is the City of San Jose standard. The deficiencies at all 25 Protected Intersections have been disclosed and overridden in previous EIRs. None of the alternatives were found to have a significant impact at the intersection of 24th Street and Santa Clara Street.

Unsignalized Intersection

One unsignalized intersection is being analyzed—Lafayette Street and Harrison Street, which is in the City of Santa Clara and has two-way stop control. The City of Santa Clara does not have an LOS standard for unsignalized intersections. Therefore, the analysis of the unsignalized study intersection is presented for informational purposes only.

The unsignalized study intersection was analyzed using TRAFFIX software, which is based on the HCM 2000 method. This method is applicable for both two-way and all-way

stop-controlled intersections. For the analysis of stop-controlled intersections, the HCM 2000 methodology evaluates intersection operations on the basis of average control delay time for all vehicles on the stop-controlled approaches. For the purpose of reporting LOS for one- and two-way stop-controlled intersections, the delay and corresponding LOS for the stop-controlled minor street approach with the highest delay is reported. The correlation between average control delay and LOS for unsignalized intersections is shown in Table 3-3.

Table 3-3: Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (Seconds)
A	Operations with very low delays occurring with favorable progression.	Up to 10.0
B	Operations with low delays occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operation with longer delays due to a combination of unfavorable progression of high V/C ratios.	25.1 to 35.0
E	Operation with high delay values indicating poor progression and high V/C ratios. This is considered to be the limited of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	>50.0
Source: Transportation Research Board 2000		

Signal Warrant

The LOS analysis at the unsignalized intersection is supplemented with an assessment of the need for signalization of the intersection. The need for signalization of unsignalized intersections is typically assessed based on the Peak Hour Volume Warrant (Warrant 3) described in the *California Manual on Uniform Traffic Control Devices for Streets and Highways*, Part 4, Highway Traffic Signals, 2014. This method makes no evaluation of intersection LOS, but simply provides an indication of whether vehicular peak hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal.

3.2.1.7 Freeway Segment Analysis Methodologies and Level of Service Standards

As prescribed in the CMP technical guidelines, the LOS for freeway segments is estimated based on vehicle density. Density is calculated by the following formula.

$$D = V / (N*S)$$

where:

D= density, in vehicles per mile per lane

V= peak hour volume, in vehicles per hour (vph)

N= number of travel lanes

S= average travel speed, in miles per hour (mph)

The vehicle density on a segment is correlated to LOS as indicated in Table 3-4. The CMP requires that mixed-flow lanes and auxiliary lanes be analyzed separately from high-occupancy vehicle (HOV; carpool) lanes. The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for segments six lanes or wider in both directions and a capacity of 2,200 vphpl be used for segments four lanes wide in both directions. The CMP defines an acceptable LOS for freeway segments as LOS E or better.

Table 3-4: Freeway Segment Level of Service Definition Based on Density

Level of Service	Description	Density (vehicles/mile/lane)
A	Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	0–11
B	Speeds at the free-flow speed are generally maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.	>11–18
C	Speeds at or near the free-flow speed of the freeway prevail. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more vigilance on the part of the driver.	>18–26
D	Speeds begin to decline slightly with increased flows at this level. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels.	>26–46
E	At this level, the freeway operates at or near capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream, leaving little room to maneuver within the traffic stream.	>46–58
F	Vehicular flow breakdowns occur. Large queues form behind breakdown points.	>58
Source: Transportation Research Board 2000		

3.2.1.8 Interchange Ramp Analysis

An assessment of queue lengths and operations on freeway ramps serving the station areas was performed where traffic volumes are projected to increase as a result of the BART Extension Alternative or the BART Extension with TOJD Alternative. Only those ramps where one of the alternatives is projected to add 10 or more trips per lane to the freeway ramps were included in this analysis.

3.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, a project would have a significant impact if it would result in any of the conditions listed below. The same criteria have been used to determine NEPA adverse effects.

- Conflict with a 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 intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with a congestion management program, including level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- 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 risk.
- Substantially increase hazards due to a design feature (e.g., sharp curve or dangerous intersection) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

~~In addition to the above criteria, the BART Extension and BART Extension with TOJD Alternatives are evaluated in terms of potential impacts on two large event centers located near stations and potential impacts on parking.~~

Significance criteria are used to establish what constitutes an impact at a signalized intersection or on a freeway segment. For the Congestion Management Agency, the City of San Jose, and the City of Santa Clara,[1] the methodology for determining if there would be a significant impact under CEQA at an intersection requires first determining if the LOS at the intersection would be acceptable or unacceptable under the condition being analyzed, based on the LOS standards described above. Generally, if an intersection falls below the acceptable LOS standard to an unacceptable LOS, then there would be a significant impact. If the intersection was already operating at an unacceptable LOS, then there would be a significant impact only if the average critical delay increases by more than 4 seconds and

[1] The CMP criteria for significant impacts at intersections and on freeways are from VTA's *Transportation Impact Analysis Guidelines* (2014). The City of San Jose's significant impact criteria are from the City's *2009 Traffic Impact Analysis Handbook.* There is no official document available with the City of Santa Clara's impact criteria, but the criteria used here are consistent with other recent traffic studies done in Santa Clara and are based on communications with City of Santa Clara staff.

the critical volume-to-capacity (V/C) ratio increases by more than 0.01.[2] NEPA considers the context and intensity of an impact to determine if there would be an adverse effect, and these CEQA thresholds provide an appropriate measure of context and intensity. The following sections provide the specific significance thresholds used by VTA and the Cities of San Jose and Santa Clara. Many of the terms used in these definitions of significant impact are included in Chapter 12, *Definitions, Abbreviations, and Acronyms*.

In addition to the above criteria, the BART Extension and BART Extension with TOJD Alternatives are evaluated in terms of potential impacts on two large event centers located near stations and potential impacts on parking. This SEIS/SEIR evaluates long-term parking effects differently under NEPA and CEQA.

Under NEPA, transit projects can affect the availability and location of parking spaces, which can be a local concern. Potential parking impacts include consequences of, or impacts from, new parking lots constructed to serve transit facilities, changes in parking demand as a result of transit facility construction/service expansion, and changes to on- and off-street parking during construction of a project. Construction-related impacts on parking are discussed in Chapter 5, *NEPA Alternatives Analysis of Construction*. Potential parking impacts include direct impacts described above and indirect transportation and air quality impacts resulting from insufficient parking resulting in autos circling while looking for parking. The FTA's recommendations on their website under regulations and guidance states that federal environmental documents for transit projects should identify anticipated parking impacts and provide ways to avoid, minimize, and mitigate any adverse effects on nearby residential or business communities (FTA n.d.).

Revisions to the State CEQA Guidelines that became effective on January 1, 2010, eliminated effects on parking. These revisions were based on the decision in *San Franciscans Upholding the Downtown Plan v. City & County of SF, 102 Cal.App.4th 65 (September 30, 2002)*, in which the court ruled that parking deficits are an inconvenience to drivers but not a significant physical impact on the environment. As a result of this change to the State CEQA Guidelines, VTA adopted significance thresholds on November 4, 2010, that did not include the effects of parking. This is consistent with the intent of Public Resources Code Section 21099(d)(1) which states that: "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment." The project is located on sites surrounded by urban development and is therefore infill. By definition, the location of a transit center is within a transit priority area.

In addition, Section 7.1.3.2, *Area Plans/Studies*, *Core Modification Study (#19)* provides a discussion of how core parking is being addressed, and describes BART's adopted System Expansion Policy, including the potential to add BART parking as station improvements are

[2] The thresholds of 4 seconds of average critical delay and 0.01 increase in V/C are from the VTA Congestion Management Program's *Transportation Impact Analysis Guidelines* (2014) and the City of San Jose's (2009) *Traffic Impact Analysis Handbook.*

implemented, but also considers alternatives to driving to stations, such as improvements to station access encouraging carpool, transit, bicycle, and pedestrian access.

Parking conditions evolve over time as people alter their modes and patterns of travel in response to changing land uses and transportation options. The availability of parking spaces is not part of the permanent physical environment subject to environmental review. Therefore, the loss of parking spaces and the generation of parking demand in excess of the parking supply provided by the project are not considered direct significant impacts on the physical environment. However, parking losses caused by a project or parking demand generated by a project in excess of the parking supply provided by the project could result in a significant indirect (secondary) impact[3] on the environment if drivers circling for parking cause significant secondary effects on traffic operations or air quality. The criteria for the evaluation of secondary impacts on traffic operation and air quality are the same as those used for direct (primary) impacts. See above for criteria used as the thresholds for evaluating secondary impacts on traffic operations and Sections 4.2.3, *Methodology*, and 6.3.3, *CEQA Thresholds of Significance*, for thresholds for evaluating secondary impacts on air quality.

3.2.2.1 Congestion Management Agency

Definition of Significant Intersection Impacts under 2015 Existing and 2035 Forecast Year Conditions

For CMP intersections, a significant traffic impact at an intersection is identified by comparing either the BART Extension against No Build conditions (for NEPA and CEQA purposes) or the BART Extension with TOJD against No Build conditions (for CEQA purposes only). The CMP definition of significant intersection impacts below applies to both the 2015 Existing and 2035 Forecast Year. Very similar criteria are used by the City of San Jose for 2015 Existing conditions and by the City of Santa Clara for both 2015 Existing and 2035 Forecast Year conditions.

A project alternative is said to create a significant impact on traffic conditions under 2015 Existing or 2035 Forecast Year conditions at a CMP intersection if for either peak hour:

1. The LOS at a CMP-designated intersection degrades from an acceptable LOS E or better under No Build conditions to an unacceptable LOS F under the BART Extension or BART Extension with TOJD Alternative.

   Or

2. The LOS at a CMP-designated intersection is an unacceptable LOS F under No Build conditions and the addition of BART Extension traffic or BART Extension with TOJD traffic causes both the average critical-movement delay at the intersection to increase by four or more seconds *and* the critical volume-to-capacity ratio (V/C) to increase by .01 or more under the BART Extension or BART Extension with TOJD Alternative.

[3] *Indirect* or *secondary* effects that are caused by a project are those that occur either later in time or at a different location, whereas *direct* or *primary* effects of a project occur at the same time and place.

An exception to Rule 2 above applies when the addition of BART Extension traffic or BART Extension with TOJD-generated traffic reduces the amount of average control delay for critical movements (i.e., the change in average control delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 1 percent (0.01) or more.

Definition of Significant Freeway Segment Impacts under 2015 Existing and 2035 Forecast Year Conditions

The CMP defines an acceptable LOS for freeway segments as LOS E or better. The same definition of significant freeway impacts is applied to both 2015 Existing and 2035 Forecast Year. A project alternative is said to create a significant impact on traffic conditions on a freeway segment if, for either peak hour:

1. The LOS on a freeway segment degrades from an acceptable LOS E or better under No Build conditions to an unacceptable LOS F under the BART Extension or BART Extension with TOJD Alternative.

   Or

2. The LOS on a freeway segment is operating at an unacceptable LOS F under No Build conditions and the amount of BART Extension traffic or BART Extension with TOJD traffic added to that segment constitutes at least 1 percent of capacity on that segment under either the BART Extension or BART Extension with TOJD Alternative.

3.2.2.2 City of San Jose Definition of Significant Intersection Impacts

The City of San Jose uses different definitions of significant intersection impacts for 2015 Existing and 2035 Forecast Year conditions.

Definition of Significant Intersection Impacts under 2015 Existing Conditions

The City of San Jose's definition of significant intersection impacts under existing conditions is identical to the CMP definition above, except that the acceptable LOS changes from E to D and different criteria are specified for Protected Intersections. A project is said to create a significant impact on 2015 Existing traffic conditions at a signalized intersection in the City of San Jose if, for either peak hour:

1. The LOS at the intersection degrades from an acceptable LOS D or better under 2015 Existing No Build conditions to an unacceptable LOS E or F under 2015 Existing BART Extension or 2015 Existing BART Extension with TOJD conditions.

   Or

2. The LOS at the intersection is an unacceptable LOS E or F under 2015 Existing No Build conditions and the addition of BART Extension or BART Extension with TOJD trips

causes both the average critical-movement delay at the intersection to increase by 4 or more seconds and the critical V/C ratio to increase by 1 percent (0.01) or more under 2015 Existing BART Extension or 2015 Existing BART Extension with TOJD conditions.

Or

3. The LOS at a designated City of San Jose Protected Intersection is an unacceptable LOS E or F under 2015 Existing No Build conditions and the addition of BART Extension or BART Extension with TOJD trips causes the V/C ratio to increase by 0.5 percent (0.005) or more under 2015 Existing BART Extension conditions or 2015 Existing BART Extension with TOJD conditions.

An exception to Rule 2 above applies when the addition of BART Extension traffic or BART Extension with TOJD-generated traffic reduces the amount of average control delay for critical movements (i.e., the change in average control delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C ratio value by 1 percent (0.01) or more.

Definition of Significant Intersection Impacts under 2035 Forecast Year Conditions

In the City of San Jose, the evaluation of whether a project would cause a significant impact under cumulative conditions is different from the evaluation process used for Existing and Background conditions. The City of San Jose's "Cumulative Plus Project" (which would be the 2035 Forecast Year BART Extension Alternative or the 2035 Forecast Year BART Extension with TOJD Alternative) evaluation methodology requires comparing the 2035 Plus Project scenario to the 2025 No Build scenario, and then determining if the BART Extension or BART Extension with TOJD Alternatives would contribute more than 25 percent of the total increase in traffic between the 2025 No Build scenario and the 2035 Plus Project scenario. Note that the term *cumulative project trips* in San Jose's definition of significant impacts below refers to all of the trips generated by all of the projects or land uses that are included in the 2035 (Cumulative) Plus Project scenario (including the relevant project alternative) that were not included in the 2025 No Build scenario.

In the City of San Jose, a significant cumulative traffic impact at an intersection is identified by comparing 2035 (Cumulative) Plus Project conditions against 2025 (Background) No Build conditions. The future projects included in the 2035 Cumulative Plus Project scenario *collectively* would create a significant impact on traffic conditions at a signalized intersection in the City of San Jose if, during either the AM or PM peak hour:

1. The LOS at the intersection degrades from an acceptable LOS D or better under 2025 No Build conditions to an unacceptable LOS E or F under 2035 Forecast Year BART Extension or 2035 Forecast Year BART Extension with TOJD conditions.

Or

2. The LOS at the intersection is an unacceptable LOS E or F under 2025 No Build conditions and the addition of cumulative project trips causes both the average critical-movement delay at the intersection to increase by 4 or more seconds and the V/C ratio to increase by 0.01 or more under 2035 Forecast Year BART Extension or 2035 Forecast Year BART Extension with TOJD conditions.

   Or

3. The LOS at a designated Protected Intersection is an unacceptable LOS E or F under 2025 No Build conditions and the addition of cumulative project trips causes the V/C ratio to increase by 0.5 percent (0.005) or more under 2035 Forecast Year BART Extension or 2035 Forecast Year BART Extension with TOJD conditions.

An exception to Rule 2 above applies when the addition of BART Extension traffic or BART Extension with TOJD traffic reduces the amount of average delay for critical movements (i.e., change in average delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C ratio value by 0.01 or more.

A *single project's* contribution to a 2035 Cumulative Plus Project intersection impact is deemed considerable in the City of San Jose if the proportion of project traffic (i.e., BART Extension traffic for NEPA and CEQA purposes or BART Extension with TOJD traffic for CEQA purposes only) represents 25 percent or more of the increase in total volume from 2025 No Build conditions to 2035 Cumulative Plus Project conditions.

3.2.2.3 City of Santa Clara Definition of Significant Intersection Impacts

Like the Congestion Management Agency, the City of Santa Clara uses the same definition of significant intersection impacts for 2015 Existing and 2035 Forecast Year conditions. Also, Santa Clara's definition is identical to the CMP definition, except that for City-controlled intersections an unacceptable LOS is E or F, and for expressway and CMP intersections an unacceptable LOS is F.

In the City of Santa Clara, a significant traffic impact at an intersection is identified by comparing No Build conditions against BART Extension or BART Extension with TOJD conditions. The BART Extension and BART Extension with TOJD are said to create a significant impact on traffic conditions at a signalized intersection in the City of Santa Clara if for either peak hour:

1. The LOS at the intersection degrades from an acceptable level (LOS D or better at all City-controlled intersections and LOS E or better at all expressway and CMP intersections) under No Build conditions to an unacceptable level (LOS E or F at City-controlled intersections and LOS F at expressway and CMP intersections) under BART Extension conditions or BART Extension with TOJD conditions,

   Or

2. The LOS at the intersection is an unacceptable level (LOS E or F at City-controlled intersections and LOS F at expressway and CMP intersections) under No Build conditions and the addition of BART Extension traffic or BART Extension with TOJD traffic causes both the average critical delay at the intersection to increase by four or more seconds *and* the V/C to increase by 1 percent (0.01) or more under BART Extension conditions or BART Extension with TOJD conditions.

An exception to Rule 2 above applies when the addition of BART Extension traffic or BART Extension with TOJD-generated traffic reduces the amount of average control delay for critical movements (i.e., the change in average control delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 1 percent (0.01) or more.

3.3 2015 Existing Conditions

3.3.1 Transit Service

Existing transit services consist of bus services, light rail transit (LRT), shuttle services, paratransit service, and inter-county services, and are briefly described below. A complete description of existing services is included in VTA's *Short Range Transit Plan FY 2014–2023* (Santa Clara Valley Transportation Authority 2014b).

VTA currently operates 69 bus routes, which consist of 17 core routes, 1 rapid route, 17 local routes, 18 community bus routes, 12 express routes, and 4 limited stop routes.

VTA also operates three LRT routes: Ohlone/Chynoweth to/from Almaden, Alum Rock to/from Santa Teresa, and Mountain View to/from Winchester. Total fleet size to operate the LRT service is 99 low-floor light rail vehicles. VTA provides shuttle service to LRT stations and major Silicon Valley employment destinations, activity centers, and transit facilities and offers accessible paratransit services for seniors and the disabled community.

VTA is a member of the Peninsula Corridor Joint Powers Board, which operates Caltrain service in Santa Clara, San Mateo, and San Francisco Counties. VTA is also a member of the Capitol Corridor Joint Powers Board, which operates train service from Placer County to Santa Clara County.

BART currently operates five routes: Pittsburg/Bay Point to/from San Francisco International Airport, Fremont to/from Richmond, Fremont to/from Daly City, Richmond to/from Millbrae and to Daly City during evenings and weekends, and Dublin/Pleasanton to/from Daly City. Figure 1-2 in Chapter 1, *Purpose and Need*, shows these existing and planned BART systems. Total fleet size to operate BART service is 669 cars.

Existing transit service to the areas around the four future stations (Alum Rock/28th Street, Downtown San Jose, Diridon, and Santa Clara) is provided by VTA, Altamont Corridor

Express (ACE), Amtrak, and Caltrain. The transit services are described below and shown on Figures 3-1, 3-2, and 3-3.

3.3.1.1 VTA Transit Service

The future Alum Rock/28th Street, Downtown San Jose, Diridon, and Santa Clara Stations are served directly by several local bus routes, express bus routes, inter-county bus routes, free shuttles, and LRT lines.

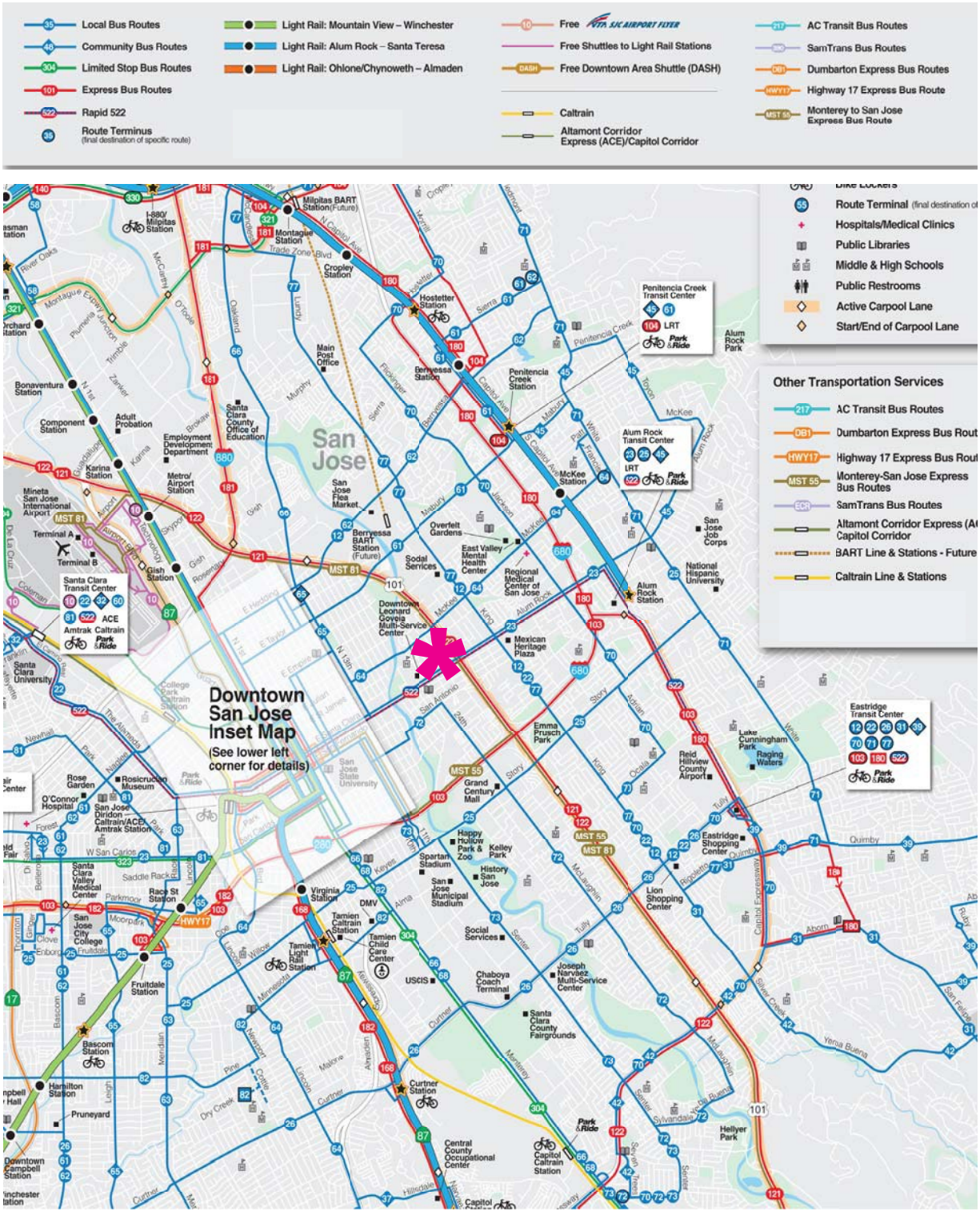
Local Bus Routes

The area around the future Alum Rock/28th Street Station is served by the following VTA local bus routes.

- 22 (Eastridge Transit Center to Palo Alto Transit Center) with 12-minute headways during the commute hours.
- 23 (De Anza College to Alum Rock Transit Center) with 12-minute headways during the commute hours.
- 64 (Almaden LRT Station to McKee & White) with 15-minute headways during the commute hours.

The area around the future Downtown San Jose Station is served by the following VTA local bus routes.

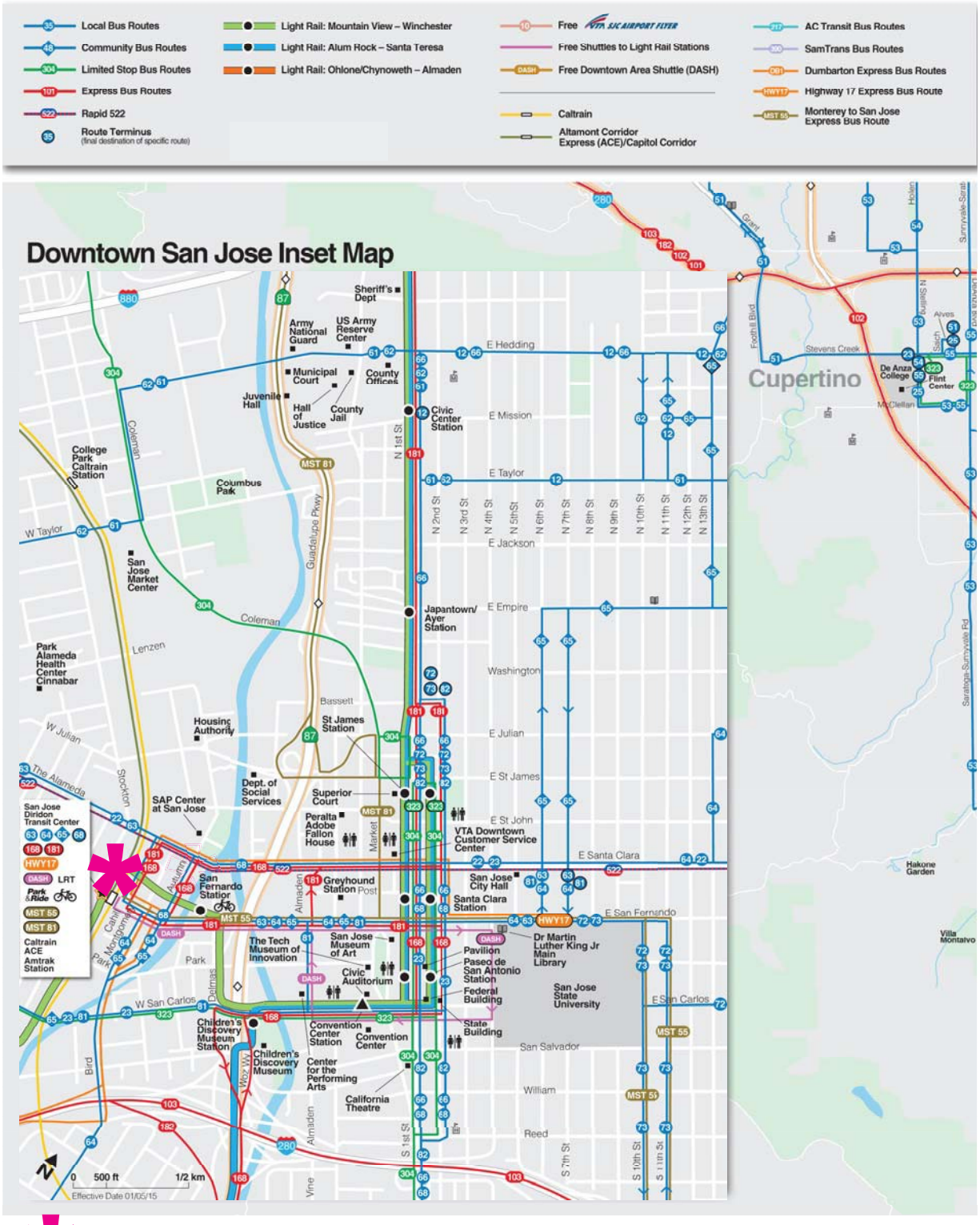
- 22 (Eastridge Transit Center to Palo Alto Transit Center) with 12-minute headways during the commute hours.
- 23 (De Anza College to Alum Rock Transit Center) with 12-minute headways during the commute hours.
- 66 (Kaiser San Jose to Milpitas/Dixon Road via Downtown San Jose) with 15-minute headways during the commute hours.
- 68 (Gilroy Transit Center to San Jose Diridon Transit Center) with 15- to 20-minute headways during the commute hours.
- 72 (Santa Teresa to Downtown San Jose) with 15- to 20-minute headways during the commute hours.
- 73 (Snell/Capitol to Downtown San Jose) with 15-minute headways during the commute hours.
- 82 (Westgate Mall to Downtown San Jose) with 30 minutes headways during the peak commute hours.



Source: VTA's Bus & Rail Map, January 2015.

Graphics ... 00332.13 (11-13-2015)

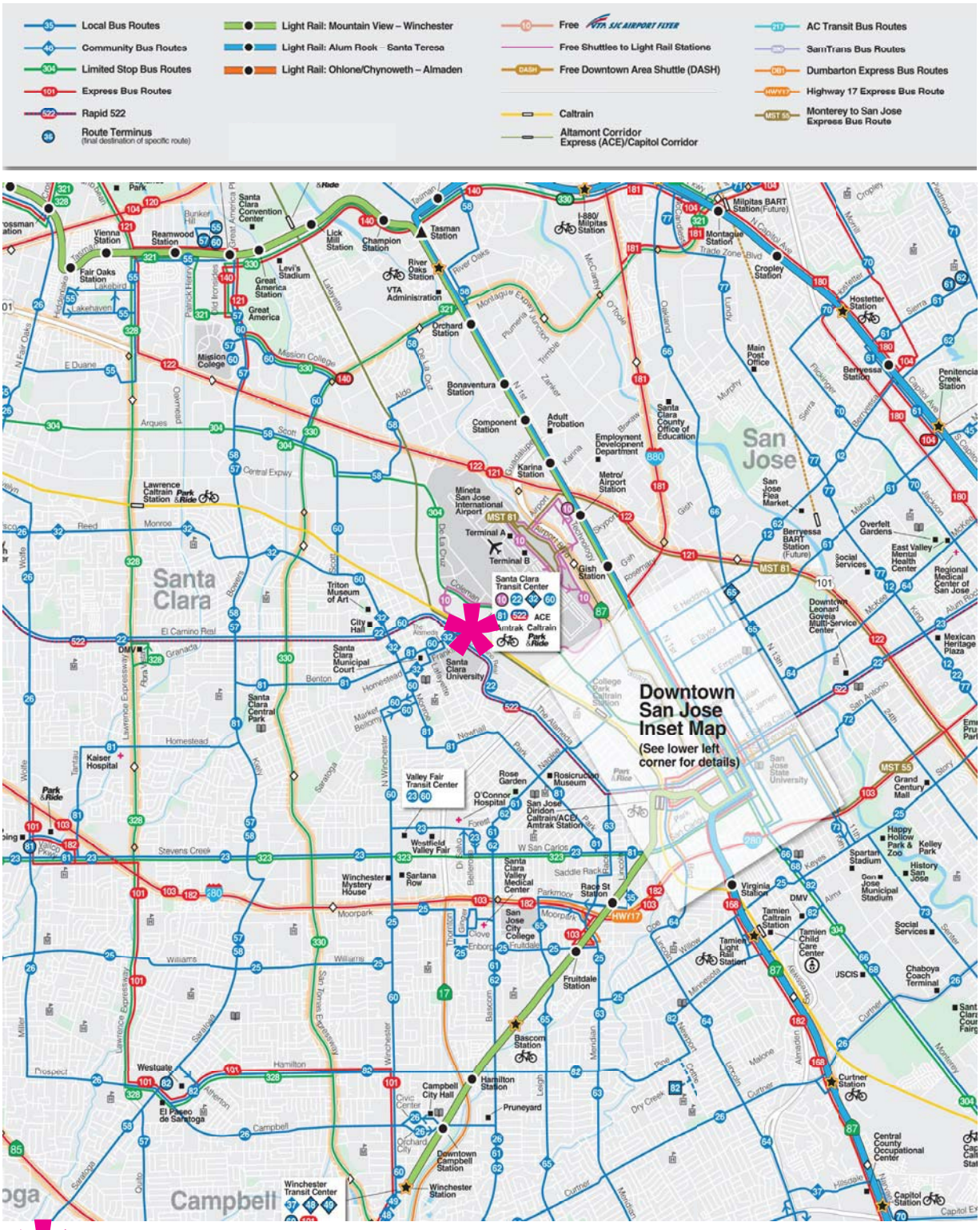
Figure 3-1
Existing Transit Services – Alum Rock Station Area
VTA's BART Silicon Valley–Phase II Extension Project



Source: VTA's Bus & Rail Map, January 2015.

Graphics ... 00332.13 (11-13-2015)

Figure 3-2
Existing Transit Services – Diridon Station Area
VTA's BART Silicon Valley–Phase II Extension Project



Source: VTA's Bus & Rail Map, January 2015.

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Figure 3-3
Existing Transit Services – Santa Clara Station Area
VTA's BART Silicon Valley–Phase II Extension Project

The area around the future Diridon Station is served by the following VTA local bus routes.

- 22 (Eastridge Transit Center to Palo Alto Transit Center) with 12-minute headways during the commute hours.
- 63 (Almaden Expressway & Camden to San Jose State University) with 30-minute headways during the commute hours.
- 64 (Almaden LRT Station to McKee & White) with 15-minute headways during the commute hours.
- 65 (Kooser & Blossom Hill to Hedding & 13th) with 45-minute headways during the commute hours.
- 68 (Gilroy Transit Center to San Jose Diridon Transit Center) with 15- to 20-minute headways during the commute hours.

The area around the future Santa Clara Station is served by the following VTA local bus routes.

- 22 (Eastridge Transit Center to Palo Alto Transit Center) with 12-minute headways during the commute hours.
- 32 (San Antonio Shopping Center to Santa Clara Transit Center) with 30-minute headways during the commute hours.
- 60 (Winchester Transit Center to Great America) with 15-minute headways during the commute hours.
- 81 (San Jose State University to Moffett Field) with 30-minute headways during the commute hours.

Express Bus Routes

The Alum Rock/28th Street Station, Downtown San Jose Station, Diridon Station, and Santa Clara Station are served by VTA Rapid Bus Route 522 (Eastridge Transit Center to Palo Alto Transit Center) with 15-minute headways during the commute hours. The Diridon Station is served by the following VTA Express Bus Routes: 168 (Gilroy Transit Center to Diridon Transit Center) with 20- to 30-minute headways during the commute hours and 181 (Fremont BART Station to San Jose Diridon Transit Center) with 15-minute headways during the commute hours. Express Route 304 provides service between South San Jose and Sunnyvale via downtown San Jose with 30-minute headways during commute hours.

VTA Shuttle Service

VTA also provides shuttle services. The Downtown Area Shuttle (DASH) provides shuttle service from the Diridon Caltrain Station to San Jose State University, the San Jose McEnery Convention Center LRT Station, and the Downtown San Jose area via San Fernando Street, West San Carlos Street, Almaden Boulevard, and Fourth Street with approximately 10-minute headways during the commute hours. The Free Airport Flyer (Route 10) provides

shuttle service from the Santa Clara Transit Center to the Metro Airport LRT Station via the Mineta San Jose International Airport with approximately 15-minute headways during the commute hours.

Light Rail Transit Service (Downtown San Jose Only)

LRT service is provided in the Downtown San Jose area by VTA. The Alum Rock-Santa Teresa and Mountain View-Winchester LRT lines provide service to the Downtown San Jose area. The Alum Rock-Santa Teresa LRT line provides service between the Alum Rock/28th Street Station in East San Jose to the Santa Teresa Station in South San Jose, and the Mountain View-Winchester LRT line provides service between the Mountain View Transit Center in Mountain View and the Winchester Transit Center in Campbell. Both LRT lines run directly through Downtown San Jose alongside First and Second Streets. At San Carlos Street and SR 87, the Alum Rock-Santa Teresa LRT line continues to South San Jose along SR 87 while the Mountain View-Winchester LRT line continues to the Winchester Station after stopping at the Diridon Transit Center. Both lines provide service on 15-minute headways during most hours of the day. The LRT stations within the Downtown area provide connections to virtually every bus line described above.

3.3.1.2 Transit Service by Other Operators

Inter-County Bus Service (Diridon and Downtown Stations)

Inter-county bus service is provided by Santa Cruz Metro and Monterey-Salinas Transit (MST). The Highway 17 Express Bus is an Amtrak Thruway route and provides service from Santa Cruz/Scotts Valley to Downtown San Jose (Diridon Caltrain Station) on 15- to 45-minute headways during the commute hours. The MST 55 Express line provides service between Monterey and the San Jose Diridon Station with two daily round trips. The MST 86 Express line provides service between King City and Monterey to the Mineta San Jose International Airport and Diridon Caltrain Station with one daily round trip.

Altamont Commuter Express (Diridon and Santa Clara Stations)

ACE provides commuter rail service between the Central Valley and Silicon Valley. Four trains are in operation during weekday commuting hours with westbound trains heading to San Jose in the morning and eastbound trains heading to Stockton in the evening. ACE Stations are located at the Santa Clara Transit Center and the Diridon Transit Center. Shuttle service from the stations to employment centers is provided by various public transit agencies.

Amtrak Capitol Corridor Inter-City Rail (Diridon and Santa Clara Stations)

Amtrak provides intercity passenger rail service between Auburn in Placer County and San Jose. There are seven round trips between Sacramento and San Jose on weekdays and weekends. An additional eight round trips operate only between Sacramento and Oakland.

There is one round trip per day that serves Auburn. The trains share the Diridon Caltrain Station and the Santa Clara Caltrain Station facilities. In addition, Amtrak provides a daily Coast Starlight line from Los Angeles to Seattle.

Caltrain (Diridon and Santa Clara Stations)

Caltrain operates a commuter rail service 7 days a week between San Jose and San Francisco. During weekday commuting hours, Caltrain also serves south Santa Clara County, including Gilroy, San Martin, and Morgan Hill. Caltrain provides shuttle service to businesses in the Silicon Valley and on the Peninsula.

The existing Diridon Caltrain Station (west of Cahill Street) is south of the Diridon BART Station site. The existing Santa Clara Caltrain/ACE Station (at Railroad Avenue and El Camino Real) is on the opposite side of the rail tracks from the Santa Clara BART Station. Transit service between the Diridon Caltrain Station and the Downtown San Jose area is provided via connections with bus lines 63, 64, 65, and 68 described above, express bus routes 168, 181, and Highway 17, DASH, LRT, MST 55, MST 86, and ACE/Amtrak connections. The Santa Clara Caltrain Station provides service to the Santa Clara area via connections with bus lines 22, 32, 60, and 81 described above, rapid bus route 522, bus route 10, and ACE/Amtrak connections. Caltrain provides service with 15- to 30-minute headways during commute hours.

3.3.1.3 Existing Transit Ridership

The average weekday transit boardings of BART, Caltrain, Amtrak-Capitol Corridor, ACE, and VTA, which total over 607,000 per day, are summarized in Table 3-5.

Table 3-5: 2015 Existing Average Weekday Boardings by Transit Operator

Operator	Submode	2015 Existing
BART[a]	Heavy Rail	403,900
Caltrain[b]	Commuter Rail	52,600
Amtrak-Capitol Corridor[c]	Intercity Passenger Rail	2,300
ACE[d]	Commuter Rail	5,040
VTA[e]	Light Rail	35,500
	Express Bus	5,090
	Local/Limited Bus	102,850
Total		**607,280**

Note: BART boardings **exclude** BART to BART transfers

Sources:

[a] BART Monthly Ridership Report, April 2014

[b] Caltrain 2015 Annual Passenger Count Report

[c] BART comments on Administrative Draft SVSX EIR

[d] Amtrak-Capitol Corridor boardings exclude stations north of Fairfield/Suisun station

[e] VTA 2015 Systemwide Ridership By Route

3.3.2 Bicycle Facilities

There are several bicycle facilities near each of the station campuses. As defined by the California Department of Transportation (Caltrans), bicycle facilities include Class I bikeways (defined as bike paths off street, which are shared with pedestrians and exclude general motor vehicle traffic), Class II bike lanes (defined as striped bike lanes on street), Class III bike routes (defined as roads with bike route signage where bicyclists share the road with motor vehicles), and Class IV cycle tracks (bike lanes physically separated from vehicle traffic by a vertical element). With the exception of limited-access highways, bicyclists are allowed to ride on any roadway, even if there is no bicycle facility present.

In Santa Clara County, bicycle facilities are typically constructed and maintained by local jurisdictions. Bikeways that serve the stations fall within City of San Jose, the City of Santa Clara, and Santa Clara County jurisdictions, and are maintained by the agencies. San Jose and Santa Clara have bike plans from 2009.

Additionally, the *Santa Clara Countywide Bicycle Plan* (Bicycle Plan), adopted by VTA in August 2008, identifies various existing and/or planned cross-county bicycle corridors in the vicinity of the BART stations. The purpose of the cross-county bicycle corridors, as described in the Bicycle Plan, is to provide continuous connections between Santa Clara County jurisdictions and to adjacent counties, and to serve the major regional trip-attractors in the County. The cross-county bicycle corridors serving the alignment are discussed below. Bicycle facilities in the area of each of the stations are presented on Figures 3-4, 3-5, and 3-6 and described below. The bike paths shown on the figures are recreational facilities primarily used for recreational purposes. The bike lanes and routes are transportation facilities and are primarily used for commuting and running errands.

3.3.2.1 Alum Rock/28th Street Station

The Alum Rock/28th Street Station site is moderately accessible by bicycle. The station site is surrounded by bicycle facilities, but none provide a direct connection to the site. Class II bike lanes are provided on Mabury Road, 21st Street, portions of San Antonio Street, and Jackson Avenue. There are currently no Class I bikeways that serve the station area, but new Class I facilities are planned in order to provide improved bike and pedestrian access to the station in the future. The streets near the station site, Santa Clara Street/Alum Rock Avenue and McKee Road, are identified as "high caution" roads in VTA's Bikeways Map (May 2016).

Access to the station site from the east is constrained by U.S. Highway 101 (U.S. 101); the closest freeway crossings to the site are at McKee Road and Alum Rock interchanges. Neither are designed well for bicyclists. Access from the west is constrained by Coyote Creek; bicyclists may cross Coyote Creek on Julian Street (identified as "Alert" in VTA's Bikeways Map), Santa Clara Street ("High Caution"), or San Antonio Street. None of these roads have bike lanes, and only San Antonio Street is designated as a Class III bike route. No nearby bicycle facilities connect from the north. From the south, there are bicycle lanes on

24th Street; however, these stop half a mile before the station, and bicyclists traveling on 24th Street must bike through an interchange with I-280.

VTA's 2008 Santa Clara Countywide Bicycle Plan identifies San Antonio Street as a Cross County Bicycle Corridor (CCBC). This is the closest CCBC to the Alum Rock/28th Street Station Site.

The Countywide Bicycle Plan identifies the interchange of Julian Street/McKee Road and U.S. 101, and Santa Clara Street over U.S. 101 as "Across Barrier Connections" needing bicycle improvements.

There are no nearby Bay Area Bikeshare stations.

San Jose's Bike Plan 2020 includes a planned 100-mile Interconnected Trail Network, which includes two Class I bikeways near Alum Rock/28th Street Station. The City of San Jose's planned Coyote Creek Trail will complete a Class I bikeway along Coyote Creek between Milpitas (Dixon Landing Road) and Coyote Lake in the South County. Currently, bicycle facilities along this corridor are missing between Montague Expressway and Tully Road and Anderson Lake County Park and Coyote Lake County Park. Coyote Creek runs west of the Alum Rock/28th Street Station. In addition, San Jose's Bike Plan 2020 includes development of a future trail alignment along the Five Wounds corridor, which was formerly used as a rail line. This future trail will provide improved pedestrian and bicycle access to and from Alum Rock/28th Street Station.

The development and implementation of the Class I bikeways identified in San Jose's Bike Plan 2020 is a separate effort from the Phase II Project, and is subject to future local funding for completion.

3.3.2.2 Downtown San Jose Station

The Downtown San Jose Station site is generally accessible by bicycle, and very close to the City's trail network. The station site is served by Class II bicycle lanes on San Fernando Street, 3rd Street, 4th Street, and Almaden Boulevard and Class III bicycle routes on Saint John Street, 1st Street, and 2nd Street. The Guadalupe River Trail (Class I bikeway) is one-third of a mile to the west of the station site, and provides high-quality bicycle access south to Virginia Street and north to Alviso, with connections to the Highway 237 Bicycle Path and the Bay Trail. Bicyclists can access the trail at Saint John Street, Santa Clara Street, and San Fernando Street. Of these three, only San Fernando Street provides an uninterrupted high quality access to the trail. Santa Clara Street does not have bike lanes for the entire way and is rated "High Caution" on the VTA Bicycle Map. Bicyclists traveling on Saint John Street must ride against traffic on a wide sidewalk. While trailheads are well-marked, there is little wayfinding signage directing bicyclists to the Guadalupe River Trail from downtown. From the south, I-280 limits bicycle access to the station site. The Guadalupe River Trail, South 2nd Street, and South 3rd Street provide continuous bikeways across this barrier. From the west, SR 87 and the Guadalupe River limit bicycle access to the station site. While many

cross streets include Class II bicycle lanes, the bike lanes generally do not extend farther west than just under SR 87. Park Avenue is the only street close to the station area that continues a significant distance west of SR 87. Within the vicinity of the station site, VTA's 2008 Santa Clara Countywide Bicycle Plan identifies the following streets or trails as Cross County Bicycle Corridors: Saint John Street, San Fernando Street, Market/South 1st Street, and Guadalupe River Trail.

The Countywide Bicycle Plan identifies the interchange of Julian Street and SR 87, and Almaden Boulevard under SR 87 as "Across Barrier Connections" needing bicycle improvements. The nearest Bay Area Bikeshare station is at the intersection of San Pedro Street and St. John Street.

3.3.2.3 Diridon Station

Diridon Station is generally accessible by bicycle, and very close to two major bicycle paths. Diridon Station is served by Class II bicycle lanes on Stockton Avenue, Santa Clara Street, San Fernando Street, and Park Avenue. There are few low-stress bicycle connections from Diridon Station directly south. Montgomery Avenue, which provides the most direct connection south, is rated as "High Alert" on the VTA Bikeways Map.

The Guadalupe River Trail is one-third of a mile to the east, and provides high quality bicycle access south to Virginia Street and north to Alviso, with connections to the Highway 237 Bicycle Path and the Bay Trail. Bicyclists can access the trail at San Fernando Street, Park Avenue, and Santa Clara Street. There is no wayfinding signage directing bicyclists from the station to the trailheads.

The Los Gatos Creek Trail (Class I bikeway) is one-third of a mile south of Diridon Station, and provides low-stress bicycle access south to the Willow Glen neighborhood. Bicyclists can access the trail at West San Carlos Street. There is no wayfinding signage directing bicyclists from the station to the trailhead. After a gap between Lonus Street and Meridian Avenue, the Los Gatos Creek Trail continues south to Main Street in Los Gatos, connecting Willow Glen, Downtown Campbell, and Downtown Los Gatos.

The Countywide Bicycle Plan identifies the following locations as "Across Barrier Connections" needing bicycle improvements: the San Carlos Street undercrossing of SR 87 and the interchange of Park Avenue and SR 87.

Within the vicinity of the station site, VTA's 2008 Santa Clara Countywide Bicycle Plan identifies the following streets or trails as Cross County Bicycle Corridors: Montgomery Street, Park Avenue, San Carlos Street, The Alameda, San Fernando Street, Los Gatos Creek Trail, and Guadalupe River Trail.

Bike lockers and a Bay Area Bikeshare station are provided at the existing San Jose Diridon Transit Center.

3.3.2.4 Santa Clara Station

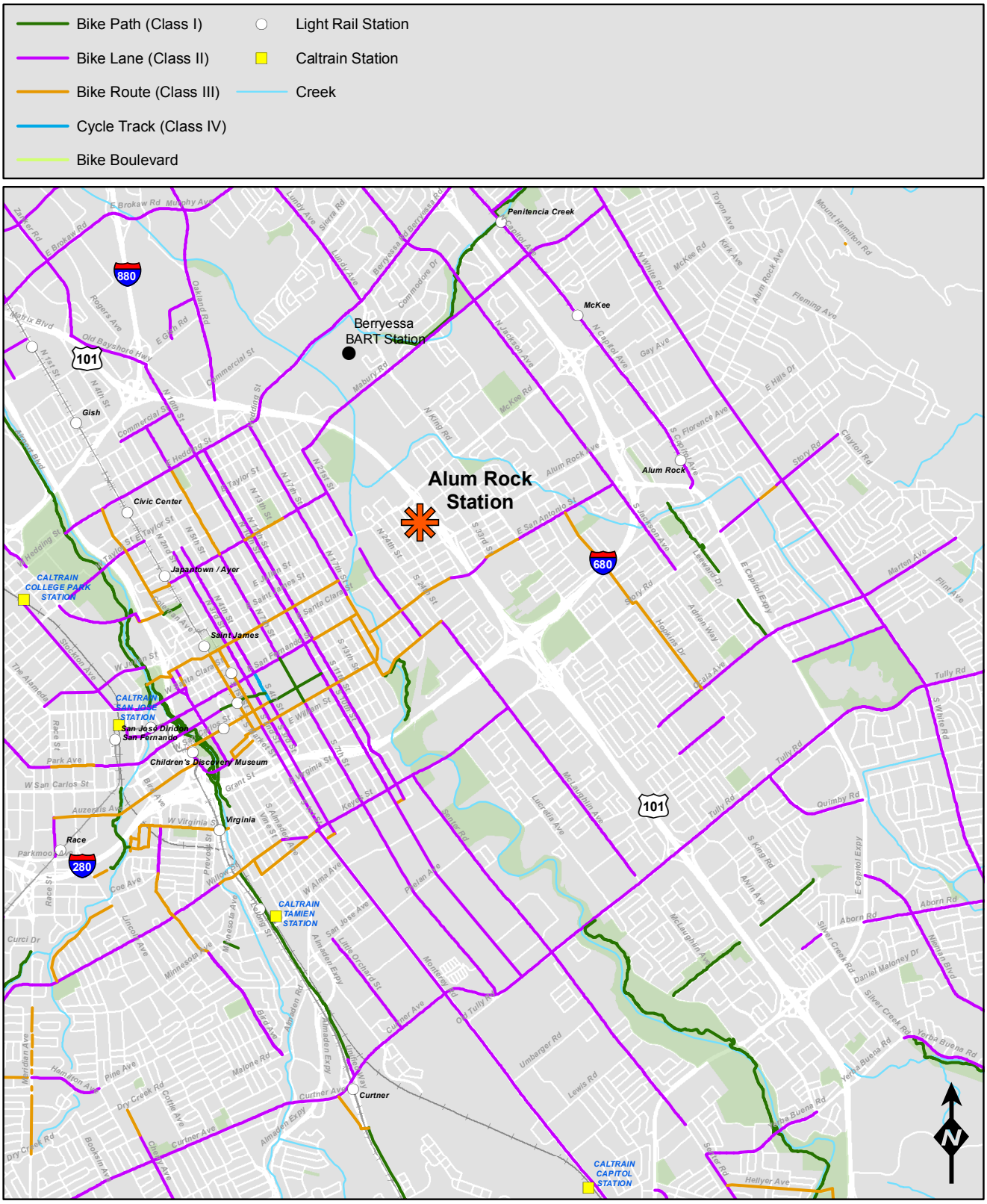
Santa Clara Station is difficult to access by bicycle, particularly from the north, east, and south. A Class III bicycle route on Benton Street provides direct access to the station from the west. No other bicycle facilities directly serve the station. Within two-thirds of a mile of the station, Class II bicycle lanes are provided on Monroe Street, Homestead Road, and portions of Coleman Avenue, the Alameda, Poplar Street, Market Street, and Bellomy Street and a Class III bike route is provided on Park Avenue. Santa Clara University, located adjacent to the station, includes some disconnected Class I bikeways.

De La Cruz Avenue and Coleman Avenue are identified on VTA's Countywide Bicycle Map as "High Caution" streets. The adjacent section of El Camino Real is identified as an "Alert" street.

Bicycle access from the north, east, and south is constrained by the rail lines, Highway 880, U.S. 101, the San Jose International Airport, SR 87, and the Guadalupe River. Bicyclists wishing to access the station from these directions must travel through high-stress freeway interchanges and major roadway intersections. Although the Guadalupe River Trail is a mile to the east, there are no low-stress connections to the trail from Santa Clara Station. There is no wayfinding signage directing bicyclists to the Guadalupe River Trail from the Santa Clara Station.

Within the vicinity of the station site, VTA's 2008 Santa Clara Countywide Bicycle Plan identifies the following streets or trails as "Cross County Bicycle Corridors": Coleman Avenue, Brokaw Road, El Camino Real/The Alameda, Benton Street, Monroe Street, Park Avenue, Hedding Street, Airport Boulevard, and the Guadalupe River Trail. The Countywide Bicycle Plan identifies the following locations as places where bicycle crossing improvements need to be made: The Alameda/880 Interchange, and the railroad crossing of De La Cruz/El Camino Real/Lewis Street. The Countywide Bicycle Plan identifies the need for a new bicycle/pedestrian bridge or undercrossing of the Caltrain Union Pacific Railroad tracks between De La Cruz Boulevard and Hedding Street. VTA is currently working on the design and construction of a bicycle/pedestrian undercrossing of the tracks at the Santa Clara Caltrain Station.

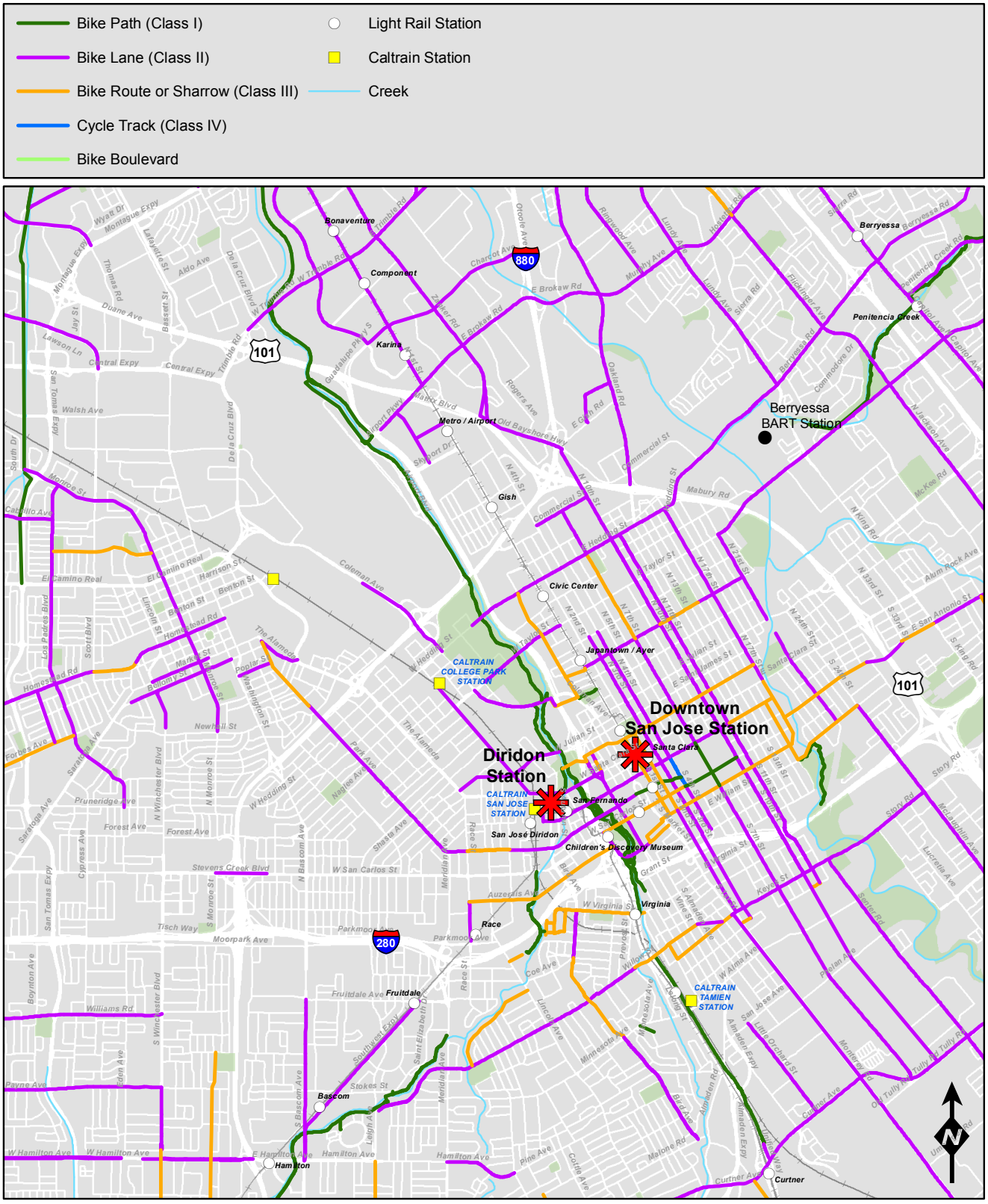
Bike lockers are provided at the existing Santa Clara Transit Center. There are no Bay Area Bikeshare Stations in the vicinity.



Source: VTA's Santa Clara Valley Bikeways Map, 2016.

Graphics... 00332.13 (6-20-2016)

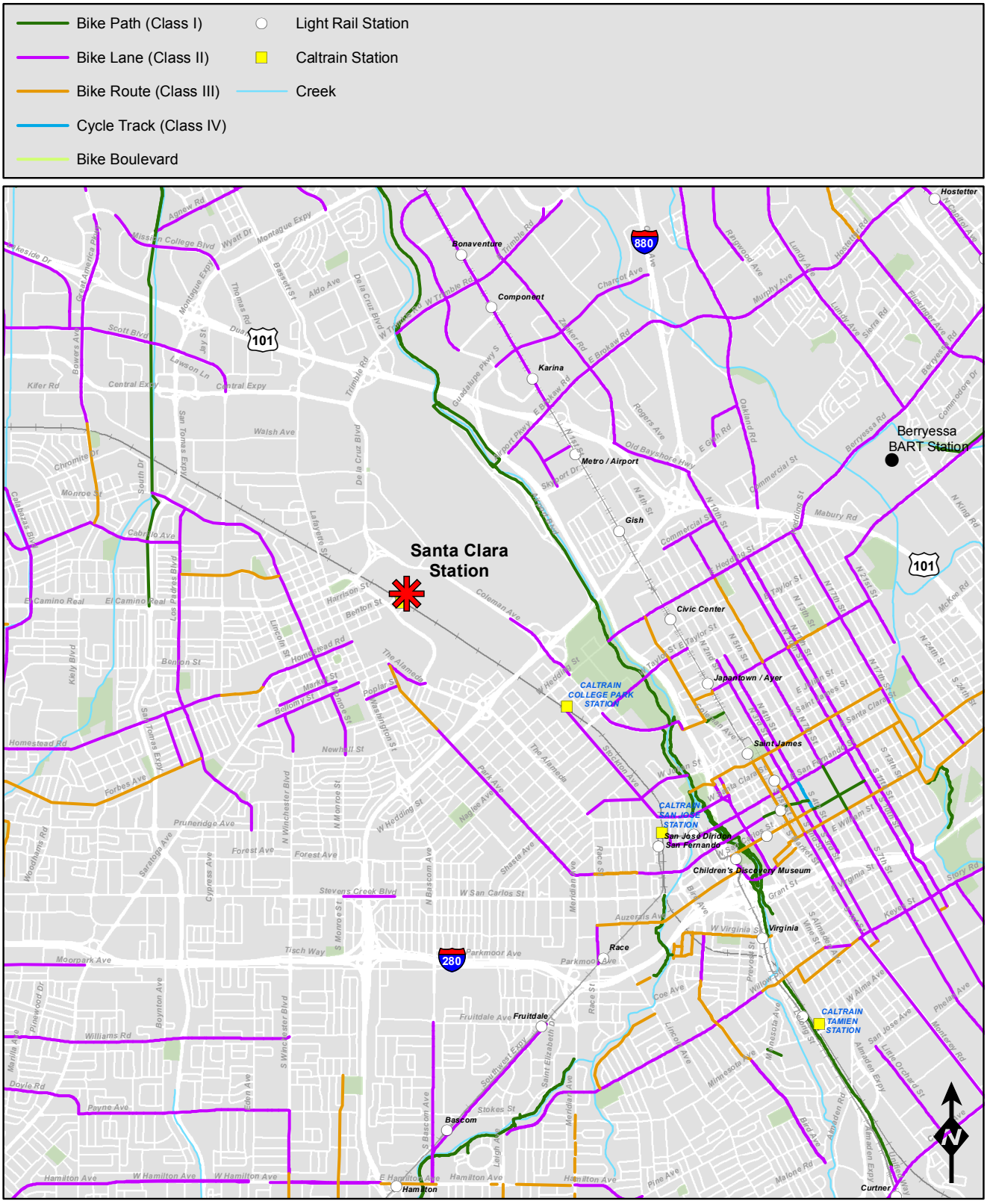
Figure 3-4
Existing Bicycle Facilities – Alum Rock Station Area
VTA's BART Silicon Valley–Phase II Extension Project



Source: VTA's Santa Clara Valley Bikeways Map, 2016.

Graphics... 00332.13 (6-20-2016)

Figure 3-5
Existing Bicycle Facilities – Diridon Station Area
VTA's BART Silicon Valley–Phase II Extension Project



Source: VTA's Santa Clara Valley Bikeways Map, 2016.

Graphics... 00332.13 (6-20-2016)

Figure 3-6
Existing Bicycle Facilities – Santa Clara Station Area
VTA's BART Silicon Valley–Phase II Extension Project

3.3.3 Pedestrian Facilities

Pedestrian facilities in the study areas consist primarily of sidewalks, crosswalks, pedestrian push buttons, and signal heads at intersections. With a few exceptions, sidewalks are found along virtually all of the local roadways in the study areas and along the local residential streets and collectors near the station sites.

VTA is developing a Pedestrian Access to Transit Plan (anticipated adoption December 2016) to identify high-priority areas (Focus Areas) for pedestrian improvements. Several of the proposed BART stations fall within the Plan's Focus Areas. The Plan identifies specific infrastructure that could improve pedestrian comfort, safety, and convenience in these areas. Findings from field work conducted in the area are presented below.

3.3.3.1 Alum Rock/28th Street Station

Overall, the existing network of sidewalks has good connectivity and provides pedestrians with adequate routes to the surrounding land uses and transit services near the Alum Rock/28th Street Station campus. With the exception of the west side and most of the east side of North 28th Street between McKee Road and Santa Clara Street, and along some of the industrial areas north of the station site, sidewalks are found along previously described local roadways in the Alum Rock/28th Street Station study area and along the local residential streets and collectors near the station site. Additionally, all signalized intersections in the vicinity of the Alum Rock/28th Street Station have marked crosswalks on all or most of the legs of the intersection, combined with pedestrian push buttons and pedestrian signal heads.

For pedestrians who may walk between the residential neighborhood east of U.S. 101 and the Alum Rock/28th Street Station site or between the TOJD site and VTA bus routes along King Street, there are continuous sidewalks and crosswalks along Alum Rock Avenue, including pedestrian push buttons and signal heads for the crosswalks on the U.S. 101 on- and off-ramps, at 33rd Street, and at King Road. There are also continuous sidewalks and crosswalks along McKee Road between 28th Street and King Road, including pedestrian push buttons and signal heads for the crosswalks on the U.S. 101 on- and off-ramps, at 33rd Street, and at King Road.

However, although the pedestrian facilities in the vicinity of the Alum Rock/28th Street Station are minimally adequate as described above, the area is not an especially pedestrian-friendly environment at present. There are locations, such as the crosswalks near the U.S. 101 on- and off-ramps, where walking is not as comfortable as it could be. The City of San Jose plans to improve the pedestrian environment in this area through its ongoing efforts to promote greater usage of alternative modes of travel.

3.3.3.2 Downtown San Jose Station

The existing network of sidewalks on Santa Clara Street between Market and 7th Street has good connectivity and provides pedestrians with safe routes to the surrounding land uses and

transit services near the Downtown San Jose Station. Additionally, all signalized intersections in the vicinity of the Downtown San Jose Station have marked crosswalks on all or most of the legs of the intersection in addition to pedestrian push buttons and pedestrian signal heads. There is a continuous sidewalk along San Jose City Hall between 4th and 6th Streets, including pedestrian push buttons and signal heads to cross over Santa Clara Street.

VTA's Pedestrian Access to Transit Plan Draft Improvements Document (February 2016) identified the following challenges to walking within the downtown area:

- High speed vehicle turns/wide curb radii and long crossing distances along San Carlos Street and Market Street.
- Poorly marked pedestrian crossings at SR 87 ramps (Santa Clara Street, Julian Street).
- Long distances between pedestrian crossings along Santa Clara Street near San Jose Diridon.
- VTA Light Rail creates barrier for pedestrians using San Fernando Street to access transit.
- Limited passenger waiting space, no shelters on north side of Santa Clara Street near First Street.
- Wide turn radii at Santa Clara Street and 3rd/4th Streets
- Unclear pedestrian connections between VTA Light Rail stations on 1st and 2nd Streets. Suggest wayfinding.

3.3.3.3 Diridon Station

Near the Diridon Station, sidewalks are found along virtually all local roadways. Signalized intersections along Santa Clara Street have marked crosswalks on all or most of the legs of the intersection, combined with pedestrian push buttons and pedestrian signal heads. Midblock crosswalks at Stover Street and Crandall are marked across Cahill Street, South Montgomery Street, and South Autumn Street, but are not signalized.

The Pedestrian Access to Transit Plan identified the following challenges to walking within the area of Diridon Station:

- Pathway and uncontrolled crossing between Diridon Station and San Fernando Light Rail unclear, blocked by parked vehicles.
- Missing curb ramps and worn crosswalk markings at sidewalks that provide access to Diridon Station entrance.
- At San Fernando VTA Light Rail Station, it is unclear that main route to San Fernando Street is through San Fernando VTA Station. Suggest wayfinding.
- Drivers observed not yielding to pedestrians at Delmas/Santa Clara uncontrolled crossing.

- Opportunity to provide pedestrian scramble at Montgomery/ Santa Clara intersection.
- At Santa Clara/Cahill intersection, pedestrians are prohibited from crossing the west leg, and curb radii are wide, yet there are high pedestrian volumes.
- Sidewalks missing at Laurel Grove Lane/ Park Avenue.

3.3.3.4 Santa Clara Station

Near the Santa Clara Station site, sidewalks are found along virtually all of the local roadways in the study area and along the local residential streets and collectors, with the exception of the east side of Lafayette Street. Additionally, signalized intersections in the vicinity of the Santa Clara Station have marked crosswalks on all or most of the legs of the intersection, combined with pedestrian push buttons and pedestrian signal heads. However, there is less connectivity in the pedestrian facilities near the Santa Clara Station campus, due to the Caltrain tracks, the nearby Mineta San Jose International Airport, and the fact that some of the nearby streets serving industrial land uses do not include sidewalks.

There is a continuous sidewalk along the east side of De La Cruz Boulevard that connects with the sidewalk along Coleman Avenue, leading to the intersection at Brokaw Road where the Santa Clara Station would be located. However, the De La Cruz Boulevard overpass over El Camino Real and the Caltrain tracks and most portions of the interchange of De La Cruz Boulevard and Coleman Avenue do not include sidewalks. West of De La Cruz Boulevard, there is a bike and pedestrian bridge over the Caltrain tracks next to the Lafayette Street undercrossing. There is currently no convenient pedestrian access across the Caltrain tracks from the vicinity of the Santa Clara Caltrain Station to the site where the Santa Clara BART Station and TOJD would be located. However, a pedestrian undercrossing from the Caltrain center platform to Brokaw Road is under construction and planned to be completed in ~~mid-~~ 2017.

3.3.4 Vehicular Traffic

Existing peak-hour traffic volumes at most study intersections were obtained from manual turning-movement counts conducted in the fall of 2014. In addition, 2013 and 2015 counts were utilized at four locations where construction was underway at the time of the 2014 counts. The existing conditions LOS tables (described in the following section) include count dates/count year for each of the study intersections.

3.3.4.1 Roadway Network

Regional access to the station sites is provided via U.S. 101, I-280, SR 87, and I-880. These facilities are described below.

U.S. 101 is a north-south freeway that extends northward through San Francisco and southward through Gilroy. Within the study area, U.S. 101 is an eight-lane facility that includes two HOV lanes. During the peak commute hours, the mixed-flow lanes operate

under stop-and-go conditions in the peak direction of travel—northbound in the AM and southbound in the PM. Within the HOV lane, traffic flows improve, although volumes at certain locations are approaching capacity during the peak periods. U.S. 101 would provide access to the Alum Rock/28th Street Station site via its full interchanges at Santa Clara Street and McKee Road.

I-280 is generally an eight-lane freeway in the vicinity of Downtown San Jose with auxiliary lanes between some interchanges. It extends from U.S. 101 in San Jose to I-80 in San Francisco. The section of I-280 just north of the Bascom Avenue overcrossing has six mixed-flow lanes and two HOV lanes. Connections from I-280 to Downtown San Jose are provided via a full interchange at Bird Avenue, and partial interchanges at Seventh Street (no north on-ramp), at Almaden Boulevard/Vine Street (ramps to/from north), First Street (ramp to south), and Fourth Street (ramp to north). I-280 provides access to the Diridon Station via its interchange at Bird Avenue. Connections are also available indirectly via an interchange with SR 87 (to the Diridon Station) and an interchange with U.S. 101 (to the Alum Rock/28th Street Station).

SR 87 connects from SR 85 in south San Jose to U.S. 101 near the Mineta San Jose International Airport. It is generally a six-lane freeway (two mixed-flow lanes plus one HOV lane in each direction) with auxiliary lanes near the I-280 interchange. Connections from SR 87 to Downtown San Jose and the Diridon Station are provided via a full interchange at West Julian Street and partial interchanges at Park Avenue (ramps to/from north only), at Auzerais Avenue (ramps to/from south only), and at West Santa Clara Street (northbound off-ramp only).

I-880 extends in a north-south direction from its junction with I-280 near Downtown San Jose to I-80 in Oakland. Within the study area, I-880 has six mixed-flow lanes. Near the Santa Clara Station site, the peak direction of travel is northbound during the morning commute and southbound during the afternoon commute. I-880 provides access to the Santa Clara Station site via interchanges with The Alameda and Coleman Avenue.

Roadways providing local access to each of the station sites and their configurations in the area of the stations are described below.

Alum Rock/28th Street Station

North 28th Street is a two-lane, north-south roadway that extends from East Julian Street southward to San Antonio Street. North 28th Street provides direct access to the Alum Rock/28th Street Station site via both East Julian Street and Santa Clara Street.

McKee Road is an east-west roadway with full freeway interchanges at I-680 and U.S. 101. McKee Road extends from the foothills in East San Jose to North 28th Street (west of U.S. 101). At North 28th Street, McKee Road becomes East Julian Street, which travels westward through Downtown San Jose. McKee Road has four travel lanes between U.S. 101 and King

Road. East of King Road, McKee Road widens to six lanes. East of Jackson Avenue, it narrows back to two lanes in each direction.

Alum Rock Avenue is an east-west roadway with a partial cloverleaf interchange at I-680 and a diamond interchange at U.S. 101. Alum Rock Avenue extends from Alum Rock Park near the foothills in East San Jose to U.S. 101. At U.S. 101, Alum Rock Avenue becomes Santa Clara Street, which travels westward through Downtown San Jose. Alum Rock Avenue consists of four travel lanes within the study area.

San Antonio Street is a two-lane, east-west roadway that runs between San Jose State University and Capitol Expressway. At I-680, San Antonio Street merges into Capitol Expressway and travels southward.

Downtown San Jose and Diridon Stations

West Santa Clara Street is a four-lane, east-west roadway that transverses the San Jose Downtown core area. West of the Caltrain bridge (just east of Stockton Avenue) it becomes The Alameda. Santa Clara Street would provide direct access to the Diridon Station via Cahill Street.

San Fernando Street is a two-lane roadway that is oriented in an east-west direction and runs from 17th Street to Race Street. Within the San Jose Downtown area, specifically between South 10th Street and South 1st Street, San Fernando Street consists of a two-lane plus a two-way left-turn lane roadway. In the vicinity of the Diridon Caltrain Station, San Fernando Street terminates at Cahill Street, east of the Caltrain railroad tracks, and continues to Race Street west of the Caltrain railroad tracks.

The Alameda (SR 82) is generally a four-lane arterial that is oriented in a north-south direction and runs from Santa Clara University to the Downtown San Jose area, where it becomes Santa Clara Street east of Stockton Avenue.

Stockton Avenue is a two- to three-lane roadway (one lane in each direction plus a two-way left-turn lane) that extends in a northwest direction from south of The Alameda to Emory Street, just south of the Caltrain railroad tracks. North of the Caltrain railroad tracks, Stockton Avenue extends north of (without connection to) I-880, where it terminates.

Julian Street is primarily a one-way, westbound two-lane roadway within the San Jose Downtown core area. West and east of the Downtown core area at SR 87 and 17th Street, respectively, Julian Street is generally a two-way, two-lane facility. The City of San Jose plans to remove the S-shape segment of West Julian Street between Market Street and the SR 87 Northbound Ramps and replace it with a straight, two-way extension from North Market Street to Terraine Street. Additionally, the segment of West St. James Street, between the SR 87 northbound ramps and North Market Street, would become a two-way roadway, forming a grid system roadway network. West Julian Street provides regional access to the Diridon Station via its full interchange with SR 87.

San Carlos Street is a four-lane, east-west arterial that runs from 4th Street to Bascom Avenue, just east of I-880, at which point it becomes Stevens Creek Boulevard.

Autumn Street is currently a two- to three-lane roadway that is oriented in a north-south direction and extends from Park Avenue to Cinnabar Street, north of West Julian Street. The segment of South Autumn Street between Park Avenue and Santa Clara Street is a three-lane, one-way (northbound) roadway and works as a couplet with South Montgomery Street (southbound). The City of San Jose plans to extend North Autumn Street to connect to Coleman Avenue (at New Autumn Street) and change the existing one-way segment to a four-lane, two-way roadway. The reconfigured two-way Autumn Street segment will become the north-south connection between Santa Clara Street and Park Avenue.

Montgomery Street is currently a two-lane roadway that runs between West San Carlos Street and Santa Clara Street. North of the SAP Center, North Montgomery Street extends between West St. John Street and Cinnabar Street as a two-lane, two-way roadway. South of West San Carlos Street, Montgomery Street transitions into Bird Avenue. The segment of South Montgomery Street, between Park Avenue and Santa Clara Street, is a two-lane, one-way (southbound) roadway and works as a couplet with South Autumn Street (northbound). The City of San Jose plans to change the existing one-way segment of South Montgomery Street to a two-lane, two-way roadway terminating in a cul-de-sac just north of its current intersection with Park Avenue. The reconfigured two-way Montgomery Street segment will become a local street providing direct access to the existing surrounding land uses, including the Diridon Caltrain Station.

Bird Avenue is a four-lane arterial that is oriented in a north-south direction and provides access to I-280 and the downtown area. Bird Avenue runs from the Willow Glen Area of San Jose to West San Carlos Street, where it transitions into South Montgomery Street.

Santa Clara Station

El Camino Real (SR 82) is a six-lane major arterial that is oriented in an east-west direction extending westward from The Alameda toward the City of Mountain View. Access to the PNR facility for the Santa Clara Station would be provided via Coleman Avenue.

Coleman Avenue is four- to six-lane roadway that is oriented in a north-south direction. Coleman Avenue begins at De La Cruz Boulevard in Santa Clara and extends southward into Downtown San Jose, where it becomes North Market Street at its intersection with West Julian Street. Coleman Avenue would provide access to the Santa Clara Station site via its intersection with Brokaw Road.

Brokaw Road is a two-lane, east-west roadway that runs from Martin Avenue westward to its termination point at the railroad tracks. Direct access to the Santa Clara Station site would be provided via Brokaw Road.

San Tomas Expressway is a six- to eight-lane major arterial that is oriented in a north-south direction. There is one HOV lane along San Tomas Expressway (restricted hours only) in

each direction of travel. Access to the Santa Clara Station site would be provided via El Camino Real.

Lafayette Street is a four-lane roadway that is oriented in a north-south direction. Lafayette Street extends from SR 237 southward through the City of Santa Clara to Market Street, where it changes designation to Washington Street.

Benton Street is a two- to four-lane roadway that is oriented in an east-west direction. Benton Street extends between the Santa Clara Caltrain Station, near El Camino Real, and Lawrence Expressway. West of Lawrence Expressway, Benton Street becomes a two-lane residential street.

De La Cruz Boulevard is a six-lane arterial that extends from U.S. 101 to Coleman Avenue. North of U.S. 101, De La Cruz Boulevard becomes Trimble Road. De La Cruz Boulevard transitions to Coleman Avenue at its interchange with El Camino Real.

3.3.4.2 2015 Existing Intersection Operations

This section describes the existing traffic operations at the study intersections in the vicinity of the future BART stations. The Downtown San Jose Station is not included in the analysis because this station does not provide any parking or kiss-and-ride facilities and therefore would generate minimal vehicle trips.

Intersection LOS under 2015 Existing conditions was evaluated against City of San Jose, City of Santa Clara, and VTA's CMP standards. The existing conditions study year of 2015 is based on when the CEQA Notice of Preparation was published in January 2015. These LOS results are used as a basis of comparison with the 2015 Existing Plus BART Extension Alternative in Section 3.5.2 and with the 2015 Existing Plus BART Extension with TOJD Alternative in Section 3.5.3.

The near-term traffic information is presented to identify possible constraints to transportation improvements near the station sites. As shown in Table 3-6, a total of 27 intersections were evaluated in the vicinity of Alum Rock/28th Street Station, 29 intersections in the vicinity of the Diridon Station, and 35 intersections in the vicinity of the Santa Clara Station. These intersections are shown on Figures 3-7, 3-8, and 3-9.

Table 3-6: 2015 Existing Intersection Levels of Service Results Summary

Station	Number of Study Intersections	Number of CMP Intersections	Unacceptable LOS Intersections[a]
Alum Rock/28th Street	27	7	0 (0)
Diridon	29	10	0 (0)
Santa Clara	35	15	2 (1)
Total	**91**	**32**	**2 (1)**

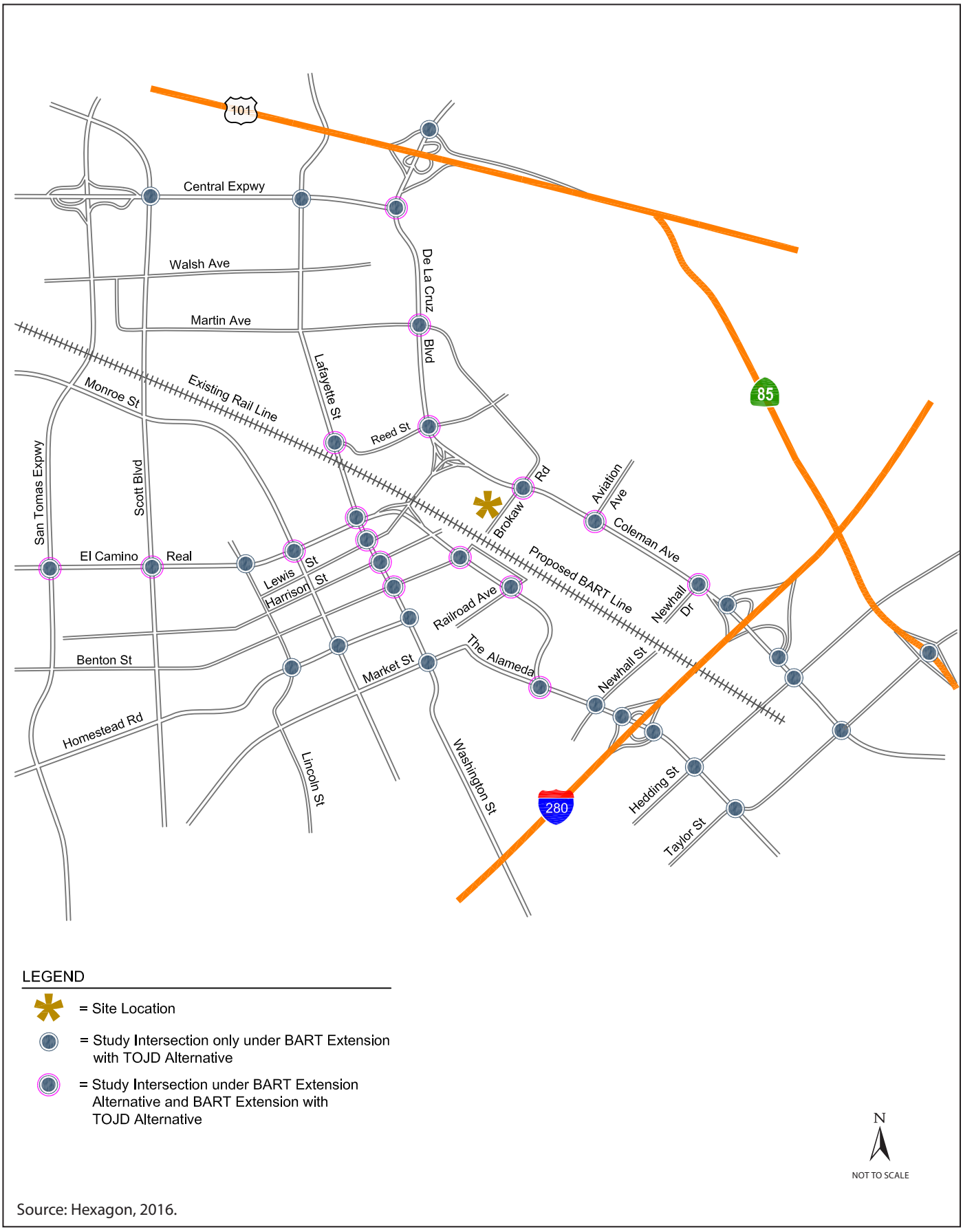
[a] The first number is based on the LOS standards of the appropriate City. The second number (in parentheses) is the number of CMP intersections that would operate at an unacceptable LOS based on the CMP LOS standard.

Source: Hexagon, 2016.

Graphics ... 00332.13 (6-10-2016)

Figure 3-7
Alum Rock Station Location and Study Intersections
VTA's BART Silicon Valley–Phase II Extension Project

Figure 3-8
Diridon Station Location and Study Intersections
VTA's BART Silicon Valley–Phase II Extension Project



Source: Hexagon, 2016.

Graphics ... 00332.13 (6-10-2016)

Figure 3-9
Santa Clara Station Location and Study Intersections
VTA's BART Silicon Valley–Phase II Extension Project

Alum Rock/28th Street Station

All the study intersections in the vicinity of the Alum Rock/28th Street Station are in the City of San Jose. Measured against the City of San Jose LOS policy, all of the study intersections in the vicinity of the Alum Rock/28th Street Station currently operate at an acceptable LOS (LOS D or better) during both the AM and PM peak hours of traffic. Measured against the CMP LOS standards, all of the CMP study intersections in the vicinity of the Alum Rock/28th Street Station currently operate at an acceptable LOS (LOS E or better) during both the AM and PM peak hours of traffic.

Diridon Station

All the study intersections in the vicinity of the Diridon Station are in the City of San Jose. Measured against the City of San Jose LOS policy, all of the study intersections in the vicinity of the Diridon Station currently operate at an acceptable LOS (LOS D or better) during both the AM and PM peak hours of traffic. Measured against the CMP LOS standards, all of the CMP study intersections in the vicinity of the Diridon Station currently operate at an acceptable LOS (LOS E or better) during both the AM and PM peak hours of traffic.

Santa Clara Station

Of the 35 study intersections in the vicinity of the Santa Clara Station, 22 are in the City of Santa Clara and 13 are in the City of San Jose. Fifteen of the 35 study intersections are designated as CMP intersections.

Measured against the City of San Jose LOS policy, all of the study intersections in the vicinity of the Santa Clara Station that are within San Jose currently operate at an acceptable LOS (LOS D or better) during both the AM and PM peak hours of traffic.

Measured against the City of Santa Clara LOS standards, all except two of the study intersections in the vicinity of the Santa Clara Station that are within Santa Clara currently operate at an acceptable LOS (LOS D or better at local intersections and LOS E or better at expressway and CMP intersections) during both the AM and PM peak hours of traffic. The following two intersections operate at unacceptable LOS (LOS E or worse for local intersections and LOS F for expressways and CMP intersections) during at least one peak hour. CMP intersections are denoted by an asterisk (*).

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- Coleman Avenue and Brokaw Road (LOS F: PM peak hour).

Measured against the CMP LOS standards, of the 15 CMP intersections in the vicinity of the Santa Clara Station, all except the following currently operate at an acceptable LOS E or better during both the AM and PM peak hours:

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).

The unsignalized intersection of Lafayette Street and Harrison Street has two-way stop control. The delay and the LOS for the stop-controlled approach with the highest delay was LOS E in the AM and LOS F in the PM peak hours. Because the City of Santa Clara does not have an LOS standard for unsignalized intersections, this intersection cannot be said to operate at an unacceptable LOS.

3.3.4.3 Existing LOS Results for Freeway Segments

Traffic volumes for the study freeway segments were obtained from the 2014 CMP Annual Monitoring Report, which contains the most recent data collected for freeway segments in Santa Clara County. Freeway segments can include both mixed-flow lanes, which are open to all vehicles, and HOV lanes, also known as diamond lanes and carpool lanes. HOV lanes are restricted during peak travel periods to vehicles with a driver and one or more passengers (e.g., carpools, vanpools, and public transit buses) and to vehicles that have decals identifying them as Clean Air Vehicles (Inherently Low-Emission Vehicles). This analysis includes portions of I-280, I-680, I-880, U.S. 101 and SR 87; of these, U.S. 101, SR 87, and one segment of I-280 include an HOV lane.

The results of the freeway analysis under existing conditions are summarized in Table 3-7, based on the CMP's LOS standards for freeway segments.

Table 3-7: Existing Freeway Levels of Service Results Summary by Station

Station	Number of Freeway Segments	Unacceptable LOS Mixed-Flow Segments	Unacceptable LOS HOV Segments
Alum Rock/28th Street	20	13	4
Diridon	18	16	5
Santa Clara	26	24	9
Total	**64**	**53**	**18**

Currently, most of the freeway segments operate at congested conditions. Of the 64 segments that were analyzed, 53 directional mixed flow freeway segments and 18 directional HOV freeway segments operate at an unacceptable level of service based on the CMP's level of service standards. Refer to the BART Extension with TOJD TIA (Table 8) for further information on the freeway segments analyzed.[4]

3.3.4.4 Interchange Ramps

An assessment of queue lengths and operations on freeway ramps serving the BART Extension stations was performed where traffic volumes are projected to increase as a result of the BART Extension Alternative or the BART Extension with TOJD Alternative. Only

[4] Tables providing the level of service on freeway segments under the BART Extension Alternative are included in the BART Extension TIA. Tables providing the level of service on freeway segments under the BART Extension with TOJD Alternative are in the BART Extension with TOJD TIA.

those ramps where at least one of the alternatives would add 10 or more trips per lane to the freeway ramps were included in this analysis.

The analysis was based on queue length projections at the following freeway ramps:

- U.S. 101/McKee Road Southbound On-Ramp
- U.S. 101/McKee Road Southbound Loop Off-Ramp
- U.S. 101/Santa Clara Street Southbound On-Ramp
- U.S. 101/Alum Rock Avenue Northbound Off-Ramp

None of the other freeway ramps serving the study areas near the stations are projected to experience increases in traffic of 10 or more peak hour trips per lane with implementation of the BART Extension Alternative or the BART Extension with TOJD Alternative.

- **U.S. 101 at McKee Road Interchange** would provide access to and from Alum Rock/28th Street Station. The following freeway ramps are projected to experience increases in traffic greater than 10 trips per lane during at least one of the peak hours analyzed.
    - **U.S. 101/McKee Road Southbound On-Ramp** consists of two receiving lanes at its intersection with McKee Road and narrows to a single lane prior to reaching the ramp meter. The total queue storage capacity on the on-ramp is approximately 800 feet. Although a ramp meter is located on this ramp, it is not currently active.
    - **U.S. 101/McKee Road Southbound Loop Off-Ramp:** at its diverging point from the freeway, this southbound off-ramp consists of a single lane that widens to two lanes as it loops around then widens to three lanes just prior to its intersection with McKee Road. The total queue storage capacity within this ramp is approximately 2,300 feet. This ramp is currently controlled by a traffic signal at its intersection with McKee Road.
- **U.S. 101 at Santa Clara Street/Alum Rock Avenue Interchange** would provide access to and from the Alum Rock/28th Street Station. The following freeway ramps are projected to experience increases in traffic greater than 10 trips per lane during at least one of the peak hours analyzed.
    - **U.S. 101/Santa Clara Street Southbound On-Ramp** consists of two lanes from its intersection with Santa Clara Street to the ramp meter. The total queue storage capacity within this ramp is approximately 850 feet. Although a ramp meter is currently found at the freeway merging point on this ramp, it is not currently active.
    - **U.S. 101/Alum Rock Avenue Northbound Off-Ramp:** at its diverging point from the freeway, this northbound off-ramp consists of a single lane and flares into three lanes at the northbound approach to its intersection with Alum Rock Avenue. The total queue storage capacity on this ramp is approximately 1,675 feet. This ramp is currently controlled by a traffic signal at its intersection with Alum Rock Avenue.

Estimated queue lengths at the freeway off-ramp intersections were obtained from TRAFFIX calculations. Ramp meters on each of the freeway on-ramps are not currently active. Therefore, the freeway on-ramps evaluated do not currently experience measurable queues.

3.4 2035 Forecast Year Transit System and Performance

This section provides a summary of planned transit improvements that would be operational by the 2035 Forecast Year, projections of 2035 Forecast Year transit ridership under the No Build Alternative, and projections of 2035 Forecast Year transit ridership under the BART Extension Alternative.

3.4.1 Transit Improvements

Future No Build conditions consist of the existing transit networks and planned and programmed transit improvements in the study area that would be operational by the 2035 Forecast Year. These improvements are identified in MTC's Bay Area Regional Transportation Plan, *Plan Bay Area 2040*, adopted by MTC on July 18, 2013, and the *Valley Transportation Plan 2040* (VTP 2040), adopted by VTA in October 2013. The improvements consist of transit, highway, bicycle, and pedestrian facilities, and roadway projects. Existing transit services include bus services, LRT, shuttle services, paratransit service, and inter-county services. A complete description of existing VTA services is included in VTA's *Short Range Transit Plan FY 2014–2023* (VTA 2014b).

New transit services and capital projects planned and programmed through the 2035 Forecast Year are provided in Table 2-1~~2~~ in Chapter 2, *Alternatives*, and include bus rapid transit (BRT) projects, an LRT extension, and rail service upgrades. Also included under 2035 Forecast Year No Build conditions is the approved extension of BART to the Warm Springs Station in Fremont (opening in the fall of 2016) and to the Berryessa/North San Jose Station ~~in San Jose~~ (opening in ~~late~~ 2018~~7~~).

VTA's LRT service map for service through the 2035 Forecast Year is shown in Figure 2-3 in Chapter 2. Figure 1-2 in Chapter 1 shows the BART operating plan for service through 2035, including Phase I of the BART Extension.

3.4.2 No Build Alternative Transit Trips

Travel demand forecasts, based on the 2035 Forecast Year transit network assumptions described above, were developed for the 2035 Forecast Year No Build conditions. Forecasts include estimates of transit ridership in the study area and the broader area covered by the travel demand model. Table 3-8 summarizes modeled area transit projections for the

2035 Forecast Year No Build conditions. Transit trips[5] for all transit operators in the travel forecast area are projected to grow by approximately 43 percent between 2015 and 2035, increasing from 1.309 million in 2015 to 1.873 million in 2035. Transit trips from Alameda County to Santa Clara County are expected to increase by 174 percent over the same period, from about 5,600 to 15,300 trips per day.

Table 3-8: 2015 Existing and 2035 Forecast Year No Build Conditions Total Weekday Transit Trips

Performance Measure	2015	2035	% Growth
Weekday Transit Trips: All Transit Operators in Area[a]	1,309,283	1,873,183	43%
Transit Trips Between Alameda and Santa Clara Counties[b]	5,589[c]	15,314	174%

Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a.

[a] Includes total daily transit trips for all transit operators within the modeled area (the entire Bay Area), including transit users coming over the Altamont Pass on either trains or express buses.

[b] Estimated from model forecast by Hexagon.

[c] Estimated from model calibration data by Hexagon.

As shown in Table 3-9, the number of daily transit boardings for all transit operators from the MTC region that serve Santa Clara County are projected to grow by approximately 392,000 daily boardings, or 65 percent, over the next 20 years. Systemwide BART boardings would increase by 44 percent, from approximately 404,000 riders in 2015 to 581,700 riders in 2035. With the 2035 forecast of boardings increasing for some operators and decreasing for others, transit operators would need to re-evaluate their service and financial situation over time as alternative transportation opportunities arise.

[5] Note that "trips" and "boardings" are not the same in this and subsequent sections. "Trips" include all linked trips on all transit operators. "Boardings" include all unlinked trips, except on BART and other rail operators. For example, if a patron transfers between two VTA bus routes or between a VTA bus route and a VTA light rail route, it is counted as two boardings (unlinked trips) and one trip (linked trip). If a patron transfers between one BART line and another BART line, however, that is counted as both one boarding and one trip, because BART does not report internal transfers between BART lines. If a patron transfers between a bus route and a BART line (an external transfer), it is counted as two boardings and one trip.

Table 3-9: 2015 Existing and 2035 Forecast Year No Build Alternative Average Weekday Boardings by Transit Operator

Operator	Submode	2015 Existing	2035 Forecast Year	Absolute Difference	Percentage Difference
BART	Heavy Rail	403,900	581,700	177,800	44%
Caltrain	Commuter Rail	52,600	86,700	34,100	65%
Amtrak-Capitol Corridor [a]	Intercity Passenger Rail	2,300	1,875	-426	-18.5%
ACE	Commuter Rail	5,040	17,800	12,760	253%
VTA	Light Rail	35,500	87,700	52,200	147%
	Express Bus	5,090	12,050	6,960	137%
	Local/Limited Bus	102,850	211,850	109,000	106%
Total		**607,288**	**999,675**	**392,336**	**64.6%**

[a] Both 2015 Existing observed ridership and 2035 Forecast Year modeled ridership on the Amtrak-Capitol Corridor only include boardings at stations within the modeled area between Fairfield/Suisun and San Jose. Boardings between Fairfield/Suisun and Sacramento and Auburn are not included in the modeling ridership totals.

It should be noted that transit ridership estimated by the VTA model reported in Table 3-9 for the Amtrak-Capitol Corridor service only includes trips made entirely between stations within the 13 County model area (the MTC region plus Santa Cruz, Monterey, San Benito and San Joaquin Counties). The 2015 existing ridership reported is actually higher than the true existing ridership made entirely within the model area, as it considers both ends of the trip as being made in the model region when either the start or end of the trip would be north of Suisun/Fairfield. However, this was the most recent data obtainable from the Capitol Corridor Joint Powers Board. Transit demand from those areas outside of the model region, while important to Capitol Corridor ridership, is not likely to be a significant market for the BART Extension. The VTA model is still an appropriate analysis tool that can be used to estimate the change to Amtrak-Capitol Corridor ridership (and other services in the project corridor) resulting from transit level of service changes in the corridor, as it considers the differences in service frequencies, transfer opportunities, and fares.

3.4.2.1 Fleet Requirements

A VTA bus fleet of 451 vehicles is estimated to meet 2035 service levels, which represents a slight increase over the 2015 fleet to account for additional bus service shuttling passengers between the Berryessa/North San Jose Station and Downtown stations. Although the light rail network will expand by 2035, it will be served with no increases to the existing light rail fleet of 99 vehicles.

With implementation of the Phase I Project, plus increased BART service overall, the total BART fleet is expected to expand with the addition of 313 to 365 cars, with the total number of cars estimated at 982 to 1,034. Table 3-10 summarizes this information.

Table 3-10: 2035 Forecast Year No Build Alternative Fleet Size

Service	Existing 2015 Service	2035 Forecast Year No Build Alternative
VTA Buses	440	451
Light Rail Transit	99	99
BART Cars (entire BART system)[a]	669	1,081

Sources: Connetics Transportation Group and VTA 2015.

[a] The No Build Alternative includes the Berryessa Extension Project, which is currently under construction.

3.4.2.2 Facility Requirements

The buses operated by VTA and identified under the No Build Alternative would be stored and maintained at existing bus operating and maintenance facilities, which consist of the Cerone Bus Operating Division and Overhaul and Repair Facility in North San Jose, the Don Pedro Chaboya Bus Operating Division in South San Jose, and the North Bus Operating Division in Mountain View. These facilities have sufficient land to enable any potential future need for expansion as necessary to accommodate additional buses above the 2035 Forecast Year fleet levels. Because the LRT fleet size is not anticipated to change by 2035, LRT vehicles would be stored and maintained at the existing Guadalupe Light Rail Maintenance facility near Downtown San Jose.

3.4.3 BART Extension Transit Trips

Travel demand forecasts were also developed for the 2035 Forecast Year BART Extension. Forecasts include estimates of transit ridership in the study area and the broader area covered by the travel demand model. BART system boardings would increase under the 2035 Forecast Year BART Extension Alternative. However, some new BART riders would be diverted from other transit modes due to BART's greater convenience and better access to major Santa Clara County activity centers, such as Downtown San Jose. Table 3-11 summarizes modeled area transit projections for the 2035 Forecast Year No Build and BART Extension Alternatives.

Table 3-11: 2035 Forecast Year No Build and BART Extension Alternatives Average Weekday Boardings by Transit Operator

Operator	Submode	2035 Forecast Year No Build	2035 Forecast Year BART Extension	Absolute Difference	Percentage Difference
BART[a]	Heavy Rail	581,700	617,000	35,300	6.1%
Caltrain	Commuter Rail	86,700	84,900	-1,800	-2.1%
Amtrak-Capitol Corridor	Intercity Passenger Rail	1,875	1,515	-360	-19.2%
ACE	Commuter Rail	17,800	17,100	-700	-3.9%
VTA	Light Rail	87,700	88,400	700	0.8%
	Express Bus	12,050	2,125	-9,925	-82.4%
	Local/Limited Bus	211,850	209,300	-2,550	-1.2%
Total		**999,675**	**1,020,330**	**20,655**	**2.1%**

[a] Boardings by operator are systemwide and are not necessarily made in the corridor. Because BART and other rail services typically exclude internal transfers in boarding counts, they thereby reflect linked trips. Bus services include all vehicle boardings, including transfers, and thereby reflect unlinked trips.

Table 3-11 shows the riders on BART plus other major transit services by 2035. For comparison, 2035 Forecast Year No Build conditions weekday boardings by operator are listed. Compared to the 2035 Forecast Year No Build Conditions, the 2035 Forecast Year BART Extension ridership would increase by 6.1 percent, or about 35,300 average daily riders. The total number of boardings on all transit systems would increase by about 20,655. The reduction in express bus boardings is due to the elimination of Express Route 303, which provides high-frequency bus service between the Berryessa/North San Jose ~~BART~~ Station and Downtown San Jose under 2035 Forecast Year No Build conditions; this travel market would be served by the BART Extension Alternative. The 2035 Forecast Year BART Extension Alternative is estimated to attract 2,860 trips that would otherwise (i.e., under the 2035 Forecast Year No Build conditions) be made on rail services operated by other agencies in the region (i.e., Caltrain, Amtrak-Capitol Corridor, and ACE).

As shown in Table 3-12, the BART Extension Alternative is projected to serve over 52,000 average daily riders in the 2035 Forecast Year. About 15,200 (29 percent) weekday trips would be made completely between the four BART Extension Alternative stations (internal boarding and internal alighting) while approximately 36,800 trips would be made between the BART Extension Alternative stations and all other BART stations in the region.

Table 3-12: 2035 Forecast Year Average Weekday Ridership with the BART Extension Alternative

Location	Number of Riders	Percentage
Between the Four BART Extension Alternative Stations	15,201	29%
Between the Four BART Extension Alternative Stations and all other BART Stations	36,810	71%
Total	**52,011**	**100%**
Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a.		

Note that some of the 52,000 trips shown in Table 3-12 include BART riders that would shift from the Berryessa/North San Jose Station to one of the four BART Extension stations. For example, under the 2035 Forecast Year No Build Alternative, a BART rider traveling from Fremont to Downtown San Jose would get off at the Berryessa/North San Jose Station, transfer to a bus, and exit the bus at the rider's destination in Downtown San Jose. Under the 2035 Forecast Year BART Extension Alternative, this rider would stay on BART and get off at the Downtown San Jose Station. While this would not increase the total number of boardings on the BART system, this trip is counted as a "project trip" in the 2035 Forecast Year BART Extension Alternative because it uses one of the four BART Extension stations.

Table 3-13 presents the average weekday ridership by station. As shown, the Downtown San Jose Station would attract the highest number of riders because this station would be near large existing and planned office buildings and residential towers located in, or planned for, the greater Downtown San Jose area.

Table 3-13: 2035 Forecast Year Average Weekday Ridership by Station with the BART Extension Alternative

Station Name	Number of Riders
Alum Rock/28th Street	10,300
Downtown San Jose	24,287
Diridon	9,553
Santa Clara	7,871
Total Average Weekday Ridership	**52,011**
Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a	

3.4.3.1 New Linked Transit Trips ("New Riders")

New linked transit trips indicate how many new riders would actually divert from other non-transit modes to transit with the BART Extension. These could be riders on any transit modes but, in reality, would be almost entirely new riders on BART. Table 3-14 compares the 2035 Forecast Year No Build transit ridership forecasts with the 2035 Forecast Year BART Extension Alternative in terms of new linked transit trips only. Linked transit trips exclude transfer boardings so that a person who uses more than one transit line or mode is counted

only once. As a result, new linked transit trips are trips that are diverted from the automobile or non-motorized modes.

The 2035 Forecast Year BART Extension Alternative would generate approximately 14,600 more transit trips in comparison to the 2035 Forecast Year No Build Alternative. The average weekday linked trips represent daily linked transit ridership for all the transit operators within the modeled area, including transit users coming over the Altamont Pass from the Central Valley on ACE trains.

Table 3-14: 2035 Forecast Year Weekday Transit Trips and New Linked Transit Trips

Performance Measure	No Build	BART Extension
Weekday Transit Trips: All Operators in Area[a]	1,873,183	1,887,802
New Linked Transit Trips[b]	n/a	14,619

Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a.

[a] Includes total daily transit trips for the all transit operators within the modeled area (the entire Bay Area).

[b] Linked transit trips exclude transfer boardings. New linked trips are diverted almost entirely from auto trips and represent new riders on transit.

3.4.3.2 Boardings and Alightings by Station

Each unlinked transit trip on BART includes one boarding and one alighting. Table 3-15 shows the number of projected average weekday boardings and alightings at stations, including home-based work and non-work trips. The Downtown San Jose Station would have almost as many daily boardings and alightings as the three other stations combined. Note that total boardings and alightings are not double the weekday ridership estimate because many riders have one trip beginning or ending at BART stations outside the study area.

Table 3-15: 2035 Forecast Year Average Weekday Boardings and Alightings by BART Extension Station

Stations	Home-Based Work	Non-Work	Total
Alum Rock/28th Street	7,928	3,248	11,176
Downtown San Jose	18,199	12,879	31,079
Diridon	7,802	5,969	13,771
Santa Clara	6,441	4,746	11,187

Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a.

3.4.3.3 Mode of Access at Stations

Table 3-16 presents the projected average weekday trips at the stations by mode of access. Transit modes (i.e., bus, commuter rail, and LRT) would account for 48 percent of the access trips, while 34 percent of access trips would be by pedestrians or bicycles. The high use of non-automobile modes is due to the convenience of transit connections and the proximity of

jobs and housing to the stations in Downtown San Jose and at Diridon Station. Note that 42 percent of BART riders at Alum Rock/28th Street Station would arrive by car.

Table 3-16: 2035 Forecast Year Mode of Access by BART Extension Station

Station	Walk/ Bike	Bus	Rail[a]	LRT	Auto KNR[b]	Auto PNR[c]	Auto Subtotal	Total
Alum Rock/28th Street	25%	33%	n/a	n/a	5%	36%	42%	100%
Downtown San Jose	52%	29%	n/a	19%	n/a	n/a	n/a	100%
Diridon	34%	5%	26%	26%	9%	n/a	9%	100%
Santa Clara	20%	49%	12%	n/a	4%	16%	20%	100%
Total	34%	30%	7%	11%	4%	15%	19%	100%

Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a.

[a] Rail = Caltrain, ACE, and Amtrak-Capitol Corridor

[b] KNR = kiss-and-ride

[c] PNR = park-and-ride

n/a: not applicable

Numbers do not add up to 100% due to rounding.

3.4.3.4 Inter-county Movements: Santa Clara County-Alameda County Volumes

Table 3-17 shows the projected change in transit ridership for transit services offering connections between Santa Clara County and Alameda County (in both directions). The transit services used for this comparison include local buses, ACE, Capitol Corridor, and BART. With the BART Extension, about 7,400 additional riders would cross the County line on inter-county transit services on a typical weekday in the 2035 Forecast Year in order to travel to or from work, home, or other locations in Santa Clara County compared to the No Build Alternative. Note that some of these riders crossing the County line may have an origin or destination in another county; for example, a rider travelling between Contra Costa County and Santa Clara County on BART would cross the Santa Clara County-Alameda County line.

Table 3-17: 2035 Forecast Year Weekday Transit Trips Crossing Santa Clara County-Alameda County Line

Performance Measure	No Build	BART Extension
Weekday Transit Trips Across County Line	30,665	38,086
Change from 2035 Forecast Year No Build Conditions	n/a	7,421

Source: Hexagon Transportation Consultants, Inc. 2017~~6~~a.

3.4.3.5 Travel Time Between Selected Origin-Destination Pairs

One of VTA's key objectives is to reduce transit travel times within the corridor. Because travel time is a key factor in mode choice decisions (e.g., using an automobile versus public transit), traffic congestion and air pollution would be reduced if more people chose to use

transit rather than their private automobiles. More trips on transit also lead to faster highway travel because of reduced congestion.

Table 3-18 presents a comparison of total door-to-door auto, shared-ride, and transit travel times between selected origins and destinations in the corridor.

Table 3-18: 2035 Forecast Year AM Peak Period Door-to-Door Travel Time (Minutes) for Selected Origin-Destination Pairs: No Build versus BART Extension

From	To	Drive Alone No Build	Drive Alone BART Extension	Shared Ride No Build	Shared Ride BART Extension	Transit No Build	Transit BART Extension
North Milpitas Boulevard	Downtown San Jose	28	28	28	28	61	38
Hostetter/ Berryessa	Downtown San Jose	21	21	21	21	55	34
East San Jose	Downtown San Jose	27	27	26	26	57	57
Pleasanton	Downtown San Jose	79	79	78	78	91	75
South Fremont	Downtown San Jose	42	42	41	41	47	31
Newark	Downtown San Jose	48	48	46	46	85	69
Union City	Downtown San Jose	56	56	54	54	58	42
Santa Clara (near Caltrain)	Downtown San Francisco	87	87	80	80	84	78
Santa Clara (near Caltrain)	South Fremont	30	30	30	30	58	35
Santa Clara (near Caltrain)	Downtown Oakland	74	74	73	73	92	71
Alum Rock	Downtown San Francisco	95	95	87	87	88	78
Alum Rock	Downtown Oakland	75	75	74	74	81	71

Source: Hexagon Transportation Consultants, Inc. 2017<u>6a</u>.

The BART Extension would provide a high-quality and seamless transit linkage between San Francisco, Oakland, Fremont, and Downtown San Jose and offer measurable travel time savings. Notable transit travel time improvements are projected for transit trips to Downtown San Jose from various points in Alameda County, including North Milpitas Boulevard (23 minutes faster), Union City, Pleasanton, Newark, and South Fremont (all of which would be 16 minutes faster). Travel times from the areas near the Alum Rock/28th Street and Santa Clara Stations to destinations in downtown Oakland and downtown San Francisco are also projected to improve by 6 to 20 minutes.

Auto travel times before and after service begins show no measurable improvement for many origin-destination pairs. The average auto travel time saving for both drive-alone and shared-ride modes for all origin-destination pairs remained unchanged due in part to the increase in freeway traffic congestion projected for the 2035 Forecast Year.

3.4.4 Conclusion

3.4.4.1 Impact on Non-BART Transit Ridership

Overall transit ridership in the corridor would increase by about 20,700 with the BART Extension. Some of this growth would be diverted ridership from other transit modes, reducing their growth in the 2035 Forecast Year. Specifically, the BART Extension is estimated to attract approximately 2,800 trips that would otherwise (i.e., under the 2035 Forecast Year No Build conditions) be made on rail services operated by other agencies in the study areas (i.e., ACE, Caltrain, and Amtrak-Capitol Corridor).

The BART Extension would result in a redistribution of VTA transit ridership. VTA local bus trips would be about 1 percent lower once BART Extension service begins. VTA express bus services would decrease by about 9,900 riders (or about 83 percent) because BART service would replace Route 303, which provides high-frequency express transit service between Berryessa/North San Jose Station and Downtown San Jose prior to when service begins on the BART Extension. VTA LRT ridership would not substantially change. Overall, VTA local and express bus and LRT transit ridership would decrease by almost 4 percent once the BART Extension service begins.

3.4.4.2 Impact on BART System Boardings

In the 2035 Forecast Year, the BART Extension is expected to serve over 52,000 average daily riders in the corridor, including new trips on BART as a result of its extended service to and within Santa Clara County as well as trips diverted to BART from other transit service providers.

3.4.4.3 Impact on New Transit Riders

In the 2035 Forecast Year, the BART Extension would generate 14,600 new linked transit trips, or new transit riders. New linked trips are diverted from non-transit modes (primarily auto) and represent new riders on BART.

3.5 Freeway, Roadway, and Transportation System Performance

3.5.1 2035 Forecast Year No Build Alternative

This section describes traffic conditions for the 2035 Forecast Year under No Build conditions. This scenario assumes that the Milpitas and Berryessa/North San Jose ~~BART~~ Stations would be completed. The analysis includes a summary of transportation improvements and LOS analyses for intersections, freeway segments, and ramp interchanges.

3.5.1.1 Roadway Improvements

Several transportation improvements in the study areas are planned and would be operational by the 2035 Forecast Year. These improvements are identified in the MTC Regional Transportation Plan, *Plan Bay Area 2040*, and VTP 2040. The improvements consist of freeway widenings and interchange improvements as well as improvements to regional and local facilities. There are no new freeways planned.

Information on local intersection improvements also was obtained from the Cities of San Jose and Santa Clara. These include funded improvements at intersections that will be in place by the 2035 Forecast Year. The planned roadway improvements in the vicinity of the BART stations are described in in Section 2.2.1.2, *Roadway System,* in Chapter 2, *Alternatives*, and include converting all existing freeway HOV lanes to express lanes, widening streets, converting some one-way streets to two-way operation, and reconfiguring intersections.

In addition to the improvements to freeways and streets, VTA's Santa Clara-Alum Rock BRT Project would provide BRT service along Santa Clara Street and Alum Rock Avenue, extending from Cahill Street (western Santa Clara Street end) to Capitol Avenue. This project will result in roadway and traffic signal modifications along Santa Clara Street/Alum Rock Avenue, including at some of the study intersections. However, the lane configurations at the study intersections along Santa Clara Street/Alum Rock Avenue will remain unchanged. Traffic signal modifications will occur at the following intersection:

At 17th Street and Santa Clara Street (Alum Rock/28th Street Station), with the Santa Clara-Alum Rock BRT Project, the traffic signal phasing for the eastbound/westbound direction will change from permitted left-turn to split phase.

3.5.1.2 Bicycle and Pedestrian Improvements

VTP 2040 includes a Bicycle Expenditure Program, which identifies various bicycle projects, some of which are within the study areas of the BART stations. Projects were assumed to be in place by the year 2040, and are listed in Table 3-19.

Table 3-19: 2040 Bicycle/Pedestrian Facility Improvements

VTP ID	Project Title	Description
Proximate to Diridon Station and Downtown San Jose Station		
40-B13	Auzerais Avenue Bicycle and Pedestrian Improvements: Los Gatos Creek Trail to Race St.	Construct Class II bikeways, sidewalk improvements, crossing improvements, and bicycle parking.
40-B14	Bird Avenue Bicycle and Pedestrian Corridor: Montgomery St. at Santa Clara to Bird Ave. at West Virginia	Construct Class II, III, and IV bikeways, enhanced crossing/detection, and sidewalk improvements.
40-B27	Los Gatos Creek Trail Reach 5d: Park Ave./Montgomery Ave. to Santa Clara Ave. (Diridon Station Segment)	Completion of the last reach of the Los Gatos Creek Trail, including design, land acquisition, and environmental review.
40-B28	Los Gatos Creek Trail Reach 5b and 5c: Auzerais Ave. South of W. San Carlos Ave. to Park Ave./Montgomery Ave. (Trail and Undercrossing)	Extend the last reach of the Los Gatos Creek Trail including design, land acquisition and environmental review, and construction.
40-B33	Three Creeks Trail: West from Los Gatos Creek Trail/Lonus St. to Guadalupe River	Property acquisition, master plan, environmental review, design, and construction of landscaped trail system, with paved alignment along a former railway right-of-way. Signage, striping, mileage markers, seating, fitness stations.
Proximate to Santa Clara Caltrain Station		
40-B41	San Tomas Aquino Creek Spur Trail Phase 2: El Camino Real to Homestead Rd.	Construct an extension of the San Tomas Aquino Spur Trail on the west side of San Tomas Expwy. from El Camino Real to Homestead Rd.
40-B37	Lafayette Street Bike Lanes: Agnew Rd. to Reed St.	Install Class II bicycle lanes with bicycle detection at signalized intersections.
40-B69	Santa Clara Caltrain Station Undercrossing Extension	Construct an extension of the recently opened pedestrian/bike tunnel under the Caltrain tracks at the Santa Clara Caltrain/ACE station on the east side of the Union Pacific Railroad tracks. Construct ramp and pathway to connect tunnel to Brokaw Road.
40-B12	Airport Boulevard.: Guadalupe River Trail Bike and Pedestrian Connection	Construct a multi-use path along the north side of Airport Blvd. (at south end of Mineta San Jose International Airport) from the Guadalupe River Trail to Coleman Ave. connecting with existing Coleman Ave. bike lanes and future Santa Clara BART Station (via Brokaw Rd.).
40-B18	Brokaw-Coleman Bikeway: Brokaw Road to Airport Blvd and Coleman Ave.	Construct Class II bikeways, bicycle crossing improvements, and Class I multi-use path.
40-B30	Newhall Street Bike/Pedestrian Overcrossing over Caltrain Tracks	Bike/Pedestrian Bridge from Newhall Street west of Caltrain (near Elm Street) to Newhall Street east of Caltrain (near Newhall Drive).
40-B107	De La Cruz Boulevard Bike Lanes: Central Expressway to Brokaw Road	Install Class II bicycle lanes with bicycle detection at signalized intersections.
40-B106	Benton Street Bike Lanes: Monroe Street to Railroad Avenue	Install Class II bicycle lanes with bicycle detection at signalized intersections. Existing four lanes will be reduced to road diet configuration to make room for bicycle lanes.

VTP ID	Project Title	Description
Proximate to Alum Rock/28th Street Station		
40-B32	Park Avenue/San Fernando Street/San Antonio Bikeway	Enhanced on-street crosstown bikeway between San Jose/Santa Clara City limits with Diridon Transit Center, Downtown San Jose, San Jose Creek Trails (Los Gatos, Guadalupe, Coyote), San Jose State University, and east San Jose. *Note: Park Avenue and a portion of San Fernando Street have been completed.*
40-B101	Coyote Creek Trail (Oakland Road to Watson Park)	Prepare master plan, environmental documents (CEQA and NEPA), and design and construct trail.
40-B102	Coyote Creek Trail (Watson Park to Williams Street Park)	Prepare master plan, environmental documents (CEQA and NEPA), and design and construct trail.
40-B103	Coyote Creek Trail (Williams Street Park to Kelley Park)	Prepare master plan, environmental documents (CEQA and NEPA), and design and construct trail.
Source: VTP 2040 Project List.		

3.5.1.3 Intersection Level of Service Analysis

Intersection LOS was used to evaluate traffic operations at the study intersections under 2035 Forecast Year No Build conditions. Adjusted 2035 model volume forecasts were used to calculate intersection LOS. The results of the LOS analysis for the study intersections in the vicinity of each future BART Station under 2035 Forecast Year No Build conditions are summarized in Table 3-20.

Table 3-20: 2035 Forecast Year No Build Alternative Intersection Levels of Service

Station	Number of Study Intersections	Number of CMP Intersections	Unacceptable LOS Intersections[a]
Alum Rock/28th Street	27	7	5 (1)
Diridon	29	10	4 (0)
Santa Clara	35	15	12 (8)
Total	**91**	**32**	**21 (9)**

[a] The first number is based on the LOS standards of the appropriate City. The second number (in parentheses) is the number of CMP intersections that would operate at an unacceptable LOS based on the CMP LOS standard.

The intersection LOS results for the 2035 Forecast Year No Build Alternative are described below.

Alum Rock/28th Street Station

The following five study intersections are projected to operate at an unacceptable LOS (LOS E or F) during at least one peak hour, according to City of San Jose LOS standards. CMP intersections are denoted by an asterisk (*).

- King Road and McKee Road (LOS F: AM peak hour; LOS E: PM peak hour).
- Jackson Avenue and Alum Rock Avenue* (LOS F: AM peak hour; LOS E: PM peak hour).

- Jackson Avenue and East San Antonio/Capitol Expressway (LOS E: AM peak hour).
- McLaughlin Avenue and Story Road (LOS E: AM peak hour).
- King Road and Mabury Road (LOS E: AM and PM peak hours).

All other study intersections in the vicinity of the Alum Rock/28th Street Station are projected to operate at an acceptable LOS under the 2035 Forecast Year No Build Alternative, based on the City of San Jose LOS standard, which is more stringent than the CMP standard.

Measured against the CMP standard, of the seven CMP intersections in the Alum Rock/28th Street Station study area, only the intersection of Jackson Avenue and Alum Rock Avenue would operate at an unacceptable LOS F in the AM peak hour.

Diridon Station

The following four study intersections are projected to operate at an unacceptable LOS (LOS E or F) during at least one peak hour, according to City of San Jose LOS standards. CMP intersections are denoted by an asterisk (*).

- The Alameda and Taylor Street/Naglee Avenue* (LOS E: AM and PM peak hours).
- South Autumn/Montgomery Street and Park Avenue (LOS E: PM peak hour).
- Meridian Avenue and Fruitdale Avenue (LOS E: AM and PM peak hours).
- Bird Avenue and San Carlos Street* (LOS E: PM peak hour).

All other study intersections in the vicinity of the Diridon Station are projected to operate at an acceptable LOS under the 2035 Forecast Year No Build Alternative, based on the City of San Jose standard.

Measured against the CMP standard of LOS E, none of the ten CMP intersections in the Diridon Station study area would operate at an unacceptable LOS F in either peak hour.

Santa Clara Station

There are 12 study intersections in the vicinity of the Santa Clara Station that are projected to operate at unacceptable LOS during at least one peak hour under 2035 Forecast Year No Build conditions, of which six are in the City of San Jose and six are in the City of Santa Clara.

The following six study intersections, located in the City of San Jose, are projected to operate at an unacceptable LOS (LOS E or F) during at least one peak hour, according to City of San Jose LOS standards. CMP intersections are denoted by an asterisk (*).

- Coleman Avenue and I-880 Southbound Ramps* (LOS F: AM peak hour).
- Coleman Avenue and I-880 Northbound Ramps* (LOS F: AM peak hour).
- Coleman Avenue and West Hedding Street (LOS E: AM and PM peak hours).

- Coleman Avenue and West Taylor Street (LOS E: AM peak hour; LOS F: PM peak hour).
- The Alameda and West Hedding Street* (LOS E: AM peak hour; LOS F: PM peak hour).
- The Alameda and West Taylor Street/Naglee Avenue* (LOS F: AM peak hour; LOS E: PM peak hour).

The following six study intersections, located in the City of Santa Clara, are projected to operate at an unacceptable LOS (LOS E or F for local City of Santa Clara intersections and LOS F for expressway and CMP intersections) during at least one peak hour, according to City of Santa Clara standards. CMP intersections are denoted by an asterisk (*).

- Scott Boulevard and Central Expressway* (LOS F: PM peak hour).
- Lafayette Street and Central Expressway* (LOS F: AM and PM peak hours).
- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- Coleman Avenue and Brokaw Road (LOS E: PM peak hour).
- San Tomas Expressway and El Camino Real* (LOS F: AM and PM peak hours).
- Lafayette Street and Lewis Street (LOS E: PM peak hour).

Measured against the CMP standard, of the 15 CMP intersections in the Santa Clara Station study area, the following eight CMP intersections would operate at an unacceptable LOS F during at least one peak hour under the 2035 Forecast Year No Build Alternative:

- Coleman Avenue and I-880 Southbound Ramps* (LOS F: AM peak hour).
- Coleman Avenue and I-880 Northbound Ramps* (LOS F: AM peak hour).
- The Alameda and West Hedding Street* (LOS F: PM peak hour).
- The Alameda and West Taylor Street/Naglee Avenue* (LOS F: AM peak hour).
- Scott Boulevard and Central Expressway* (LOS F: PM peak hour).
- Lafayette Street and Central Expressway* (LOS F: AM and PM peak hours).
- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- San Tomas Expressway and El Camino Real* (LOS F: AM and PM peak hours).

Although the City of Santa Clara does not have an LOS standard for unsignalized intersections, an evaluation of the unsignalized study intersection was performed for informational purposes. The LOS analysis shows that the worst Harrison Street approach at the intersection of Lafayette Street and Harrison Street is projected to operate at LOS F during both the AM and PM peak hours under 2035 Forecast Year No Build conditions. LOS F at two-way stop-controlled intersections can occur when gaps of traffic on the major street are limited, resulting in long delays for the minor-street traffic as it attempts to enter or cross the major street. At the intersection of Lafayette Street and Harrison Street, the relatively

high traffic volumes along Lafayette Street (major street) cause the delay on the low-volume Harrison Street (minor street) to be worse than the LOS F threshold. However, the peak-hour traffic signal warrant checks indicate that the intersection would not have traffic volumes under the 2035 Forecast Year No Build Alternative that meet thresholds that warrant signalization.

All other study intersections in the vicinity of the Santa Clara Station would operate at an acceptable LOS under the 2035 Forecast Year No Build Alternative.

3.5.1.4 Freeway Segment Level of Service

The 2035 Forecast Year No Build Alternative traffic volumes for the study area freeway segments were obtained from the VTA Model. No adjustments were made to the volumes produced by the VTA Model because the freeway network contained in the VTA Model is represented more accurately than local roadways.

The results of the analysis under 2035 Forecast Year No Build conditions are summarized in Table 3-21. Supporting documentation for this and subsequent freeway analysis for the No Build, BART Extension, and BART Extension with TOJD Alternatives is found in the BART Extension TIA (Tables 9, 10, 11, 41, 42, 43, 47, 51, and 54) and in the BART Extension with TOJD TIA (Tables 8, 16, and 26).

Table 3-21: 2035 Forecast Year No Build Conditions Freeway Levels of Service

Station	Number of Freeway Segments	Unacceptable LOS Mixed-Flow Segments	Unacceptable LOS HOV Segments
Alum Rock/28th Street	20	12	4
Diridon	18	17	3
Santa Clara	26	24	8
Total	**64**	**53**	**15**

Table 3-21 shows that:

- 12 (plus 4 HOV segments) of the 20 directional freeway segments analyzed for the Alum Rock/28th Street Station are projected to operate at an unacceptable LOS F during at least one peak hour.
- 17 (plus 3 HOV segments) of the 18 directional freeway segments analyzed for the Diridon Station are projected to operate at an unacceptable LOS F during at least one peak hour.
- 24 (plus 8 HOV segments) of the 26 directional freeway segments analyzed for the Santa Clara Station are projected to operate at an unacceptable LOS F during at least one peak hour.

3.5.1.5 Freeway Interchange Ramp Analysis

The results of the freeway ramp analysis under 2035 Forecast Year No Build conditions are described below and summarized in Table 3-22. Based on the projected queue lengths obtained from TRAFFIX, it was determined that the available queue storage space for the freeway off-ramps studied would be sufficient to serve the projected demand under 2035 Forecast Year No Build conditions.

Table 3-22: 2035 Forecast Year No Build Alternative Freeway Ramp Queuing Analysis

Freeway Ramp	Total Storage (Vehicle)[a]	Volume and Queue Projections (Vehicles)	
		2015 Existing	2035 Forecast Year No Build
U.S. 101 at McKee Road Interchange			
U.S. 101 SB On-Ramp at McKee Road	32		
PM Volume[b]		1,131	1,476
Projected Queue Length[c]		--[e]	*576*
U.S. 101 SB Loop Off-Ramp at McKee Road	92		
AM Volume[b]		426	470
Projected Queue Length[d]		*27*	*30*
U.S. 101 at Santa Clara Street/Alum Rock Avenue Interchange			
U.S. 101 SB On-Ramp at Santa Clara Street	34		
PM Volume[b]		949	1,397
Projected Queue Length[c]		--[e]	*497*
U.S. 101 NB Off-Ramp at Alum Rock Avenue	67		
AM Volume[b]		244	407
Projected Queue Length[d]		*10*	*14*
PM Volume[b]		695	984
Projected Queue Length[d]		*24*	*43*

[a] Total number of vehicles that can store within the ramp.
[b] Peak-hour ramp volume projections.
[c] Total number of vehicles in the queue, as calculated based on the ramp meter rate and projected traffic volumes.
[d] Total number of vehicles in the queue, as obtained from TRAFFIX.
[e] Currently, the ramp meter at these on-ramps is not operational during the PM peak hour; therefore, no measurable queues are currently experienced at these locations.
SB = southbound; NB = northbound

Based on the projected queue lengths, the available queue storage space for the two freeway off-ramps studied would be sufficient to serve the projected demand under 2035 Forecast Year No Build conditions. However, the queue length projections for the two freeway on-ramps show that the on-ramps studied would experience excessive queue lengths that would spill out of the ramps onto the adjacent street under 2035 Forecast Year No Build conditions. This is the result of the of the projected on-ramp demand exceeding the assumed

ramp capacity. These projections assume a very conservative meter rate of 900 vph for the entire peak hour analyzed.

3.5.1.6 Potential Impacts of the 2035 Forecast Year No Build Alternative

The No Build Alternative would lack the transportation benefits of the BART Extension and the BART Extension with TOJD Alternatives, such as improved transit access and reliability, enhanced connectivity with the regional transportation network, and better interface with pedestrian and bicycle travel. As discussed in Section 3.4.4 above, the BART Extension would result in increased transit ridership due to the projected mode shift, and as discussed in Section 3.5.2.4 below, the BART Extension would result in a decrease in traffic volumes on the freeway network, as commuters use BART as an alternative to regional freeway travel. The No Build Alternative would result in greater traffic congestion, especially on the freeway network, resulting in longer travel times.

3.5.2 BART Extension Alternative

3.5.2.1 Consistency with Other Plans

The BART Extension is included as one of the transit improvement projects in *Plan Bay Area*, MTC's current regional transportation plan that outlines the course for transportation investment and land-use priorities for the next 25 years. The BART Extension is also included in VTP 2040, VTA's countywide long-range transportation plan for Santa Clara County. Therefore, the BART Extension is consistent with regional transportation plans and policies.

3.5.2.2 BART Extension Vehicle Trips

Implementation of the BART Extension Alternative would result in a shift in travel patterns as the result of some commuters modifying their travel routes to access the station areas, and in the removal of auto trips from the roadway network as some commuters shift from auto to transit modes of travel. Therefore, station-generated traffic consists of two components: (1) new vehicular trips accessing the BART stations, referred to as *station drive access trips,* and (2) all the trips that would no longer be on the roadway as a result of the BART Extension Alternative, represented by negative trips on the roadway network. The total net BART Extension trips generated are therefore calculated by adding the new station drive access trips (positive trips) and the trips removed from the roadway network as a result of the BART Extension (negative trips).

The trip assignment process shows that at some locations, particularly for those movements leading directly to the station area, the number of vehicles accessing the station would be larger than the number of vehicles shifted from the roadway network to transit modes; therefore, the BART Extension would result in a net increase in traffic volumes. At many locations, particularly for those movements either not leading to the station area or leading to

freeways, the number of vehicles shifted from the roadway network to transit modes would be greater than the number of vehicles using that movement to access the station, and the BART Extension would result in a net decrease in traffic volumes.

3.5.2.3 2015 Existing Traffic Impact Analysis

The BART Extension is not expected to open until 2025. Therefore, it is not possible for the 2015 Existing BART Extension conditions to occur, but they are included for comparative purposes.

It is assumed in this analysis that the transportation network under the 2015 Existing BART Extension would be the same as the existing transportation network, as described in Section 3.3.4, *Vehicular Traffic*. The information in Section 3.3.4 represents the 2015 Existing No Build Alternative to which the 2015 Existing BART Extension Alternative is compared. The BART Extension Alternative trips were added to existing traffic volumes to obtain 2015 Existing Plus BART Extension Alternative traffic volumes.

Station Trip Generation

The 2015 Existing trip generation for the BART Extension stations was estimated based on daily transit ridership projections by mode of access, which includes PNR and KNR person trips, forecasted by the VTA's Travel Forecasting Model. The PNR and KNR daily person trips were converted to auto access trips to BART by applying average vehicle occupancy rates for PNR and KNR trips. Peak-hour factors were then applied to the daily trips to obtain drive access trips for the AM and PM peak-hours. The PNR auto trips were then assigned to the BART station parking lots, and the KNR trips were assigned to the BART drop-off areas at the BART stations.

Table 3-23 presents the daily and peak hour trip generation estimates for each of the drive access modes to the Alum Rock/28th Street, Diridon, and Santa Clara Stations.

Table 3-23: 2015 Existing Trip Generation and Parking Demand with BART Extension Alternative

Mode of Access by Station	Daily Trips	Parking Demand (# of Spaces)	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Alum Rock/28th Street								
Kiss-and-Ride Trips	218		21	21	42	25	24	50
Park-and-Ride Trips	1,430	650	192	7	199	18	150	168
Total	**1,648**		**213**	**28**	**241**	**43**	**174**	**218**
Diridon								
Kiss-and-Ride Trips	235		23	23	46	27	27	54
Park-and-Ride Trips	0	0	0	0	0	0	0	0
Total	**235**		**23**	**23**	**46**	**27**	**27**	**54**

Mode of Access by Station	Daily Trips	Parking Demand (# of Spaces)	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Santa Clara								
Kiss-and-Ride Trips	70		7	7	14	8	8	16
Park-and-Ride Trips	275	125	37	1	38	3	29	32
Total	**345**		**44**	**8**	**52**	**11**	**37**	**48**
Source: VTA Model, December 2014.								

Under 2015 Existing BART Extension conditions, approximately 900 AM and 760 PM peak-hour trips would be removed from the roadway transportation system because commuters would shift from driving a car to riding BART.

Intersection Analysis

Intersection LOS under the 2015 Existing BART Extension Alternative were evaluated against CMP and Cities of San Jose and Santa Clara LOS standards and significant impact criteria. The results are summarized below. For those intersections that would operate at an unacceptable LOS, a comparison was made between the 2015 Existing No Build Alternative and the 2015 Existing BART Extension Alternative.[6]

A total of 63 intersections at three stations were analyzed. The analysis results for the study intersections near each BART Extension Alternative station under 2015 Existing conditions are summarized in Table 3-24 and discussed in detail below.

Table 3-24: 2015 Existing BART Extension Alternative Intersection Analysis Summary

Station	Number of Study Intersections	Number of CMP Intersections	Unacceptable LOS Intersections[a]	Intersections with Impacts[b]
Alum Rock/28th Street	17	3	0 (0)	0 (0)
Diridon	29	10	0 (0)	0 (0)
Santa Clara	17	6	2 (1)	0 (0)
Total	**63**	**19**	**2 (1)**	**0 (0)**

[a] The first number is based on the LOS standards of the appropriate City. The second number (in parentheses) is the number of CMP intersections that would operate at an unacceptable LOS based on the CMP LOS standard.

[b] The first number presents how many study intersections would be impacted based on the appropriate City's impact criteria. The second number (in parentheses) is how many of the CMP intersections would be impacted based on the CMP criteria.

Alum Rock/28th Street Station

Measured against the City of San Jose LOS standards, all 17 of the study intersections in the vicinity of the Alum Rock/28th Street Station would operate at an acceptable LOS D or better

[6] For further information on the application of the City of San Jose, City of Santa Clara, and CMP significant impact criteria to each intersection and the supporting data for these findings (e.g., change in average critical delay and change in critical V/C), refer to the BART Extension TIA.

during both the AM and PM peak hours of traffic. Based on the City of San Jose significant impact criteria, the BART Extension would not have a significant impact on any intersections in the Alum Rock/28th Street Station study area under 2015 Existing BART Extension conditions.

Measured against the CMP LOS standards, all seven CMP intersections in the Alum Rock/28th Street Station study area would operate at an acceptable LOS E or better during both the AM and PM peak hours of traffic. Based on the CMP LOS impact criteria, the BART Extension would not have a significant impact on any CMP intersections in the Alum Rock/28th Street Station study area under 2015 Existing BART Extension conditions. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Diridon Station

Measured against the City of San Jose LOS standards, all 29 of the study intersections in the vicinity of the Diridon Station would operate at an acceptable LOS D or better during both the AM and PM peak hours of traffic. Based on the City of San Jose significant impact criteria, the BART Extension would not have a significant impact on any intersections in the Diridon Station study area under 2015 Existing BART Extension conditions.

Measured against the CMP standards, all ten CMP intersections in the Diridon Station study area would operate at an acceptable LOS E or better during both the AM and PM peak hours of traffic. Based on the CMP LOS impact criteria, the BART Extension would not have a significant impact on any CMP intersections in the Diridon Station study area under 2015 Existing BART Extension conditions. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Santa Clara Station

Of the 17 study intersections in the vicinity of the Santa Clara Station, two are located in the City of San Jose and 15 are in the City of Santa Clara. Six of the 17 study intersections are designated CMP intersections.

Measured against the City of San Jose LOS standards, both of the San Jose intersections in the vicinity of the Santa Clara Station would operate at an acceptable LOS D or better during both the AM and PM peak hours of traffic. Based on the City of San Jose significant impact criteria, the BART Extension would not have a significant impact on either San Jose intersection in the Santa Clara Station study area under 2015 Existing BART Extension conditions.

Measured against the City of Santa Clara LOS standards, 13 of the 15 Santa Clara Station study intersections within Santa Clara would operate at an acceptable LOS (LOS D or better at local intersections and LOS E or better at expressway and CMP intersections) during both the AM and PM peak hours of traffic. The following two intersections would operate at

unacceptable LOS (LOS E or worse for local intersections and LOS F for expressways and CMP intersections) during at least one peak hour.

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- Coleman Avenue and Brokaw Road (LOS F: PM peak hour).

However, when measured against the City of Santa Clara significant impact criteria, the BART Extension Alternative would not cause a significant impact at either of these intersections under 2015 Existing BART Extension conditions.

Measured against the CMP LOS standards, the results of the LOS analysis under 2015 Existing BART Extension Alternative conditions show that, five of the six CMP study intersections in the vicinity of the Santa Clara Station would operate at an acceptable LOS (LOS E or better) during both the AM and PM peak hours of traffic. The following CMP intersection would operate at unacceptable LOS (LOS F) during at least one peak hour.

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours)

However, based on the CMP significant impact criteria, the BART Extension Alternative would not result in any significant impacts on any of the CMP intersections in the vicinity of the Santa Clara Station.

The unsignalized intersection of Lafayette Street and Harrison Street has two-way stop control. The LOS for this intersection, LOS F in the AM and PM peak hours, reflects the delay and the LOS for the stop-controlled approach with the highest delay, not the average of the entire intersection. Because the City of Santa Clara does not have an LOS standard for unsignalized intersections, this intersection cannot be said to operate at an unacceptable LOS. The LOS is presented for informational purposes only.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Freeway Segments Analysis

Traffic volumes on freeway segments for 2015 Existing BART Extension conditions were established by adding to the existing freeway volumes the projected net station trips on each freeway segment. Note that the BART Extension Alternative would generally result in a decrease in traffic volumes on the freeway network as commuters use the BART Extension as an alternative to freeway travel.

The results of the freeway analysis under 2015 Existing BART Extension Alternative conditions are summarized in Table 3-25.

Table 3-25: 2015 Existing BART Extension Alternative Freeway Levels of Service

Station	Number of Freeway Segments	Unacceptable LOS Mixed-Flow Segments	Unacceptable LOS HOV Segments
Alum Rock/28th Street	20	13	4
Diridon	18	16	5
Santa Clara	26	24	9
Total	**64**	**53**	**15**

Table 3-25 shows that:

- 13 (plus 4 HOV segments) of the 20 directional freeway segments analyzed for the Alum Rock/28th Street Station are projected to operate at an unacceptable LOS F during at least one peak hour.
- 16 (plus 5 HOV segments) of the 18 directional freeway segments analyzed for the Diridon Station are projected to operate at an unacceptable LOS F during at least one peak hour.
- 24 (plus 9 HOV segments) of the 26 directional freeway segments analyzed for the Santa Clara Station are projected to operate at an unacceptable LOS F during at least one peak hour.

However, because the 2015 Existing BART Extension Alternative would not add traffic representing 1 percent or more of the segment's capacity to any of the freeway segments projected to operate at LOS F (including HOV segments), the BART Extension Alternative would not result in a significant impact on freeways under 2015 Existing traffic conditions, based on the CMP significance criteria for freeways.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Interchange Ramp Analysis

The results of the freeway ramp analysis under 2015 Existing BART Extension conditions are described below and summarized in Table 3-26. Based on the projected queue lengths obtained from TRAFFIX, the available queue storage space for the freeway off-ramps studied would be sufficient to serve the projected demand under 2015 Existing BART Extension conditions. The 2015 Existing BART Extension Alternative is projected to increase queue lengths at the study off-ramps by no more than two vehicles during the peak hours.

The freeway on-ramps are currently uncontrolled (ramp meters have been installed but are not yet operational). Thus, the freeway on-ramps evaluated are not projected to experience measurable queues at the freeway merging point under 2015 Existing BART Extension conditions.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Table 3-26: 2015 Existing BART Extension Alternative Freeway Ramp Queuing Analysis

Freeway Ramp	Total Storage (Vehicle)[a]	No Build Condition	BART Extension Condition	Change
U.S. 101 at McKee Road Interchange				
U.S. 101 SB On-Ramp at McKee Road	32			
PM Volume [b]		1131	1187	56
Projected Queue Length [c]		-	-	
U.S. 101 SB Loop Off-Ramp at McKee Road	92			
AM Volume [b]		426	418	-8
Projected Queue Length [d]		*27*	*27*	*0*
U.S. 101 at Santa Clara Street/Alum Rock Avenue Interchange				
U.S. 101 SB On-Ramp at Santa Clara Street	34			
PM Volume [b]		949	1021	72
Projected Queue Length [c]		-	-	
U.S. 101 NB Off-Ramp at Alum Rock Avenue	67			
AM Volume [b]		244	316	72
Projected Queue Length [d]		*10*	*12*	*2*
PM Volume [b]		695	716	21
Projected Queue Length [d]		*24*	*26*	*2*

[a] Total number of vehicles that can store within the ramp.
[b] Peak-hour ramp volume projections.
[c] Currently, the ramp meter at these on-ramps is not operational during the PM peak hour. Therefore, no measurable queues are currently experienced at these locations.
[d] Total number of vehicles in the queue, as obtained from TRAFFIX.

3.5.2.4 2035 Forecast Year Traffic Impact Analysis

This section describes the traffic conditions in the 2035 Forecast Year with the BART Extension. It is assumed in this analysis that the transportation network under the 2035 Forecast Year BART Extension Alternative would be the same as the 2035 Forecast Year No Build transportation network. The BART Extension vehicle trips were added to 2035 Forecast Year No Build Alternative traffic volumes to obtain the 2035 Forecast Year BART Extension Alternative traffic volumes.

Station Trip Generation

2035 Forecast Year trip generation for the BART Extension stations was developed using the VTA Model and based on the method previously described. Table 3-27 presents the

2035 Forecast Year daily and peak hour trip generation estimates for each of the drive access modes to the Alum Rock/28th Street, Diridon, and Santa Clara Stations.

Table 3-27: 2035 Forecast Year Trip Generation and Parking Demand with the BART Extension Alternative

Mode of Access by Station	Daily Trips	Parking Demand (# of Spaces)	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Alum Rock/28th Street								
Kiss-and-Ride Trips	506		49	49	98	58	58	116
Park-and-Ride Trips	3,421	1,555	460	16	476	42	359	401
Total	**3,927**		**509**	**65**	**574**	**100**	**417**	**517**
Diridon								
Kiss-and-Ride Trips	440		43	43	86	50	50	100
Park-and-Ride Trips	0	0	0	0	0	0	0	0
Total	**440**		**43**	**43**	**86**	**50**	**50**	**100**
Santa Clara								
Kiss-and-Ride Trips	200		~~19~~ 27	19	38	23	23	46
Park-and-Ride Trips	864	393	116	4	120	11	91	102
Total	**1,064**		**135**	**23**	**158**	**34**	**114**	**148**
Source: VTA Model, December 2014.								

Under 2035 Forecast Year BART Extension conditions, approximately 1,400 AM and 1,150 PM peak-hour trips would be removed from the roadway transportation system because commuters would shift from driving a car to riding BART.

Table 3-A provides the BART Extension Alternative proposed parking spaces by station. Only the Alum Rock/28th Street and Santa Clara Station would provide parking for BART riders.

Table 3-A: Proposed Parking to Be Provided as Part of the BART Extension Alternative (2040 projections)

BART Station	Proposed Parking Spaces
Alum Rock/28th Street	1,200
Downtown San Jose (East and West Options)	No park-and-ride facilities
Diridon Station (South and North Options)	No park-and-ride facilities
Santa Clara	500
Total	1,700
Source: Hexagon, 2017a.	

Intersection Analysis

Traffic volumes for the 2035 Forecast Year BART Extension Alternative conditions were obtained by adding the traffic projected to be generated by the BART stations (net trips, as described earlier) to the 2035 Forecast Year No Build traffic volumes. Intersection LOS under 2035 Forecast Year BART Extension conditions were evaluated against CMP and

Cities of San Jose and Santa Clara LOS standards. The results of the LOS analysis for the BART stations under the 2035 Forecast Year BART Extension Alternative are summarized in Table 3-28.

This section also evaluates whether the BART Extension Alternative would result in a significant impact on the study intersections under 2035 Forecast Year traffic conditions, based on the significant impact criteria of the City of San Jose, the City of Santa Clara, and CMP. To determine whether there would be any significant impacts under 2035 Forecast Year BART Extension Alternative conditions, intersections that would operate at an unacceptable LOS under 2035 Forecast Year BART Extension conditions were further analyzed. For City of Santa Clara and CMP intersections, a comparison was made between 2035 Forecast Year No Build conditions and 2035 Forecast Year BART Extension conditions and the appropriate significant impact criteria were applied.[7] For City of San Jose intersections, a comparison was made between 2025 No Build conditions and 2035 Forecast Year BART Extension conditions, and the City of San Jose's significant impact criteria were applied.

Table 3-28: 2035 Forecast Year BART Extension Alternative Intersection Analysis Summary

Station	Number of Study Intersections	Number of CMP Intersections	Unacceptable LOS Intersections[a]	Intersections with Impacts[b]
Alum Rock/28th Street	17	3	1 (0)	0 (0)
Diridon	29	10	3 (0)	0 (0)
Santa Clara	17	6	3 (1)	0 (0)
Total	**63**	**19**	**7 (1)**	**0 (0)**

Source: Hexagon 2017a.

[a] The first number is based on the LOS standards of the appropriate City. The second number (in parentheses) is the number of CMP intersections that would operate at an unacceptable LOS based on the CMP LOS standard.

[b] The first number presents how many study intersections would be impacted based on the appropriate City's impact criteria. The second number (in parentheses) is how many of the CMP intersections would be impacted based on the CMP criteria

Alum Rock/28th Street Station

Measured against the City of San Jose LOS standards, the following intersection would operate at an unacceptable level of service during both peak hours.

- King Road and McKee Road (LOS F: AM peak hour; LOS E: PM peak hour)

This intersection was also projected to operate at an unacceptable level of service under 2035 Forecast Year No Build conditions. Based on the City of San Jose significant impact criteria,

[7] For further information on the application of the City of San Jose, City of Santa Clara, and CMP significant impact criteria to each intersection and the supporting data for these findings (e.g., change in average critical delay and change in critical V/C; percentage of increased traffic volume contributed by the alternative), refer to the BART Extension TIA.

the BART Extension would not have a significant impact on this intersection under 2035 Forecast Year BART Extension conditions.

Measured against the CMP LOS standards, all three CMP intersections in the Alum Rock/28th Street Station study area would operate at an acceptable LOS E or better during both the AM and PM peak hours. Based on the CMP LOS impact criteria, the BART Extension would not exceed the significance thresholds at any of the CMP study intersections in the vicinity of the Alum Rock/28th Street Station. All other CMP and local San Jose study intersections are projected to operate at an acceptable LOS.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Diridon Station

The following study intersections, which were identified to operate at an unacceptable LOS under 2035 Forecast Year No Build conditions, are projected to continue to operate at unacceptable LOS during at least one peak hour with the BART Extension. The CMP intersection is denoted by an asterisk (*).

- The Alameda and Taylor Street/Naglee Avenue* (LOS E: AM & PM peak hours).
- South Autumn Street and Park Avenue (LOS E: PM peak hour).
- Meridian Avenue and Fruitdale Avenue (LOS E: AM & PM peak hours).

However, when measured against the City of San Jose significant impact criteria, the BART Extension would not have a significant impact on these three intersections under 2035 Forecast Year BART Extension conditions.

Measured against the CMP LOS standards, all ten CMP intersections in the Diridon Station study area would operate at an acceptable LOS E or better during both the AM and PM peak hours of traffic. Based on the CMP LOS impact criteria, the BART Extension would not result in an impact that would exceed the significance thresholds at any of the CMP study intersections in the vicinity of the Diridon Station. All other CMP and local San Jose study intersections are projected to operate at an acceptable LOS.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Santa Clara Station

The same study intersections identified to operate at unacceptable LOS under 2035 Forecast Year No Build conditions are projected to continue to operate at unacceptable LOS during at least one peak hour under the 2035 Forecast Year BART Extension Alternative. One of the intersections is in the City of San Jose and two are in the City of Santa Clara. The CMP intersection is denoted by an asterisk (*).

- Coleman Avenue and Newhall Drive (LOS E: PM peak hour)—San Jose.

- Lafayette Street and Lewis Street (LOS E: PM peak hour)—Santa Clara.
- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours)—Santa Clara.

When measured against the City of San Jose significant impact criteria for 2035 Forecast Year conditions, the intersection of Coleman Avenue and Newhall Drive would not be adversely affected by the BART Extension Alternative.

Based on City of Santa Clara and the CMP LOS impact criteria, the 2035 Forecast Year BART Extension Alternative would not cause an adverse effect that would exceed the significance thresholds at any of the Santa Clara or CMP intersections in the vicinity of the Santa Clara Station. All other CMP and local Santa Clara and San Jose study intersections are projected to operate at an acceptable LOS.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Freeway Segments Analysis

Traffic volumes for the 2035 Forecast Year BART Extension for the study freeway segments were obtained from the VTA Model. These volumes represent traffic projections with the addition of planned improvements and the BART Extension. Note that the BART Extension would result in a decrease in traffic volumes on the freeway network, as commuters use BART as an alternative to regional freeway travel. While a portion of traffic accessing the station areas would use the freeway network to do so, generally those trips are already on the freeway network and do not represent an increase in traffic from 2035 Forecast Year No Build conditions. However, a number of others accessing the stations would do so via transit or local streets; therefore, there would be a net reduction in freeway volumes.

The results of the freeway analysis under the 2035 Forecast Year BART Extension Alternative are summarized in Table 3-29.

Table 3-29: 2035 Forecast Year with BART Extension Alternative Freeway Levels of Service

Station	Number of Freeway Segments Studied	Unacceptable LOS Mixed-Flow Segments	Unacceptable LOS HOV Segments
Alum Rock/28th Street	20	12	4
Diridon	18	17	3
Santa Clara	26	24	8
Total	**64**	**53**	**15**

Alum Rock/28th Street Station

As shown in Table 3-29, 12 of the 20 directional freeway segments (and 4 HOV segments) analyzed for the Alum Rock/28th Street Station would operate at an unacceptable LOS F during at least one of the peak hours. However, because the BART Extension Alternative would not add traffic representing 1 percent or more of the segment's capacity to any of the study freeway segments projected to operate at LOS F (including HOV segments), the BART Extension Alternative would not result in an impact that would exceed the significance thresholds on any of the freeway segments.

There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Diridon Station

As shown in Table 3-29, 17 of the 18 directional freeway segments (and 3 HOV segments) analyzed for the Diridon Station would operate at an unacceptable LOS F during at least one of the peak hours. However, because the BART Extension would not add traffic representing 1 percent or more of the segment's capacity to any of the study freeway segments projected to operate at LOS F (including HOV segments), the BART Extension would not result in an impact that would exceed the significance thresholds on any of the freeway segments. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Santa Clara Station

As shown in Table 3-29, 24 of the 26 directional freeway segments (and 8 HOV segments) analyzed for the Santa Clara Station would operate at an unacceptable LOS F during at least one of the peak hours. However, because the BART Extension Alternative would not add traffic representing 1 percent or more of the segment's capacity to any of the study freeway segments projected to operate at LOS F (including HOV segments), the BART Extension Alternative would not result in an impact that would exceed the significance thresholds on any of the freeway segments. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Freeway Ramp Analysis

The results of the freeway ramp analysis under 2035 Forecast Year BART Extension conditions are described below and summarized in Table 3-30. Based on the projected queue lengths obtained from TRAFFIX, the available queue storage space for the freeway off-ramps studied would be sufficient to serve the projected demand under the 2035 Forecast Year BART Extension Alternative. The BART Extension is projected to increase queue lengths at the study off-ramps by no more than four vehicles during the peak hours.

The queue length projections for the freeway on-ramps show that the on-ramps studied would experience excessive queue lengths that would spill out of the ramps onto the adjacent street under 2035 Forecast Year No Build conditions and is projected to increase the queue

length under 2035 Forecast Year BART Extension conditions. This is due to the projected on-ramp demand exceeding the assumed ramp capacity.

Table 3-30: 2035 Forecast Year BART Extension Alternative Freeway Ramp Queuing Analysis

Freeway Ramp	Total Storage (Vehicle)[a]	No Build Condition	BART Extension Condition	Change
U.S. 101 at McKee Road Interchange				
U.S. 101 SB On-Ramp at McKee Road	32			
PM Volume [b]		1,476	1,558	82
Projected Queue Length [c]		*576*	*658*	*82*
U.S. 101 SB Loop Off-Ramp at McKee Road	92			
AM Volume [b]		470	522	52
Projected Queue Length [d]		*30*	*34*	*4*
U.S. 101 at Santa Clara Street/Alum Rock Avenue Interchange				
U.S. 101 SB On-Ramp at Santa Clara Street	34			
PM Volume [b]		1,397	1,453	56
Projected Queue Length [c]		*497*	*553*	*56*
U.S. 101 NB Off-Ramp at Alum Rock Avenue	67			
AM Volume [b]		407	463	56
Projected Queue Length [d]		*14*	*18*	*4*
PM Volume [b]		984	1009	25
Projected Queue Length [d]		*43*	*43*	*0*

Source: Hexagon 2017a

[a] Total number of vehicles that can store within the ramp.

[b] Peak-hour ramp volume projections.

[c] Total number of vehicles in the queue, as calculated based on the ramp meter rate and projected traffic volumes.

[d] Total number of vehicles in the queue, as obtained from TRAFFIX.

The queuing analysis shows that under 2035 Forecast Year BART Extension conditions, the queue length at the U.S. 101 southbound on-ramp at McKee Road is projected to increase by 82 vehicles and the queue length at the U.S. 101 southbound on-ramp at Santa Clara Street is projected to increase by 56 vehicles during the PM peak hour. Therefore, under 2035 Forecast Year BART Extension Conditions, the vehicular queue at the U.S. 101 southbound on-ramp at McKee Road is projected to extend out of the ramp by approximately 626 vehicles during the PM peak hour, while the queue at the U.S. 101 southbound on-ramp at Santa Clara Street is projected to extend out of the ramp by approximately 519 vehicles during the PM peak hour. The AM peak hour queue lengths at these ramps would not be affected by the BART Extension.

The available queue storage capacity at the freeway on-ramps would be inadequate to serve the projected queue length under 2035 Forecast Year No Build conditions, and the BART Extension Alternative would worsen the projected deficiency under 2035 Forecast Year

BART Extension conditions. However, it should be noted that these projections assume a very conservative meter rate of 900 vph for the entire peak hour analyzed. If the future meter rate at these locations is greater than the assumed 900 vph, the projected demand on these ramps would be dissipated faster and the projected queues would be shorter. Alternatively, setting the ramp meter rate to allow no more than 900 vph could potentially result in peak-hour spreading (drivers accessing these ramps before or after the peak hour to avoid the long queues), use of alternative freeway ramps, and/or use of alternative modes of transportation, such as walk/bike/public transportation.

3.5.2.5 Impact BART Extension TRA-1: Conflict with a Transportation Plan, Ordinance, or Policy

The potential impacts of the BART Extension were evaluated in accordance with the standards set forth by the Cities of San Jose and Santa Clara and the CMP of Santa Clara County (see Tables 3-28 and 3-29). A total of 17 signalized intersections and 20 freeway segments in the vicinity of the Alum Rock/28th Street Station; 29 signalized intersections and 18 freeway segments in the vicinity of the Diridon Station; and 16 signalized intersections, one unsignalized intersection, and 26 freeway segments in the vicinity of the Santa Clara Station were analyzed. All study intersections are within the Cities of San Jose and Santa Clara. Based on City of San Jose, City of Santa Clara, and CMP LOS standards and impact criteria, the BART Extension would not exceed the significance thresholds at any of the study intersections or on any of the freeway segments in the vicinity of the BART stations.

The BART Extension Alternative would not conflict with any regional or local transportation plans, including MTC's *Transportation 2035 Plan for the San Francisco Bay Area*, MTC's *Plan Bay Area*, VTA's *Valley Transportation Plan 2040*, VTA's *Santa Clara Countywide Bicycle Plan*, the City of San Jose's *Bike Plan 2020*, the City of San Jose's *Strategy 2000: San Jose Downtown Strategy Plan*, the City of San Jose's *Diridon Station Area Plan*, and the General Plans of the Cities of San Jose and Santa Clara. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.6 Impact BART Extension TRA-2: Conflict with the Congestion Management Program

A total of 19 CMP intersections and 62 freeway segments were analyzed for the 2035 Forecast Year BART Extension Alternative. Based on the CMP LOS standards and impact criteria, the BART Extension Alternative would not exceed the significance thresholds at any of the CMP intersections or on any of the freeway segments in the vicinity of the BART stations. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.7 Impact BART Extension TRA-3: Cause Changes in Air Traffic Patterns

The BART Extension would not change air traffic patterns, increase air traffic levels, or cause a change in location that would result in substantial safety risks. The nearest airport is the Mineta San Jose International Airport, approximately 0.5 mile northeast of Santa Clara Station. The Diridon Station (which is within the City's DSAP) is approximately 0.8 mile to maximum building heights as described in the City of San José's Diridon Station Area Plan. The guidelines found in the Diridon Station Area Plan are consistent with FAR Part 77 obstruction surface elevations and the Santa Clara County Airport Land Use Commission's (ALUC) Comprehensive Land Use Plan (CLUP). ~~the southeast and subject to restrictive height limits of 263 feet. The BART Extension would be within the Airport Influence Area due to height restrictions established by Federal Aviation Regulations Part 77, *Objects Affecting Navigable Airspace*.~~

VTA will comply with FAR Part 77 notification requirements and go through Federal Aviation Administration (FAA) review and approval prior to start of construction.

To comply with the Santa Clara County Airport Land Use Commission restrictions, no structures would exceed an elevation of 150 feet above the ground surface near the Santa Clara Station and Newhall Maintenance Facility or 212 feet above the ground surface in any other portions of the alignment. ~~The Diridon Station and associated facilities would not exceed the 263-foot height restriction.~~ Therefore, the BART Extension would not change air traffic patterns and the proposed structures would not intrude into the height restrictions. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.8 Impact BART Extension TRA-4: Increase Traffic Hazards

As discussed in Chapter 4, Section 4.13, *Security and System Safety*, the BART Extension would be designed by VTA to comply with the pertinent codes and standards including BART Design Criteria Facilities Standards, which describe and specify design requirements for all new projects. These standards are based on experience in operations and industry-wide best practices, and have been developed to provide a high level of security and safety in a cost-effective manner. A Safety and Security Certification Program has also been developed for the BART Extension to ensure that it is designed in compliance with pertinent BART Design Criteria Facilities Standards and applicable safety and security design codes. In addition, the BART Extension would be designed and constructed to the provisions of the pertinent BART Design Criteria Facilities Standards in accordance with the current System Safety Program Plan. These standards address a train control system, operating procedures, training of operating and maintenance personnel, and emergency responses. In addition, the BART Extension would not include incompatible uses. Therefore, in terms of substantially increasing hazards due to a design feature or incompatible uses there would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.9 Impact BART Extension TRA-5: Result in Inadequate Emergency Access

The existing roadways surrounding the BART Extension enable emergency vehicle response to all areas. Emergency vehicles often identify and use multiple routes dependent upon time of day and traffic conditions. Peak-period traffic congestion generally does not result in delay for emergency vehicles, which have the right-of-way and often utilize multi-lane major arterials for access. Emergency vehicles are permitted to use transit-only lanes or other vehicle-restricted lanes if necessary. In addition, emergency vehicles at intersections with traffic signals can pass through the intersections at reduced speeds even when receiving a red signal indication.

Emergency vehicle response times are a function of travel along the entire path from their base to the incident location. At some locations, particularly for those movements leading directly to the station area, the number of vehicles accessing the station area and adjacent roadway would increase.~~is larger than the number of vehicles shifted from the roadway network to transit modes, and the BART Extension would result in a net increase in traffic volumes.~~ At other ~~many~~ locations, ~~particularly for those movements either not leading to the station area or leading to freeways,~~ the number of vehicles on roadways may decrease as they drive shorter distances to access a BART station to get to their final destination.~~shifted from the roadway network to transit modes would be greater than the number of vehicles using that movement to access the station, and the BART Extension would result in a net decrease in traffic volumes.~~ Overall, in terms of emergency access during operation there would be would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.10 Impact BART Extension TRA-6: Conflict with Transit, Bicycle, or Pedestrian Policies, Plans, or Programs

The BART Extension Alternative consists of the 6-mile-long extension of the BART system from the Berryessa neighborhood in San Jose through downtown San Jose and west into Santa Clara and includes four new BART stations. Therefore, the BART Extension *is* a transit project and represents a substantial improvement to the transit system in the study area. Additionally, the BART Extension is being integrated with VTA's light rail and bus systems and would not adversely affect transit facilities or services within the Cities of San Jose or Santa Clara in the vicinity of the BART Extension or BART stations.

In addition, several bike and pedestrian improvements are proposed as part of the BART Extension and would be coordinated with the local Cities and their plans. Bicycle facilities, including bike parking, will be provided at each station. Because much of the BART Extension would be underground, the alignment of the BART Extension would not significantly impact bicycle or pedestrian facilities along the alignment.

A pedestrian connection along the south side of the Alum Rock/28th Street Station at North 28th Street from Santa Clara Street is proposed. This pedestrian connection, which would

include such amenities as street trees, wide sidewalks, bicycle facilities, and pedestrian-scaled lighting, would link the BART station entrances with buses and bus rapid transit operating on Santa Clara Street/Alum Rock Avenue, enhancing connectivity of pedestrian facilities surrounding the station. Additionally, the BART Extension Alternative would add sidewalks around the perimeter of the Alum Rock/28th Street Station and the west side of 28th Street from the station entrance to Santa Clara Street. Crosswalks at the signalized intersections of North 28th Street/East St. James Street and North 28th Street/Five Wounds Lane would also be provided, including pedestrian push buttons and signal heads.

Construction of the Downtown San Jose Station (East or West Options) would provide improvements to Santa Clara Street in accordance with the City of San Jose's Streetscape Master Plan to facilitate pedestrian movement to and from the station and Downtown San Jose. These enhancements would improve the streetscape within the Downtown area once construction is complete.

At the Diridon Station (South or North Options), street-level station entrance portals would provide pedestrian linkages to the Diridon Caltrain Station and SAP Center. Additionally, sidewalks are found along all local roadways in the Diridon Station study area and along the local residential streets and collectors near the station site.

At the Santa Clara Station, an approximately 240-foot-long pedestrian tunnel would connect to the Santa Clara Caltrain Station plaza, and an approximately 175-foot-long pedestrian tunnel would connect from the BART station to a new BART plaza on Brokaw Road. This pedestrian connection would link the station with other pedestrian and transit facilities in the vicinity, enhancing connectivity of pedestrian facilities surrounding the station and transit services. Additionally, with the exception of the east side of Lafayette Street, sidewalks are found along most local roadways in the area and along the local residential streets and collectors near the Santa Clara Station site. All signalized intersections in the vicinity of the Santa Clara Station have marked crosswalks on all or most of the legs of the intersection combined with pedestrian push buttons and pedestrian signal heads. In combination with planned pedestrian/bicycle improvements in the area, the BART Extension Alternative would enhance pedestrian/bicycle facilities along Brokaw Road.

Therefore, the BART Extension Alternative would result in no adverse effects on bicycle and pedestrian circulation at any of the stations areas and would improve connectivity. Overall, the BART Extension would not conflict with transit, bicycle, or pedestrian policies, plans, or programs. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.11 Impact BART Extension TRA-7: Interfere with Activities at Event Centers

There are two major event facilities along the alignment: the SAP Center and Avaya Stadium. Activities at these facilities are discussed below. ~~Because potential interference with activities at event centers is not included in Appendix G of the State CEQA Guidelines,~~

~~as listed in Section 3.2.2, *Thresholds of Significance*, this discussion is provided for informational purposes for CEQA and impact analysis purposes for NEPA.~~

SAP Center

The SAP Center is across Santa Clara Street from the Diridon Station. The SAP Center holds a substantial number of events throughout the year, ~~primarily~~ on weekends and weekdays. The Diridon Station would not provide parking for BART riders. Ridership projections have been based on access from heavy and light rail, buses, KNR, bicycling, and walking. The Diridon Station design would be similar to other BART system Downtown stations where parking is not provided. If BART riders require parking, they could access either the BART Alum Rock/28th Street or Santa Clara Stations or one of several downtown parking garages. Because the Diridon Station would not provide parking for BART riders, traffic associated with the Diridon Station would be from KNR drop-offs and pick-ups and from those choosing to park in nearby parking lots in the area. The convenience of having a BART station across the street would also encourage a transit access alternative for those attending SAP Center events and reduce the number of vehicles traveling to SAP Center events. Therefore, the number of vehicles on the adjacent roadways associated with the BART Extension operations would not be substantial. There would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

Avaya Stadium

The Avaya Stadium, which is the home of the San Jose Earthquakes soccer team, is at Coleman Avenue and Newhall Drive near the San Jose/Santa Clara City limit line. It is also close to the Newhall Maintenance Facility and Santa Clara Station.

During the 2015 season, almost all soccer games were played on weekend days. Four games were played on Friday evenings and started at 8:00 p.m., which is 2 hours after the typical commute hour ends. Only one soccer game was played on a (midweek) Wednesday, and it started at 7:30 p.m. Intersection counts at two main parking lots along Coleman Avenue were conducted on Friday, October 16, 2015, starting 3 hours before game time. Based on these traffic counts, it was estimated that about 18 percent of the soccer traffic arrived between the 5:00 and 6:00 p.m. commute hour, which is 2 to 3 hours before the game started. About 23 percent of the soccer traffic arrived between 1.5 and 2.5 hours before game time (between 5:30 and 6:30 p.m.). The majority of soccer traffic arrived within the hour before game time. Assuming that the Earthquakes soccer schedule in future years is similar to the 2015 schedule, soccer traffic would coincide with evening commute traffic only 5 days a year. The starting time of soccer games occurs after the peak (5:00 to 6:00 p.m.) commute hour, and the majority of soccer traffic arrives after the evening commute traffic has peaked. Therefore, because there are only a handful of soccer games per year that are played on weekday evenings and because most of the soccer traffic arrives after the peak commute hour has ended, weekday afternoon commute traffic conditions on game days, with or without the BART Extension, would be affected only infrequently. There would be *no adverse effects*

under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.2.12 Impact BART Extension TRA-8: ~~Increase Demand for~~ Parking

~~Revisions to the significance thresholds for CEQA that became effective on January 1, 2010, eliminated effects on parking. The revisions to the CEQA thresholds were based on the decision in *San Franciscans Upholding the Downtown Plan v. City & County of SF, 102 Cal.App.4th 65 (Sept. 30, 2002)*, in which the court ruled that parking deficits are an inconvenience to drivers but not a significant physical impact on the environment. As a result of this change to the State CEQA Guidelines, VTA adopted new significance thresholds that did not include the effects of parking on November 4, 2010. In addition, Section 7.1.3.2, Area Plans/Studies, BART Core Modification Study (19) provides a discussion of how core parking is being addressed. This discussion describes BART's adopted System Expansion Policy, which discusses the potential to add BART parking as station improvements are implemented, but also consider alternatives to driving to stations, such as improvements to station access encouraging carpool, transit, bicycle and pedestrian access.~~

~~Parking conditions evolve over time as people alter their modes and patterns of travel in response to changing land uses and transportation options. The availability of parking spaces is not part of the permanent physical environment subject to environmental review. Therefore, the loss of parking spaces by itself or the generation of parking demand by itself are not considered a direct significant impact on the physical environment in this document. However, parking losses caused by a project or parking demand generated by a project in excess of the parking provided could result in a significant indirect impact on the environment if drivers circling for parking cause significant secondary effects on traffic operations or air quality. The other criteria in this Draft SEIS/SEIR for evaluation of traffic operation and air quality are used as the thresholds for evaluating these secondary effects. The following discussion of parking is for information purposes for CEQA and~~The following impact analysis ~~purposes~~ includes only indirect impacts for CEQA and both direct and indirect impacts for NEPA; it also ~~and~~ provides a background to the evaluation of any indirect (secondary) effects on traffic operations and air quality. The discussion of direct parking impacts is for informational purposes for CEQA.

Parking considerations fall ~~within~~ into two areas:

1. ~~(1)~~Parking demand and supply at existing and future No Build Alternative stations in the BART system. Existing and future BART stations that are not part of the proposed BART Extension are also referred to as the *Core Stations*.~~BART parking demand and supply associated with the BART Extension Alternative stations, and~~

2. ~~(2)~~ BART parking demand and supply at stations associated with the proposed BART Extension.~~parking demand and supply at existing and future No Build Alternative stations in~~

~~the BART system. Existing and future BART stations that are not part of the BART Extension Alternative are also referred to as the Core Stations.~~

The first parking consideration, parking demand and supply at Core Stations, must be consistent with BART's Station Access Policy adopted in June 2016. This policy considers parking management as a secondary investment for auto reliant/dependent stations. Strategies include planning for system-wide access mode shift to reduce drive alone rates. BART prioritizes walking, biking, transit, and drop-off/pick-up ahead of new parking infrastructure as specified in the station access design hierarchy established in the 2016 Station Access Policy. When the parking demand equals or exceeds capacity, commuters are encouraged to use other modes to get to BART stations. BART and VTA have agreed that BART will develop a systemwide Capital Improvement Program related to overall station access and that VTA will review the project list to identify Core Station improvements related to VTA's Phase II Extension Project. Once these related improvements have been identified, VTA would provide a fair-share contribution to BART to implement the station access improvement. Consistency with BART's Station Access Policy would ensure that impacts on parking at Core Stations would be less than significant and not adverse.

The second parking consideration, parking demand and supply at the four stations associated with the proposed BART Extension, is discussed below. Both direct and indirect impacts are discussed for each station. Under direct impacts, the potential for increased parking demand and the permanent loss of existing parking caused by the project are discussed.

Existing parking spaces in the vicinity of each of the four proposed stations is also discussed below.

At the Alum Rock/28th Street Station, other than on-street curbside parking, there are no public or private surface parking lots or garages available for public parking within reasonable walking distance. In Downtown San Jose near the Downtown San Jose and Diridon Stations, there are several public parking facilities and several large, privately owned parking facilities with public access. Caltrain provides parking for its patrons on three surface lots immediately east of the existing Diridon Caltrain Station. VTA owns one ~~of the~~ lot~~s~~—1.3 acres south of Santa Clara Street and between Montgomery Street and Cahill Street. This site is currently leased to others and provides approximately 185 parking spaces. In addition, a large parking lot is immediately west of the SAP Center for patrons of this facility.

Near the Santa Clara Station, there are three surface parking lots west of the railroad tracks serving the Santa Clara Caltrain Depot. The west lot is jointly owned by the City of Santa Clara and VTA and is designated for Caltrain patrons.

Table 3-31 summarizes the parking space ~~requirements~~ demand for the BART Extension stations. As shown in the table, PNR demand for the BART Extension would be approximately 1,960 spaces in the 2035 Forecast Year for the two stations with PNR facilities. The parking table does not include KNR demand at stations. Space for ~~that activity~~KNR is provided, along with spaces for bus passenger boarding and alighting, as part

of overall station access design. VTA express and local bus services would not generate substantial PNR requirements. The 2035 Forecast Year parking demand reflects ridership of 52,000 for the BART Extension. Note that ~~the BART Extension Alternative would not provide~~ no dedicated parking spaces would be provided for BART riders at the Downtown San Jose and Diridon Stations ~~would not be provided;~~, ~~although~~ however, BART riders would be able to park in public and private parking facilities near these stations or at the Alum Rock/28th Street or Santa Clara Stations.

Table 3-31: 2035 Forecast Year BART Extension Alternative Park-and-Ride Demand

Station Name	2035 Parking Demand (spaces)
Alum Rock/28th Street	1,560
Santa Clara	400
Total	**1,960**
Source: Hexagon Transportation Consultants, Inc. 2017~~6a~~.	

Alum Rock/28th Street Station

Direct Impacts

Increased Parking Demand

As shown in Table 3-16, access to this station by walk/bicycle, heavy and light rail transit, and bus would be 58 percent, auto kiss-and-ride would be 5 percent, and auto -park-and-ride would be 36 percent. As shown in Table 3-31, in 2035, the projected parking demand at Alum Rock/28th Street Station is approximately 1,560 parking spaces. The station would accommodate 1,200 parking spaces in an up-to-seven-story parking structure next to the station. Parking demand will be monitored once the project opens and, if parking demand exceeds supply, VTA will evaluate measures to promote non-vehicular access to the station to be consistent with BART's Station Access Policy adopted in June 2016.~~As shown in Table 3-31, in 2035, the projected demand at Alum Rock/28th Street Station is projected to require approximately 1,560 parking spaces. The station plans accommodate 1,200 parking spaces in an up- to- seven-story parking structure next to the station. Parking demand would be monitored and, if parking demand exceeds supply, VTA would evaluate measures to promote non-vehicular access to the station.~~

Permanent Loss of Existing Parking

As mentioned above, no publicly-available parking is available within the project footprint that would be permanently removed by the project, and the project would result in no adverse effect and no impact on existing publicly-available parking spaces.

Indirect Impacts

As mentioned above, 1,200 parking spaces would be provided at this station, and no existing publicly-available parking spaces would be permanently removed by the project. Therefore,

no indirect traffic or air quality impacts would be caused by cars circling and looking for parking at this station, resulting in a *less-than-significant impact* and *no adverse effect*.

Downtown San Jose Station

Direct Impacts

Increased Parking Demand

As shown in Table 3-16, access to this station would be by walk/bicycle, heavy and light rail transit, and bus. Therefore, no park-and-ride or kiss-and-ride facilities would be provided at this station. See the *Diridon Station, Direct Impacts, Increased Parking Demand* discussion below regarding the BART Station Access Policy.

Permanent Loss of Existing Parking

As mentioned above, there are several public parking facilities and several large, privately owned parking facilities in the vicinity of the Downtown San Jose and Diridon Stations.

Under the Single-Bore Option and the Downtown San Jose Station East Option only, the station entrance at San Jose City Hall just east of 4th Street would impact underground parking for employees and the public. Approximately 20 percent of the existing underground parking would be impacted. Therefore, approximately 70 parking spaces of the 352 parking spaces available would be impacted over the long-term. Because approximately 80 percent of the underground parking would not be impacted, and a number of other public parking opportunities are available in the area, the impact would result in *no adverse effect* and a *less-than-significant impact*.

Construction of the Downtown San Jose Station for either the East or West Option would permanently remove approximately 310 existing off-street publicly-available parking spaces (within the VTA Block bounded by Santa Clara Street to the south, West St. John to the north, Market Street to the west, and 1st Street to the east) and 60 on-street publicly-available parking spaces. These parking space would be restored once the VTA Block is no longer needed as a construction staging area. Indirect Impacts

As mentioned above, access to this station would be primarily by non-auto modes. Although approximately 310 existing publicly-available parking spaces would be permanently removed, there are over 10,000 other existing publicly-available parking spaces available with one-half mile of the Downtown San Jose Stations (based on City of San Jose January 8, 2018 web site on parking availability) Therefore, no indirect traffic or air quality impacts would result from cars circling and looking for parking at this station. Thus, there would be a *less-than-significant impact* and *no adverse effect*.

Diridon Station

Direct Impacts

Increased Parking Demand

As shown in Table 3-16, access to this station would be almost entirely (91 percent) by walk/bicycle, heavy and light rail transit, and bus. The remaining 9 percent would be by auto kiss-and-ride, which does not require parking. Table 3-16 shows the Diridon Station Auto Park-and-Ride column as "not applicable" because Diridon Station, as currently proposed, would not include BART-specific auto park-and-ride facilities.

Since 2010, BART has implemented new policies to discourage drive-alone trips to BART stations. On June 9, 2016, the BART Board of Director's adopted a BART Station Access Policy that included a Station Access Design Hierarchy. In descending order, BART's priorities for passenger access to its stations are walk, bicycle, transit and shuttle, drop-off and pick-up, and, lastly, auto parking. The decision to not provide park-and-ride facilities for the BART Extension at Diridon Station is also consistent with BART's Station Access Policy adopted June 9, 2016, regarding "urban" BART stations. In reviewing the BART's Station Access Typology Definitions,[8] the Diridon Station would be classified as an "Urban" station when considering these categories. Specifically, an Urban Station has the characteristics listed in Table 3-B.

Table 3-B: BART's Access Policy Characteristics of an Urban Station and Diridon Station Characteristics

Characteristics of an Urban Station	BART Extension Alternative – Diridon Station
Combined walk, bike, and transit access of greater than 75%.	Non-auto access is 91% and greater than 75% threshold needed to be considered an "Urban" station (per Table 3-16).
Drive alone rates of 5% or less.	Drive alone percentage is 1% and meets the 5% or less threshold needed to be considered an "urban" station (per Table 3-16).
No BART-managed parking.	No BART-managed parking is provided.
Almost all auto access is from drop-off activity.	Only auto access is 9% kiss-and-ride (per Table 3-16 in the SEIS/SEIR).
Highway access is not convenient.	SR-87 and I-280 are nearby, but they are heavily congested during the AM and PM peak commute periods.
Station can be found in a downtown or neighborhood business district.	Station is located in Downtown San Jose.
Station may be underground or otherwise has a limited spatial footprint.	Station is underground.
Station is well-served by many types of transit service that stop on adjacent streets.	Existing transit service includes commuter rail, intercity passenger rail, light rail, express bus, and local/limited bus transit operators. These include Caltrain, ACE, and Amtrak

[8] See BART's web site at http://www.bart.gov/about/planning/access.

Characteristics of an Urban Station	BART Extension Alternative – Diridon Station
	heavy rail service. This station also has access to VTA's light rail system. Bus service includes California Shuttle Bus, Amtrak Bus, Monterey-Salinas Transit, Santa Cruz Metro, SMART, and VTA's Alum Rock Bus Rapid Transit service and many local VTA bus lines.
Source: BART's Station Access Policy, adopted June 9, 2016.	

VTA's FTA-approved Travel Demand Modeling quantified 2035 BART ridership at the four stations, including Diridon Station, with and without BART transit-specific parking. Ridership modeling showed that providing a parking structure with 500 parking spaces at Diridon Station would increase daily ridership at Diridon Station by 1,359 riders (14 percent) as shown in Table 3-C. However, the overall systemwide ridership among the four stations remained relatively the same (the total system wide ridership increased by only 19 passengers with the inclusion of parking spaces at Diridon Station). The modelling indicates that without parking at Diridon Station, auto-based BART trips shifted to the Alum Rock/28th Street and Santa Clara Stations, which provide parking. Therefore, based on the ridership modeling for the BART Extension, the nominal increase in overall ridership (19 passengers and 0.0004 percent) that would be gained from construction of a BART transit-specific parking structure did not warrant the cost of construction.

Table 3-C: Travel Demand Modeling, October 2015

Travel Demand Modeling: 4-Station Phase II 2035 Ridership Estimate (With Parking)		Travel Demand Modeling: 4-Station Phase II 2035 Ridership Estimate (Without Parking)	
Alum Rock	9,015	Alum Rock	10,220
Downtown San Jose	24,298	Downtown San Jose	24,298
Diridon	10,991	Diridon	9,632
Santa Clara	7,757	Santa Clara	7,893
Total	**52,061**	**Total**	**52,042**
Source: VTA's Travel Demand Modeling, October 2015.			

Additionally, the decision to not provide park-and-ride facilities for the BART Extension at Diridon Station is also consistent with the Envision San Jose 2040 General Plan, Commercial Downtown Land Use Plan Policies and Transportation Policies (adopted November 2011).

The Commercial Downtown Land Use Policies states that "all development within this designation should enhance the 'complete community' in downtown, support pedestrian and bicycle circulation, and increase transit ridership. The Downtown Urban Design Policies speak to the urban, pedestrian-oriented nature of this area. As such, uses that serve the automobile should be carefully controlled in accordance with the Downtown Land Use Policies."

Land use policy LU-3.5 would apply to the Diridon Station area and is as follows; "Balance the need for parking to support a thriving Downtown with the need to minimize the impacts of parking upon a vibrant pedestrian and transit oriented urban environment. Provide for the needs of bicyclists and pedestrians, including adequate bicycle parking areas and design measures to promote bicyclist and pedestrian safety."

San Jose's Transportation Goals, Policies, and Actions aim to establish circulation policies that increase bicycle, pedestrian, and transit travel, while reducing motor vehicle trips, to increase the City's share of travel by alternative transportation modes. Goal TR-1.3, Balanced Transportation System, policy is to "increase substantially the proportion of commute travel using modes other than the single-occupant vehicle. The 2040 commute mode split target for San Jose residents and workers are presented in [Table TR-1]." Table TR-1: Commute Mode Split Targets for 2040 displays the goal for Drive alone as no more than 40% and Transit as at least 20 percent. Diridon Station is intended to be in alignment with the City's mode shift goal.

In addition, as shown in Table 3-18, the Diridon Station is projected to function more as a destination station in the AM commute direction, as patrons travel to nearby activity centers, than as an origin station. As a destination station, the parking demand at Diridon Station would be less than at stations that primarily function as origins in the AM commute direction.

The Diridon Station is an existing multi-modal transportation center located within the City of San Jose's downtown urban core. Diridon Station is now and will continue to be served by several transit modes including VTA's Light Rail and express and local bus service, ACE, Amtrak, Capitol Corridor, and regional bus lines to Alameda and Santa Cruz County. This station is well connected within the City's and County's regional bicycle network and is well-served with pedestrian facilities. Therefore, this station is well-served by many multi-modal options for SAP customers and transit riders to access the station. BART service will only add to the many multi-modal options available to travelers with Diridon Station as their intended destination.

Permanent Loss of Existing Parking

As mentioned above, in Downtown San Jose near the Downtown San Jose and Diridon Stations, there are several public parking facilities and several large, privately owned parking facilities with public access. Caltrain provides parking for its patrons on three surface lots immediately east of the existing Diridon Caltrain Station. VTA owns one of the lots—1.3 acres south of Santa Clara Street and between Montgomery Street and Cahill Street. In addition, a large parking lot is immediately west of the SAP Center for patrons of this facility.

Construction of the Diridon Station would permanently remove approximately 715 existing off-street publicly-available parking spaces that are across the street from and also support the SAP Center. VTA conducted a Diridon Station area parking survey in July/August 2017 (Diridon BART Station Area – Parking Inventory) to validate the number of available

parking spaces in the vicinity of Diridon Station. The parking survey concluded that currently there are approximately 14,450 publicly-available parking spaces located within 0.5 mile of Diridon Station. This total includes approximately 2,605 on-street and 11,845 off-street parking spaces located on both private and public property. The permanent loss of approximately 715 parking spaces at Diridon Station would impact 4.9 percent of the approximately 14,450 total publicly-available parking spaces within 0.5 mile of Diridon Station. Because there remains a large number of other public parking opportunities available in the area, the impact would be considered *not adverse* and would result in a *less-than-significant impact*.

In addition, VTA has been leading the Diridon Transportation Facilities Master Plan effort with the cooperation of current and future high speed rail, heavy rail, commuter rail, intercity passenger rail, light rail, express bus, and local/limited bus transit operators, as well as with the City of San Jose. This effort is being coordinated and funded by the City of San Jose, California High Speed Rail, Caltrain, and VTA. As part of the Diridon Transportation Facilities Master Plan, VTA is planning for the long-term multi-modal access needs, including parking, for all of the transit modes.

VTA concluded the Diridon Transportation Facilities Master Plan in December 2017. VTA will begin the next phase of the station programming, the San Jose Diridon Integrated Station Concept Plan, in early 2018. The Integrated Station Concept Plan will include coordination of the short- and long-term plans and needs of the agencies for efficient rail and transit service, reviewing intermodal access to the station, assessing agencies funding capabilities, strategizing on the environmental clearance process, and providing organization models. It is anticipated that this study will be completed by early 2019. The Integrated Station Concept Plan will be jointly funded, developed, and produced by the City of San Jose, California High Speed Rail, Caltrain, and VTA through a Cooperative Agreement. The Plan will be presented to each agency's community outreach groups through their regular meetings. As part of the Diridon Station planning efforts, VTA and its partners are planning for the long-term multi-modal access needs, including parking, for all of the transit modes. Specific plans regarding the number of spaces or locations of parking will be determined during the preparation of the Integrated Station Concept Plan in 2018.

The City of San Jose's active participation in the Integrated Station Concept Plan will help ensure the Plan will be in line with the Diridon Station Area Plan and the Envision San Jose 2040 General Plan, including the Downtown Land Use and Transportation Policies, and other City policies and ordinances as applicable.

Indirect Impacts

As mentioned above, access to this station would be primarily by non-auto modes. Although approximately 715 existing publicly-available parking spaces would be permanently removed, there is a large number of other existing public parking opportunities available within 0.33 and 0.5 miles of Diridon Station.as discussed in Section 5.5.2.7, *Diridon Station (South and North Options)*. In addition, the San Jose Diridon Integrated Station Concept

Plan undertaken by VTA and its partners will plan for the long-term multi-modal access needs, including parking, for all of the transit modes. Therefore, no indirect traffic or air quality impacts would be caused by cars circling and looking for parking at this station, resulting in a *less-than-significant impact* and *no adverse effect*.

~~Two planning exercises are underway with Diridon area stakeholders to study parking demand and develop parking management strategies in preparation for the construction of several planned transit and development projects in and around the Diridon Station area. First, the City of San Jose is currently leading an effort in partnership with VTA, Peninsula Corridor Joint Powers Board, and area stakeholders to develop an interim parking plan through 2025 that will address parking needs in the Diridon Station area. In addition, VTA, the City of San Jose, Peninsula Corridor Joint Powers Board, and California High-Speed Rail Authority are participating in the Diridon Intermodal Study, which will analyze long-term multimodal access in and around Diridon Station in 2025 and beyond once proposed transit investments and development projects are in place. During the development of both the interim parking plan and the Diridon Intermodal Study, VTA will work with existing and future transit providers in the Diridon Station area to evaluate parking demand based on updated transit patron mode of access data and/or VTA policies established for transit park-and-ride lots and/or joint development parking requirements. The interim parking plan and the Diridon Intermodal Study will address the provision, location, and management of parking in the area; identify an overall strategy for meeting parking needs with stakeholders; allow for shared parking among area transit providers, the SAP Center, and future development; and evaluate strategies that would encourage transit-supportive access to the area and non-auto travel.~~

Santa Clara Station

Direct Impacts

Increased Parking Demand

As shown in Table 3-16, access to this station by walk/bicycle, heavy and light rail transit, and bus would be 81 percent; auto kiss-and-ride would be 4 percent; and auto-park-and-ride would be 16 percent. As shown in Table 3-31, in 2035, the ~~Santa Clara Station~~ projected parking demand at Santa Clara Station is approximately 400 parking spaces. This station ~~demand~~ would ~~be~~ accommodate~~d by providing~~ 500 parking spaces in an up-~~-~~to-~~-~~five-story parking structure.

Permanent Loss of Existing Parking

As mentioned above, there are publicly-available parking lots west of the existing railroad corridor; however, these are not within the project footprint and would not be permanently removed by the project.

Indirect Impacts

As mentioned above, 500 parking spaces would be provided at this station, and no existing publicly-available parking spaces would be permanently removed by the project. Therefore, no indirect traffic or air quality impacts would result from cars circling and looking for parking at this station; thus, there would be a *less-than-significant impact* and *no adverse effect*.

Conclusion

The Alum Rock/28th Street and Santa Clara Stations would provide up to 1,700 parking spaces. Parking would not be provided at the Downtown San Jose or Diridon Stations. At these two stations, access would be almost entirely by transit, walk/bicycle, and auto/taxi drop-off and pick-up. ~~Only limited s~~Short-term, on-street metered parking would also be available ~~as another option. There are no residential neighborhoods in the immediate area that would be adversely affected by spillover parking.~~ Although existing parking would be permanently affected by the Downtown San Jose Station (310 parking spaces) and San Jose Diridon Station (approximately 715 parking spaces), public parking opportunities would be available in the area. As stated previously, parking will be continually reviewed as part of the San Jose Diridon Integrated Station Concept Plan. ~~a Transportation and Parking Management Plan would be developed for the Diridon Station area.~~ This plan would address the provision and~~,~~ location~~, and management~~ of parking in the area, including parking demand for BART and High-Speed Rail. VTA, in partnership with the City of San Jose, Caltrain, and area stakeholders, would work to develop a plan to meet future parking demands.

Nevertheless, VTA would closely monitor parking activity at all stations and institute control measures where necessary. Possible measures include parking charges, parking time, and location restrictions to prevent long-term parking in neighborhoods, and/or other actions. VTA would also continue to work with the Cities of San Jose and Santa Clara and other transit agencies to implement appropriate parking policies to manage non-BART-related parking demand adjacent to these stations. Therefore, there is not projected to be a significant direct impact on parking or indirect impact on the environment caused by drivers circling for parking, resulting in significant secondary effects on traffic operations or air quality. Thus, there would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA. No mitigation is required.

3.5.3 BART Extension with TOJD Alternative

The TOJD included in this alternative would include a combination of office space, retail space, and residential units at the Alum Rock/28th Street and Santa Clara Stations, and a mix of office and retail space at the Downtown San Jose and Diridon Stations. The TOJD also includes small supporting retail developments at two locations along the alignment in San Jose where ventilation structures for the BART tunnel would be located.

As explained in detail in Chapter 2, *Alternatives,* the BART Extension with TOJD Alternative is evaluated under CEQA only.

3.5.3.1 Relevant Plans and Policies

The City of San Jose has adopted two plans to guide land use development projects in the Downtown San Jose area: the *Strategy Plan* (adopted in 2000) and the *Diridon Station Area Plan* (adopted in 2014).

Both the Downtown San Jose and Diridon Stations would be within the Downtown Core Area as defined by *Strategy 2000: San Jose Greater Downtown Strategy Plan for Development Program Environmental Impact Report* (San Jose Downtown Strategy 2000 EIR), and the office and retail TOJD at these stations would be fully consistent with that EIR.

The *Downtown Strategy Plan 2000* is a long-range conceptual program for revitalizing downtown San Jose by allowing high density infill development and replacement of underutilized uses (City of San Jose 2001). That EIR included analysis of 164 intersections in the Downtown Core Area, the surrounding neighborhoods, and corridors leading to the Core Area. A total of 46 directional freeway segments, parking facilities, and transit, bicycle, and pedestrian facilities were also analyzed. Therefore, the potential for traffic impacts associated with the BART Extension with TOJD Alternative has already been analyzed, and appropriate mitigation strategies for any impacts within downtown have been identified as part of that EIR.

Because of the location of the TOJDs near the Downtown San Jose and Diridon Stations within the Downtown Core Area and because the preliminary plans for TOJD are fully consistent with the San Jose Downtown Strategy 2000 EIR, City of San Jose staff concluded that an intersection analysis for the BART Extension with TOJD Alternative at those stations is not required at this stage. Site planning and design for the TOJD at these stations are still in a very preliminary stage. ~~these developments are exempt from the City of San Jose Transportation Level of Service Policy (Council Policy 5-3) and will not require preparation of a comprehensive Transportation Impact Analysis (TIA).~~ Based on guidance from City of San Jose staff (Wong pers. comm.), analysis of the TOJD at these two stations, at their current preliminary planning stage, was environmentally cleared at a project level in the San Jose Downtown Strategy 2000 EIR, and therefore is not included in this analysis. Also, the City of San Jose is currently in the process of updating its Downtown Strategy 2000 EIR, including a new transportation impact analysis for future development. When specific development proposals for the TOJD at the Downtown San Jose and Diridon Stations are filed with the City of San Jose, a final determination will be made as to whether project-level impacts within downtown are covered by the updated Strategy 2000 EIR. Accordingly, the TIA for the BART Extension with TOJD does not include intersection analysis for the Downtown San Jose or Diridon Stations.

In addition to the transportation impact analyses for the Downtown San Jose and Diridon Station TOJD after specific development proposals have been prepared,~~The San Jose Public~~

~~Works Department has requested that~~ a detailed traffic operations study will also be ~~prepared~~ conducted ~~at a future date prior to construction of the BART Extension with TOJD Alternative, if approved,~~ in order to identify potential operational issues at these sites. ~~that could occur as a result of the TOJD at the Downtown San Jose and Diridon Stations. Site planning and design for the TOJD at these stations are still in a very preliminary stage. Therefore, a~~A detailed traffic operations analysis of intersection queuing, site access, and onsite circulation at these locations would be prepared and submitted to the City of San Jose Public Works Department for their review at a future date when detailed site plans are available.

The Diridon Station is also within the area covered by the Diridon Station Area Plan (DSAP), a 35-year land use plan developed by the City of San Jose that focuses on the intensification of land uses in the Diridon Station area and expansion of the Diridon Station to serve as a transit hub for existing and planned transit systems, including the BART Extension. The office and retail uses proposed by for the Diridon Station TOJD exemplify the intensification of land uses envisioned by the DSAP.

The DSAP includes a shift in approved development growth from the traditional Downtown Core as identified by the approved Strategy 2000 to the Diridon Station Area, west of SR 87. Although the DSAP consists of the reallocation of land uses, the total planned development growth within the Downtown area remains as identified with the San Jose Downtown Strategy 2000 EIR. However, a small amount of retail space and over half of the residential units proposed by the DSAP are outside of the Downtown area. An EIR was prepared for the DSAP (City of San Jose 2014) in order to identify any intersection or freeway impacts under DSAP Buildout plus Strategy 2000 project conditions and to develop appropriate mitigation measures for any impacts. Because the office and retail TOJD for Diridon Station would be consistent with the DSAP, it ~~is~~may also be covered by that EIR, although a final determination will be made by the City of San Jose when a specific development proposal is submitted.

3.5.3.2 2015 Traffic Impact Analysis

Station and TOJD Trip Generation

The trip generation for the BART Extension with TOJD Alternative includes three separate components.

1. The additional trips generated by BART patrons who access the BART stations by vehicle and use the KNR or the PNR facilities. These trips are referred to as the *station drive access trips*.
2. The reduction in trips on the roadway network as motorists switch from passenger vehicles to BART. The BART Extension would result in a shift in travel patterns, and this mode shift would result in the removal of some auto trips from the roadways.

3. The additional trips generated by the TOJD at each station, which are discussed in detail below.

The trip generation estimates for the first two components of the BART Extension with TOJD Alternative (station drive access trips and mode shift trips) were quantified in Section, 3.5.2, *BART Extension Alternative*, and are incorporated into this analysis.

Table 3-32 presents the trip generation estimates for TOJD, the third component of total trip generation, for 2015 Existing conditions. In order to calculate the trip generation estimates for the TOJD, standard trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* were used for each land use. In accordance with VTA's *TIA Guidelines*, trip reductions were taken for proximity to transit, internalization of trips for mixed-use projects, and pass-by trips for the retail uses.

After applying the standard ITE trip generation rates and appropriate trip reductions, the TOJD portion of the Alum Rock/28th Street Station site would generate 7,105 new daily vehicle trips, with 768 new trips occurring during the AM peak hour and 771 new trips occurring during the PM peak hour. The TOJD portion of the Santa Clara Station site would generate 7,229 new daily vehicle trips, with 755 new trips occurring during the AM peak hour and 763 new trips occurring during the PM peak hour.

Table 3-32: Trip Generation Estimates for Mixed-Use Developments at the Alum Rock/28th Street and Santa Clara Station TOJD Sites (2015 Conditions)

Land Use	ITE Code	Size	Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
					Peak-Hour Rate	Splits		Trips			Peak-Hour Rate	Splits		Trips		
						In	Out	In	Out	Total		In	Out	In	Out	Total
Alum Rock BART Station Transit-Oriented Joint Development Site																
Office Building[a]	710	500,000 sf	8.92	4,461	1.39	88%	12%	610	83	693	1.28	17%	83%	109	529	638
6% Transit Trip Reduction for Office[b]								(37)	(5)	(42)				(7)	(31)	(38)
3% Reduction for Employment and Employee-serving Retail[c]								(18)	(3)	(21)				(3)	(16)	(19)
~~Apartments[d]~~Residential Units[d]	220	275 units	6.51	1,790	0.50	20%	80%	28	110	138	0.61	65%	35%	110	59	169
9% Transit Trip Reduction for Residential [e]								(3)	(10)	(13)				(10)	(5)	(15)
15% Housing and Retail Internal Reduction [f]								(1)	(2)	(3)				(6)	(5)	(11)
Retail Space [g]	820	20,000 sf	42.70	854	0.96	62%	38%	12	7	19	3.71	48%	52%	36	38	74
15% Housing and Retail Internal Reduction [f]								(2)	(1)	(3)				(5)	(6)	(11)
25% Retail PM Pass-By Reduction [h]														(8)	(8)	(16)
Net Alum Rock/28th Street Station TOJD Site Trips:				7,105				589	179	768				216	555	771
Santa Clara BART Station Transit-Oriented Joint Development Site																
Office Building[a]	710	500,000 sf	8.92	4,461	1.39	88%	12%	610	83	693	1.28	17%	83%	109	529	638
6% Transit Trip Reduction for Office[b]								(37)	(5)	(42)				(6)	(32)	(38)
3% Reduction for Employment and Employee-Serving Retail[c]								(18)	(3)	(21)				(3)	(16)	(19)
~~Apartments[d]~~Residential Units[d]	220	225 units	6.61	1,487	0.51	20%	80%	23	91	114	0.63	65%	35%	92	49	141
9% Transit Trip Reduction for Residential[e]								(2)	(8)	(10)				(8)	(5)	(13)
15% Housing and Retail Internal Reduction[f]								(2)	(2)	(4)				(9)	(8)	(17)
Retail Space[g]	820	30,000 sf	42.70	1,281	0.96	62%	38%	18	11	29	3.71	48%	52%	53	58	111
15% Housing and Retail Internal Reduction[f]								(2)	(2)	(4)				(8)	(9)	(17)
25% Retail PM Pass-By Reduction[h]														(11)	(12)	(23)
Net Santa Clara Station TOJD Site Trips:				7,229				590	165	755				209	554	763
Total Transit-Oriented Joint Development Project Trips:				**14,334**				**1,179**	**344**	**1,523**				**425**	**1,109**	**1,534**

Source for all trip generation rates: ITE *Trip Generation Manual, 9th Edition*, 2012.
[a] Rate based on ITE Land Use Code 710 (General Office), fitted curve equation used.
[b] Transit trip reduction of 6% for office trips, based on VTA's October 2014 *TIA Guidelines*.
[c] Mixed-Use reduction of 3% for mix of employment and employment-serving retail, based on VTA's October 2014 *TIA Guidelines*.
[d] Rates based on ITE Land Use Code 220 (Apartment), fitted curve equation used.

[e] Transit trip reduction of 9% for residential trips, based on VTA's October 2014 *TIA Guidelines.*
[f] Internal capture reduction of 15% for mix of residential and retail uses (15% of smaller trip generator = retail use), based on VTA's October 2014 *TIA Guidelines.*
[g] Rates based on ITE Land Use Code 820 (Shopping Center), average rates used.
[h] A typical 25% pass-by trip reduction was applied to the retail component of the project during the PM peak hour.

Table 3-33 shows the project trip generation estimates for both the Alum Rock/28th Street and Santa Clara Station TOJD sites, when station drive access trips and the TOJD-generated trips are combined.

Table 3-33: 2015 Existing Station Drive Access Trips and TOJD Trips

Station	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
		In	Out	Total	In	Out	Total
Alum Rock/28th Street							
Kiss-and-Ride Trips	218	21	21	42	25	25	50
Park-and-Ride Trips	1,430	192	7	199	18	150	168
TOJD Trips	7,105	589	179	768	216	555	771
Total	**8,753**	**802**	**207**	**1,009**	**259**	**730**	**989**
Santa Clara							
Kiss-and-Ride Trips	70	7	7	14	8	8	16
Park-and-Ride Trips	275	37	1	38	3	29	32
TOJD Trips	7,229	590	165	755	209	554	763
Total	**7,574**	**634**	**173**	**807**	**220**	**591**	**811**
Source: Hexagon Transportation Consultants, Inc. 2017~~6~~b.							

In order to determine the total number of trips that would be generated by the Alum Rock/28th Street and Santa Clara Station sites, the trips projected to be generated by the TOJD were added to the station drive access trips (people driving to or from the stations to park or to drop off or pick up someone). This sum includes all the trips that would be generated by the Alum Rock/28th Street and Santa Clara Stations (i.e., by their KNR and PNR facilities and by their TOJD uses), as shown in Table 3-33.

For the analysis of intersections, freeways, and freeway ramps, the reduction in trips on the roadway network as motorists switch from passenger vehicles to BART (a negative number of trips) is also included. Thus, the traffic volumes for the 2015 Existing BART Extension with TOJD Alternative adds to existing traffic volumes all TOJD trips, station drive access trips (KNR and PNR), and the removal of some auto trips from the roadways due to a mode shift to greater transit usage.

VTA and the Cities would work to maximize multimodal access to the BART stations and the TOJD land uses. Through various efforts such as Access Plans for the station areas, Transportation Demand Management Plans for the TOJD, improving the bike and pedestrian facilities in the vicinity of the stations, and offering "unbundled" parking for the residential uses, the number of vehicle trips generated by the BART Extension with TOJD Alternative would be reduced. Therefore, the estimates of vehicle trips for the BART Extension with TOJD Alternative should be regarded as conservative.

Intersection Analysis

For the BART Extension with TOJD traffic analysis, 28 additional intersections (10 near the Alum Rock/28th Street Station and 18 near the Santa Clara Station) were analyzed, compared to the traffic study that was conducted for the BART Extension Alternative. These intersections were added at the request of the Cities of San Jose and Santa Clara because the traffic generated by the TOJD land uses could affect additional intersections. These additional intersections are shown on Figures 3-7 and 3-9.

Intersection LOS under 2015 Existing BART Extension with TOJD Alternative conditions were evaluated against CMP and Cities of San Jose and Santa Clara LOS standards. The results of the intersection LOS analysis are summarized below and in Table 3-34.

This section also evaluates whether the BART Extension with TOJD Alternative would result in a significant impact on the study intersections under 2015 Existing traffic conditions, based on the significant impact criteria of the City of San Jose, City of Santa Clara, and CMP. To determine whether there would be an impact under 2015 Existing BART Extension with TOJD Alternative conditions, intersections that would operate at an unacceptable LOS were analyzed. A comparison was made between 2015 Existing No Build conditions and 2015 Existing BART Extension with TOJD conditions and the appropriate significant impact criteria were applied.[9]

Table 3-34: 2015 Existing BART Extension with TOJD Alternative Intersection Analysis Summary

Station	Number of Study Intersections	Number of CMP Intersections	Unacceptable LOS Intersections[a]	Intersections with Impacts[b]
Alum Rock/28th Street	27	7	0 (0)	0 (0)
Santa Clara	35	15	2 (1)	1 (0)
Total	**62**	**22**	**2 (1)**	**1 (0)**

[a] The first number is based on the LOS standards of the appropriate City. The second number (in parentheses) is the number of CMP intersections that would operate at an unacceptable LOS based on the CMP LOS standard.

[b] The first number presents how many study intersections would be impacted based on the appropriate City's impact criteria. The second number (in parentheses) is how many of the CMP intersections would be impacted based on the CMP criteria.

Alum Rock/28th Street Station

City of San Jose Analysis

Measured against the City of San Jose LOS standards, all 27 of the study intersections in the vicinity of the Alum Rock/28th Street Station would operate at an acceptable LOS D or better during both the AM and PM peak hours of traffic. Based on the City of San Jose significant

[9] For further information on the application of the City of San Jose, City of Santa Clara, and CMP significant impact criteria to each intersection and the supporting data for these findings (e.g., change in average critical delay and change in critical V/C), refer to the BART Extension with TOJD TIA.

impact criteria, impacts with the BART Extension with TOJD Alternative would be *less than significant* on any intersections in the Alum Rock/28th Street Station study area under 2015 Existing traffic conditions.

CMP Analysis

Measured against the CMP LOS standards, all seven CMP intersections in the Alum Rock/28th Street Station study area would operate at an acceptable LOS E or better during both the AM and PM peak hours of traffic. Based on the CMP LOS impact criteria, impacts with the BART Extension with TOJD Alternative would be *less than significant* on any CMP intersections in the Alum Rock/28th Street Station study area under 2015 Existing traffic conditions.

Santa Clara Station

Of the 35 study intersections in the vicinity of the Santa Clara Station, 13 are located in the City of San Jose and 22 are in the City of Santa Clara. Fifteen of the 35 study intersections are designated CMP intersections.

City of San Jose Analysis

Measured against the City of San Jose LOS standards, all 13 of the San Jose intersections in the vicinity of the Santa Clara Station would operate at an acceptable LOS D or better during both the AM and PM peak hours of traffic. Based on the City of San Jose significant impact criteria, impacts with the BART Extension with TOJD would be *less than significant* on any of the San Jose intersections in the Santa Clara Station study area under 2015 Existing traffic conditions.

City of Santa Clara Analysis

Measured against the City of Santa Clara LOS standards, 20 of the 22 Santa Clara Station study intersections within Santa Clara would operate at an acceptable LOS (LOS D or better at local intersections and LOS E or better at expressway and CMP intersections) during both the AM and PM peak hours of traffic. The following two intersections would operate at unacceptable LOS (LOS E or worse for local intersections and LOS F for expressways and CMP intersections) during at least one peak hour. CMP intersections are denoted by an asterisk (*).

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- Coleman Avenue and Brokaw Road (LOS F: PM peak hour).

When measured against City of Santa Clara significant impact criteria, the BART Extension with TOJD Alternative is not projected to cause a significant impact at the intersection of De La Cruz Boulevard and Central Expressway.

When measured against the City of Santa Clara significant impact criteria, the 2015 Existing BART Extension with TOJD Alternative would potentially cause a significant impact at the following intersection:

- Coleman Avenue and Brokaw Road (LOS F: PM peak hour)

A mitigation measure for this intersection has been proposed and is presented below under Impact BART Extension + TOJD TRA-1.

The unsignalized intersection of Lafayette Street and Harrison Street has two-way stop control. The LOS for this intersection, LOS F in the AM and PM peak hours, reflects the delay and the LOS for the stop-controlled approach with the highest delay, not the average of the entire intersection. Because the City of Santa Clara does not have an LOS standard for unsignalized intersections, this intersection cannot be said to operate at an unacceptable LOS.

CMP Analysis

Measured against the CMP LOS standards, the results of the LOS analysis with the 2015 Existing BART Extension with TOJD Alternative show that 14 of the 15 CMP study intersections in the vicinity of the Santa Clara Station would operate at an acceptable LOS (LOS E or better) during both the AM and PM peak hours of traffic. The following CMP intersection would operate at an unacceptable LOS (LOS F) during at least one peak hour.

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).

Based on the CMP LOS impact criteria, impacts for the 2015 Existing BART Extension with TOJD Alternative would be *less than significant* on any CMP intersections in the Santa Clara Station study area.

Freeway Segments Analysis

Traffic volumes on freeway segments for 2015 Existing BART Extension with TOJD conditions were projected by adding the projected net station and TOJD trips on each freeway segment to the existing freeway volumes. Note that even though Diridon Station was not included in the BART Extension with TOJD Alternative analysis, the same 64 freeway segments were analyzed because they would also serve trips going to and from the Alum Rock/28th Street and Santa Clara Stations.

The results of the freeway analysis under 2015 Existing BART Extension with TOJD Alternative conditions are summarized in Table 3-35. For this alternative, the summary table identifies segments by freeway, rather than by their nearest station.

Table 3-35: 2015 Existing BART Extension with TOJD Freeway Levels of Service

Freeway	Number of Freeway Segments	Unacceptable LOS Mixed-Flow Segments	Unacceptable LOS HOV Segments
U.S. 101	20	16	13
I-280/I-680	20	17	2
I-880	14	12	0
SR 87	10	8	3
Total	**64**	**53**	**18**

Table 3-35 shows that:

- 16 (plus 13 HOV segments) of the 20 directional freeway segments analyzed on U.S. 101 are projected to operate at an unacceptable LOS F during at least one peak hour.
- 17 (plus 2 HOV segments) of the 20 directional freeway segments analyzed on I-280 and I-680 are projected to operate at an unacceptable LOS F during at least one peak hour.
- 12 of the 14 directional freeway segments analyzed on I-880 are projected to operate at an unacceptable LOS F during at least one peak hour.
- 8 (plus 3 HOV segments) of the 10 directional freeway segments analyzed on SR 87 are projected to operate at an unacceptable LOS F during at least one peak hour.

There are projected to be four freeway segments that were operating at LOS F under 2015 Existing No Build conditions that would continue to operate at LOS F under 2015 Existing BART Extension with TOJD conditions and would cause significant increases in traffic volumes (1 percent or more of freeway capacity). Based on the CMP definition of significant freeway impacts, the BART Extension with TOJD Alternative would therefore result in a significant impact on the following four segments under 2015 Existing traffic conditions:

- U.S. 101, Northbound, Tully Road to Story Road: AM peak hour for mixed-flow lanes.
- U.S. 101, Northbound, Story Road to I-280: AM peak hour for mixed-flow and HOV lanes.
- U.S. 101, Northbound, I-280 to Santa Clara Street: AM peak hour for mixed-flow and HOV lanes.
- U.S. 101, Northbound, Santa Clara Street to McKee Road: AM peak hour for mixed-flow lanes.

These freeway segments are in the vicinity of the Alum Rock/28th Street Station. Caltrans has no plans to widen these freeway segments beyond what is already assumed in the analysis (three mixed-flow lanes and one HOV lane). The BART Extension with TOJD Alternative would result in a significant impact on these segments under 2015 Existing BART Extension with TOJD conditions that would be *significant and unavoidable* under CEQA. However,

under 2035 Forecast Year conditions, these segments would not be significantly impacted because by that time a sufficient mode shift from passenger cars to BART is projected to more than offset the station access trips and TOJD trips. Because the impact only occurs under 2015 Existing conditions and the BART Extension with TOJD Alternative would not be built until 2025, no mitigation is proposed.

Freeway Ramp Analysis

The results of the freeway ramp analysis under 2015 Existing BART Extension with TOJD conditions are described below and summarized in Table 3-36. Those freeway on-ramps where the BART Extension with TOJD Alternative would add a substantial amount of traffic (more than 10 net peak hour trips per lane) were evaluated; each of these ramps is currently metered or is expected to be metered in the future. The freeway on-ramps that were evaluated under 2015 Existing BART Extension with TOJD conditions are listed below:

- U.S. 101 southbound on-ramp from McKee Road – PM peak hour.
- U.S. 101 southbound loop on-ramp from WB Santa Clara Street/Alum Rock Avenue – PM peak hour.
- I-880 southbound diagonal on-ramp from southbound Coleman Avenue – PM peak hour.

The I-880 southbound diagonal on-ramp from southbound Coleman Avenue is currently metered. The existing maximum vehicle queue that occurs at this metered on-ramp during the PM peak hour was measured in the field. The metering lights at both U.S. 101 freeway on-ramps listed above—the U.S. 101 southbound on-ramp from McKee Road and the U.S. 101 southbound loop on-ramp from westbound Santa Clara Street/Alum Rock Avenue—are not currently operating. Therefore, no measurable queues are currently experienced at these ramp locations, and no changes in queue length are shown for 2015 Existing BART Extension with TOJD conditions.

Table 3-36: 2015 Existing with BART Extension with TOJD Freeway Ramp Queuing Analysis

Freeway Ramp	Total Storage (Vehicle)[a]	No Build Condition	BART Extension with TOJD Condition	Change
U.S. 101 at McKee Road Interchange				
U.S. 101 SB On-Ramp at McKee Road	32			
PM Volume [b]		1,131	1,296	165
Projected Queue Length [c]		-	-	
U.S. 101 at Santa Clara Street/Alum Rock Avenue Interchange				
U.S. 101 SB On-Ramp at Santa Clara Street	34			
PM Volume [b]		949	1,113	164
Projected Queue Length [c]				
I-880 at Coleman Avenue Interchange				
I-880 SB On-Ramp from SB Coleman	72			
PM Volume [b]		709	738	29
Observed/Projected Queue Length (in feet) [c]		200	208	

[a] Total number of vehicles that can store within the ramp.
[b] Peak-hour ramp volume projections.
[c] Currently, the ramp meter at these on-ramps is not operational during the PM peak hour. Therefore, no measurable queues are currently experienced at these locations.
[d] Total number of vehicles in the queue, as obtained from TRAFFIX.

The I-880 southbound on-ramp from southbound Coleman Avenue currently has adequate storage space for the number of vehicles observed on that ramp during the PM peak hour. It is projected to have adequate storage space for the number of vehicles projected to use that ramp under the 2015 Existing BART Extension with TOJD Alternative. Impacts would be *less than significant*, and no mitigation is required.

3.5.3.3 2035 Forecast Year Traffic Impact Analysis

2035 Forecast Year Traffic Volumes

Peak hour traffic volumes for the 2035 Forecast Year were produced with the VTA Model with the BART Extension with TOJD Alternative included in its land use and transportation network assumptions. For the 2035 Forecast Year BART Extension with TOJD conditions, in addition to using the model to forecast future (2035 Forecast Year) traffic volumes in the study area, the model was applied to estimate the percentage of TOJD trips that would use transit. Based on 2035 Forecast Year land use data, the level of congestion on the roadway system, and the high quality and frequent transit rail and bus service serving the workers and residents of the region, the model estimated a transit share for residential and office use at the Alum Rock/28th Street Station of 18 percent and 16 percent, respectively. BART Extension with TOJD Alternative trips at the Santa Clara Station would have even higher transit mode shares, because this station would be served by BART, ACE, Caltrain, and numerous bus

routes. The transit shares for residential and office use at the Santa Clara Station would be 19 percent and 24 percent, respectively.

These trip reductions were then applied to the ITE trip generation rates presented in Table 3-32 (discussed above under Section 3.5.3.2, *2015 Traffic Impact Analysis*) instead of the reductions of 9 percent and 6 percent for residential and office uses, respectively, for proximity to transit. These reductions, based on model projections of transit mode share, result in 81 fewer vehicle trips during the AM peak hour and 79 fewer vehicle trips during the PM peak hour at the Alum Rock/28th Street Station. An additional reduction of 137 AM peak hour vehicle trips and 129 PM peak hour vehicle trips were taken from the trips in Table 3-32 for the Santa Clara Station to account for the larger share of transit use in 2035.

Intersection Analysis

Traffic volumes for the 2035 Forecast Year BART Extension with TOJD Alternative conditions were obtained by adding the traffic projected to be generated by the BART stations (net trips, as described earlier) and trips generated by the TOJD to the 2035 Forecast Year No Build traffic volumes. Intersection LOS under 2035 Forecast Year BART Extension with TOJD conditions were evaluated against CMP and Cities of San Jose and Santa Clara LOS standards. The results of the LOS analysis are summarized in Table 3-37.

This section also evaluates whether the BART Extension with TOJD Alternative would result in a significant impact on the study intersections under 2035 Forecast Year traffic conditions, based on the significant impact criteria of the City of San Jose, the City of Santa Clara, and CMP. To determine whether there would be any significant impacts under 2035 Forecast Year BART Extension with TOJD Alternative conditions, intersections that would operate at an unacceptable LOS under 2035 Forecast Year BART Extension with TOJD conditions were further analyzed. For City of Santa Clara and CMP intersections, a comparison was made between 2035 Forecast Year No Build and 2035 Forecast Year BART Extension with TOJD conditions, and the appropriate significant impact criteria were applied.[10] For City of San Jose intersections, a comparison was made between 2025 No Build and 2035 Forecast Year BART Extension with TOJD conditions, and the City of San Jose's significant impact criteria were applied. These comparisons have been made and significant impacts identified for the BART Extension Alternative under 2035 Forecast Year traffic conditions.

[10] For further information on the application of the City of San Jose, City of Santa Clara, and CMP significant impact criteria to each intersection and the supporting data for these findings (e.g., change in average critical delay and change in critical V/C; percentage of increased traffic volume contributed by the alternative), refer to the BART Extension with TOJD TIA.

Table 3-37: 2035 Forecast Year BART Extension with TOJD Alternative Intersection Analysis Summary

Station	Number of Study Intersections	Number of CMP Intersections	Unacceptable LOS Intersections [a]	Intersections with Impacts [b]
Alum Rock/28th Street	27	7	5 (1)	0 (0)
Santa Clara	35	15	12 (8)	3 (2)
Total	**62**	**22**	**17 (9)**	**3 (2)**

[a] The first number is based on the LOS standards of the appropriate City. The second number (in parentheses) is the number of CMP intersections that would operate at an unacceptable LOS based on the CMP LOS standard

[b] The first number presents how many study intersections would be impacted based on the appropriate City's impact criteria. The second number (in parentheses) is how many of the CMP intersections would be impacted based on the CMP criteria.

Alum Rock/28th Street Station

City of San Jose Analysis

The results of the LOS analysis for the 2035 Forecast Year BART Extension with TOJD Alternative show that, measured against the City of San Jose LOS standards, 22 of the 27 study intersections in the vicinity of the Alum Rock/28th Street Station would operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours of traffic. The following five intersections would operate at unacceptable levels of service (LOS E or F) under 2035 Forecast Year BART Extension with TOJD conditions during at least one peak hour. The CMP intersection is denoted by an asterisk (*).

- King Road and McKee Road (LOS F – AM peak hour and LOS E – PM peak hour).
- Jackson Avenue and Alum Rock Avenue* (LOS F – AM peak hour and LOS E PM peak hour).
- Jackson Avenue and San Antonio Street/Capitol Expressway (LOS E – AM peak hour).
- McLaughlin Avenue and Story Road (LOS E – AM peak hour).
- King Road and Mabury Road (LOS E – PM peak hour).

When measured against the City of San Jose significant impact criteria for cumulative conditions, none of the study intersections near the Alum Rock/28th Street Station would be significantly impacted by the BART Extension with TOJD Alternative under 2035 Forecast Year traffic conditions. Impacts would be *less than significant*, and no mitigation is required.

CMP Analysis

The results of the LOS analysis for the 2035 Forecast Year BART Extension with TOJD Alternative show that, measured against the CMP standards, all except one of the CMP study intersections in the vicinity of Alum Rock/28th Street Station would operate at an acceptable level of service (LOS E or better) during both the AM and PM peak hours of traffic. The

following CMP intersection would operate at an unacceptable level of service (LOS F) during at least one peak hour:

- Jackson Avenue and Alum Rock Avenue* (LOS F – AM peak hour).

However, based on the CMP LOS impact criteria, impacts with the BART Extension with TOJD Alternative would be *less than significant* on any CMP intersections in the Alum Rock/28th Street Station study area under 2035 traffic conditions.

Santa Clara Station

Of the 35 study intersections in the vicinity of the Santa Clara Station, 13 are located in the City of San Jose and 22 are in the City of Santa Clara. Fifteen of the 35 study intersections are designated CMP intersections.

City of San Jose Analysis

The results of the LOS analysis with the 2035 Forecast Year BART Extension with TOJD Alternative show that, measured against the City of San Jose LOS standards, all but six of the Santa Clara Station intersections located within San Jose would operate at an acceptable LOS D or better during both the AM and PM peak hours of traffic. The following six intersections would operate at unacceptable levels of service (LOS E or F) under 2035 Forecast Year BART Extension with TOJD conditions during at least one peak hour. The CMP intersections are denoted by an asterisk (*).

- Coleman Avenue and I-880 Southbound Ramps* (LOS F – AM peak hour and LOS E – PM peak).
- Coleman Avenue and I-880 Northbound Ramps* (LOS F – AM peak hour).
- Coleman Avenue and West Hedding Street (LOS E – AM and PM peak hours).
- Coleman Avenue and West Taylor Street (LOS E – AM peak hour and LOS F - PM peak hour)
- The Alameda and West Hedding Street* (LOS E – AM peak hour and LOS F – PM peak hour)
- The Alameda and West Taylor Street/Naglee Avenue* (LOS F – AM peak hour and LOS E PM peak hour)

Based on the City of San Jose significant impact criteria, impacts with the BART Extension with TOJD Alternative would be *less than significant* on any of the San Jose intersections in the Santa Clara Station study area under 2035 Forecast Year traffic conditions.

City of Santa Clara Analysis

The results of the LOS analysis with the 2035 Forecast Year BART Extension with TOJD Alternative show that, measured against the City of Santa Clara LOS standards, all but six of the Santa Clara Station intersections located within Santa Clara would operate at an

acceptable level of service (LOS D or better at local intersections and LOS E or better at expressway and CMP intersections) during both the AM and PM peak hours of traffic. The following six intersections would operate at unacceptable levels of service (LOS E or worse for local intersections and LOS F for expressways and CMP intersections) under 2035 Forecast Year BART Extension with TOJD conditions during at least one peak hour. The CMP intersections are denoted by an asterisk (*).

- Scott Boulevard and Central Expressway* (LOS F: PM peak hour).
- Lafayette Street and Central Expressway* (LOS F: AM and PM peak hours).
- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- Coleman Avenue and Brokaw Road (LOS F: PM peak hour).
- San Tomas Expressway and El Camino Real* (LOS F: AM and PM peak hours).
- Lafayette Street and Lewis Street (LOS E: PM peak hour).

When measured against the City of Santa Clara significant impact criteria, the following three Santa Clara intersections would be significantly impacted under 2035 Forecast Year BART Extension with TOJD conditions:

- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- Coleman Avenue and Brokaw Road (LOS F: PM peak hour).
- Lafayette Street and Lewis Street (LOS E: PM peak hour).

Mitigation measures for these three intersections have been proposed and are described below under Impact BART Extension + TOJD TRA-1.

Although the City of Santa Clara does not have an LOS standard for unsignalized intersections, an evaluation of the unsignalized study intersection was performed for informational purposes. The LOS analysis shows that the intersection of Lafayette Street and Harrison Street is projected to operate at LOS F during both the AM and PM peak hours under 2035 Forecast Year BART Extension with TOJD conditions.

LOS F at two-way stop-controlled intersections can occur when gaps of traffic on the major street are limited, resulting in long delays for the minor-street traffic as it attempts to enter or cross the major street. At the study intersection of Lafayette Street and Harrison Street, the relatively high traffic volumes along Lafayette Street (major street) cause the delay on the low-volume Harrison Street (minor street) to be worse than the LOS F threshold. However, the peak-hour traffic signal warrant checks indicate that the intersection would not have traffic volumes under 2035 Forecast Year BART Extension with TOJD conditions that meet thresholds that warrant signalization.

CMP Analysis

Measured against the CMP LOS standards, the results of the LOS analysis with the 2035 Forecast Year BART Extension with TOJD Alternative show that 7 of the 15 CMP study

intersections in the vicinity of the Santa Clara Station would operate at an acceptable LOS (LOS E or better) during both the AM and PM peak hours of traffic. The following eight CMP intersections would operate at unacceptable LOS (LOS F) during at least one peak hour.

- Coleman Avenue and I-880 Southbound Ramps* (LOS F – AM peak hour)
- Coleman Avenue and I-880 Northbound Ramps* (LOS F – AM peak hour)
- The Alameda and West Hedding Street* (LOS F – PM peak hour).
- The Alameda and West Taylor Street/Naglee Avenue* (LOS F – AM peak hour).
- Scott Boulevard and Central Expressway* (LOS F: PM peak hour).
- Lafayette Street and Central Expressway* (LOS F: AM and PM peak hours).
- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).
- San Tomas Expressway and El Camino Real* (LOS F: AM and PM peak hours).

Based on the CMP LOS impact criteria, the following two CMP intersections would be significantly impacted by the BART Extension with TOJD Alternative under 2035 Forecast Year traffic conditions:

- Coleman Avenue and I-880 Southbound Ramps* (LOS F – AM peak hour).
- De La Cruz Boulevard and Central Expressway* (LOS F: AM and PM peak hours).

Mitigation measures for these two intersections have been proposed and are described below under Impact BART Extension + TOJD TRA-1.

Freeway Segments Analysis

Traffic volumes on freeway segments for 2035 Forecast Year BART Extension with TOJD conditions were established by adding those net trips to the 2035 freeway volumes obtained from the VTA Travel Demand Forecasting Model. Note that even though Diridon Station was not included in the BART Extension with TOJD Alternative analysis, the same 64 freeway segments were analyzed because they may also serve trips going to and from the Alum Rock/28th Street and Santa Clara stations and TOJD sites.

The results of the freeway analysis under 2035 Forecast Year BART Extension with TOJD Alternative conditions are summarized in Table 3-38. The table identifies segments by freeway, rather than by their nearest station.

Table 3-38: 2035 Forecast Year BART Extension with TOJD Alternative Freeway Levels of Service

Freeway	Number of Freeway Segments	Unacceptable LOS Mixed-Flow Segments	Unacceptable LOS HOV Segments
U.S. 101	20	16	12
I-280/I-680	20	16	2
I-880	14	12	0
SR 87	10	9	1
Total	**64**	**53**	**15**

Table 3-38 shows that:

- 16 (plus 12 HOV segments) of the 20 directional freeway segments analyzed on U.S. 101 are projected to operate at an unacceptable LOS F during at least one peak hour.
- 16 (plus 2 HOV segments) of the 20 directional freeway segments analyzed on I-280 and I-680 are projected to operate at an unacceptable LOS F during at least one peak hour.
- 12 of the 14 directional freeway segments analyzed on I-880 are projected to operate at an unacceptable LOS F during at least one peak hour.
- 9 (plus 1 HOV segment) of the 10 directional freeway segments analyzed on SR 87 are projected to operate at an unacceptable LOS F during at least one peak hour.

The BART Extension with TOJD Alternative would not cause significant increases in traffic (1 percent or more of freeway capacity) on any of the study freeway segments currently operating at LOS F, and none of the study freeway segments currently operating at LOS E or better would worsen to LOS F. In fact, many freeway segments would experience a decrease in volume, because the reduced number of trips on the freeway (due to the mode shift from passenger vehicles to BART) more than offsets the trips that would be generated by station access trips and TOJD trips. Therefore, based on CMP freeway impact criteria, impacts on all of the study freeway segments would *less than significant* under the 2035 Forecast Year BART Extension with TOJD Alternative.

Vehicle Miles Traveled

Recent trends in the transportation planning field have expanded the range of metrics to be evaluated beyond LOS in order to better capture the potential impacts of a project on other modes of transportation and on the greenhouse gases associated with vehicular travel.

Pursuant to Senate Bill 743, the Governor's Office of Planning and Research released a *Draft of Updates to the CEQA Guidelines* in August 2014, which proposes vehicle miles traveled (VMT) as the replacement metric for LOS in the context of CEQA. While the Office of Planning and Research emphasizes that a lead agency has the discretionary authority to establish thresholds of significance, the *Draft of Updates to the CEQA Guidelines* suggests criteria that indicate when a project may have a significant, or less-than-significant,

transportation impact on the environment. For instance, a project that results in VMT greater than the regional average for the land use type (e.g., residential, employment, commercial) may indicate a significant impact. Alternatively, a project may have a less-than-significant impact if it is within 0.5 mile of an existing major transit stop, or results in a net decrease in VMT compared to existing conditions.

The revised State CEQA Guidelines are still in draft form and it is anticipated that they will undergo further changes as a result of significant public input. Because the Office of Planning and Research has not yet adopted new State CEQA Guidelines for the alternative criteria to LOS, the adopted significance criteria for study intersections in the City of San Jose, the City of Santa Clara, and VTA's CMP still remain applicable to the scenarios analyzed in the BART Extension and TOJD TIA. However, examination of VMT and VMT per capita is consistent with the anticipated changes to the State CEQA Guidelines.

For purposes of looking at the effect of the BART Extension with TOJD Alternative on travel associated with land use activities in Santa Clara County, average daily VMT and VMT per capita were analyzed under No Build and BART Extension with TOJD Conditions in the 2015 Existing and 2035 Forecast Year.

VMT refers to the number of Santa Clara County-based vehicle trips multiplied by their trip distances. Santa Clara County trips are defined as trips with one or both "trip ends" in the County. The average daily weekday VMT were calculated for 2015 Existing conditions and 2035 Forecast Year conditions, with and without the BART Extension with TOJD Alternative. VMT per capita is a common metric to analyze and compare travel characteristics between alternatives. The average daily VMT and VMT per capita are presented in Table 3-39.

Table 3-39: Average Daily VMT and VMT Per Capita for Santa Clara County-Based Trips

	2015 Existing		2035 Cumulative	
Item	**No Build**	**BART Extension with TOJD**	**No Build**	**BART Extension with TOJD**
Daily VMT	51,893,183	51,795,427	59,777,409	59,703,751
Households	640,435	640,935	781,011	781,511
Total Population	1,852,676	1,854,247	2,267,232	2,268,803
Total Jobs	1,010,252	1,013,652	1,231,164	1,234,564
VMT per Capita	18.13	18.06	17.09	17.04
Source: Hexagon Transportation Consultants, Inc. 2017~~6~~b. VMT Per Capita = Daily Trips x Distance / (Population + Jobs)				

As shown in Table 3-39, Average Daily VMT and VMT Per Capita are projected to decrease under BART Extension with TOJD conditions in both the 2015 Existing and 2035 Forecast Year. This result is logical because many travelers who would be making trips in

automobiles under No Build conditions would shift to BART under BART Extension with TOJD conditions. Impacts would be *less than significant*, and no mitigation is required.

3.5.3.4 Impact BART Extension + TOJD TRA-1: Conflict with a Transportation Plan, Ordinance, or Policy

The BART Extension with TOJD Alternative would not conflict with any regional or local transportation plans, including MTC's *Transportation 2035 Plan for the San Francisco Bay Area*, MTC's *Plan Bay Area*, VTA's *Valley Transportation Plan 2040,* VTA's *Santa Clara Countywide Bicycle Plan*, the City of San Jose's *Bike Plan 2020*, the City of San Jose's *Strategy 2000: San Jose Downtown Strategy Plan*, the City of San Jose's *Diridon Station Area Plan,* and the General Plans of the Cities of San Jose and Santa Clara.

The potential impacts of the BART Extension with TOJD Alternative were evaluated in accordance with the standards set forth by the Cities of San Jose and Santa Clara and the CMP of Santa Clara County. A total of 62 intersections in the vicinity of the Alum Rock/28th Street and Santa Clara Stations and TOJD sites were analyzed. Because freeway segments are evaluated only by CMP standards, they are discussed under Impact BART Extension + TOJD TRA-2.

Intersections

Measured against City of San Jose, City of Santa Clara, and CMP impact criteria, there are four intersections that would exceed the appropriate City's impact criteria or the CMP impact criteria under 2035 Forecast Year BART Extension with TOJD conditions. The criteria under which each intersection was evaluated and found to have a *significant impact* are included in parentheses. The CMP intersections are denoted by an asterisk (*).

- De La Cruz Boulevard and Central Expressway* (Santa Clara and CMP).
- Coleman Avenue and Brokaw Road (Santa Clara).
- Lafayette Street and Lewis Street (Santa Clara).
- Coleman Avenue and I-880 Southbound Ramps* (less-than-significant impact under San Jose criteria, but significant impact under CMP criteria).

All of these intersections are in the vicinity of the Santa Clara Station and TOJD site in the City of Santa Clara.

For all other study intersections near stations, there would be no exceedance of the criteria for 2015 Existing BART Extension with TOJD condition and 2035 Forecast Year BART Extension with TOJD conditions.

Mitigation Measures TRA-A through TRA-~~D~~C would be implemented for the three Santa Clara intersections ~~identified above~~for which mitigation measures have been identified.

~~**Mitigation Measure TRA-A: Implement Intersection Improvements at De La Cruz Boulevard and Central Expressway**~~

~~The Santa Clara County Department of Roads and Airports plans to convert the existing eastbound HOV lane to a mixed-use lane at this intersection, as shown in Chapter 2, Section 2.2.1.2, *Roadway System*, which lists planned roadway improvements. This modification was included as a change to the roadway network under 2035 Forecast Year BART Extension with TOJD conditions, and cannot be proposed as a mitigation measure.~~

~~Other than the change to the eastbound HOV lane already included in the planned roadway improvements, n~~No feasible mitigation measures have been identified for the De La Cruz Boulevard and Central Expressway intersection. The Santa Clara County Department of Roads and Airports plans to convert the existing Central Expressway eastbound HOV lane to a mixed-use lane at this intersection. This modification was included as a change to the roadway network under both the 2025 Background Plus Project Conditions and 2035 Cumulative Plus Project Conditions. In addition, Caltrans and the City of San Jose are also planning improvements to the nearby U.S. 101 and De La Cruz Boulevard-Trimble Road interchange that are scheduled to be completed in 2022, assuming funding is available. Other improvements at this intersection would require right-of way from both the City of San Jose's San Jose Mineta International Airport and a private landowner. The City of Santa Clara's City Place EIR determined that a significant and unavoidable impact would occur at this intersection even with a mitigation measure that included a second southbound right-turn lane from Central Expressway to De La Cruz Boulevard and a third northbound left-turn lane from Trimble Road to Central Expressway. The City of Santa Clara is in the process of preparing a Multimodal Improvement Plan that will address this intersection. No other feasible mitigation measures have been identified for this intersection. Therefore, the impact at this intersection would be *significant and unavoidable* under CEQA under Santa Clara and CMP criteria.

State Congestion Management law requires a local jurisdiction to prepare a deficiency plan (now referred to as *Multimodal Improvement Plan* in the Santa Clara County CMP maintained by VTA) when roadway LOS standards are not maintained on the designated CMP system (California Government Code Section 65098.4). VTA maintains guidelines for the development of Multimodal Improvement Plans, which were developed in consultation with Member Agencies (i.e., the 15 cites of Santa Clara County and Santa Clara County) and last adopted by the VTA Board of Directors in September 2010. According to these guidelines, Multimodal Improvement Plans are prepared by Member Agencies in response to the transportation impacts of land use plans and development projects. The impact on this intersection would be a result of the TOJD component and not due to the BART Extension; however, VTA's guidelines do not address a situation where a land use project that is led by VTA contributes to an impact on a CMP facility. With this in mind, VTA commits to ~~work with the City of Santa Clara and Santa Clara County in the preparation~~ preparing ~~of~~ a Multimodal Improvement Plan for the identified impact on a CMP intersection and to coordinating with the City of Santa Clara and Santa Clara County in its preparation.

Typically, Multimodal Improvement Plans are prepared within 12 months of identification of a deficiency. In this case, this impact will not occur until the BART Extension has been completed and the land for TOJD has been made available and gone through necessary project-level environmental clearance and entitlements, and the TOJD has been constructed and occupied. The earliest this is likely to occur is 2028 or 2029. Therefore, VTA will prepare a Multimodal Improvement Plan in coordination with the City of Santa Clara and County of Santa Clara to be completed within 12 months of project-level entitlement of the TOJD component.

Mitigation Measure TRA-~~B~~A: Implement Intersection Improvements at Coleman Avenue and Brokaw Road

Change the signal control for Brokaw Road (the east and west legs of this intersection) from Protected Left-Turn phasing to Split Phase. Add a shared through/left-turn lane to the east and west approaches within the existing right-of-way. Change the existing shared through/right-turn lanes to right-turn only lanes on the east and west approaches, and change the eastbound right-turn coding from Include to Overlap, indicating that many eastbound right turns would be able to turn right on red.

Mitigation Measure TRA-~~B~~A is illustrated in Figure 3-10. With implementation of this mitigation measure, or a comparable mitigation measure as determined upon coordination with the City of Santa Clara, the intersection would operate at LOS D under 2035 Forecast Year BART Extension with TOJD mitigated conditions, and the impact at Coleman Avenue and Brokaw Road would be reduced to a *less-than-significant* level.

Mitigation Measure TRA-~~C~~B: Implement Intersection Improvements at Lafayette Street and Lewis Street

Shift the westbound approach lanes on Lewis Street to the south to allow for the current through/right-turn lane to operate as a separate right-turn lane and a separate through lane. A shift of approximately 2 feet would increase the current through/right-turn lane width to 20 feet, which would allow adequate room for right-turning vehicles to proceed past vehicles traveling straight through the intersection and make the right turn onto northbound Lafayette Street. The westbound approach and receiving lanes would be slightly offset as a result, which can be addressed with dashed pavement markings across the intersection.

With implementation of Mitigation Measure TRA-~~C~~B, even though the intersection would continue to operate at LOS E in the PM peak hour under 2035 Forecast Year BART Extension with TOJD mitigated conditions, the control delay would be reduced from 66.3 seconds under 2035 Forecast Year No Build conditions to 56.8 seconds under 2035 Forecast Year BART Extension with TOJD mitigated conditions. With implementation of this mitigation measure, or a comparable mitigation measure as determined upon coordination with the City of Santa Clara, delay would be less than the No Build Alternative.

Therefore, there would be a *less-than-significant impact* at this intersection. This mitigation measure is illustrated in Figure 3-11.

The BART Extension with TOJD Alternative would have a significant impact on the intersection of Coleman Avenue and I-880 Southbound ramps according to the CMP criteria (but not according to City of San Jose criteria). Mitigation Measure TRA-~~D~~C will be implemented for this significantly affected intersection.

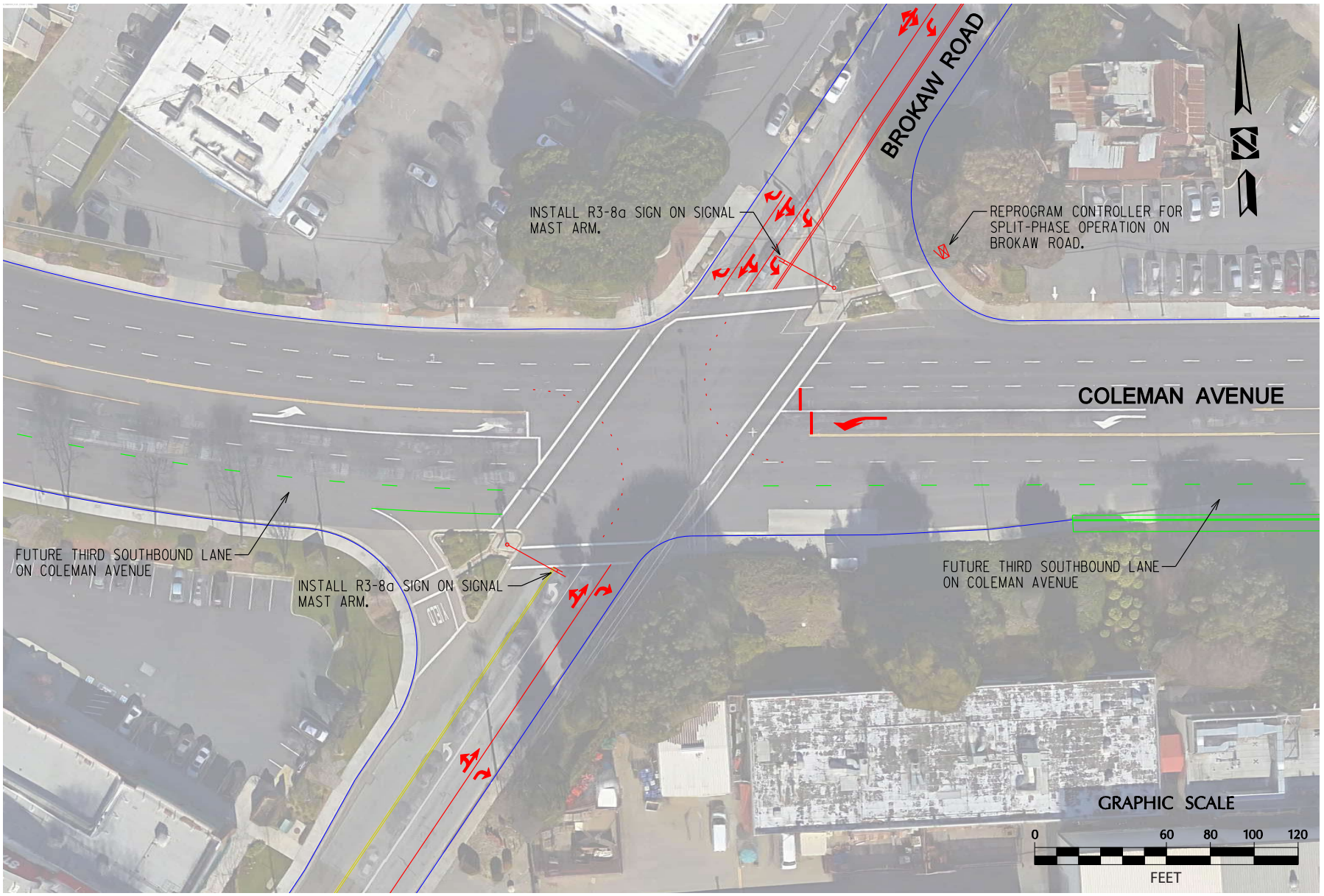
Mitigation Measure TRA-~~D~~C: Implement Intersection Improvements at the Intersection of Coleman Avenue and I-880 Southbound Ramps

Convert the second (center) left-turn lane on the I-880 off-ramp (the intersection's westbound approach) to a shared left/right-turn lane. Replace the lane control signs and the pavement markings on the off-ramp to reflect the new lane usage.

This mitigation measure is illustrated in Figure 3-12. With implementation of this mitigation measure, the intersection would operate at LOS E under 2035 Forecast Year BART Extension with TOJD mitigated conditions, and the average control delay in the AM peak hour would be reduced from 114.7 seconds under 2035 Forecast Year No Build conditions to 58.6 seconds under 2035 Forecast Year BART Extension with TOJD mitigated conditions. Thus, the impact would be reduced to a *less-than-significant* level under CMP criteria.

Although the BART Extension with TOJD Alternative would not have a significant impact on the intersection of Coleman Avenue and the I-880 Northbound Ramps under 2035 Forecast Year BART Extension with TOJD conditions, the BART Extension with TOJD TIA noted that it would be significantly impacted under 2025 conditions.[11] This SEIS/SEIR does not include 2025 conditions.

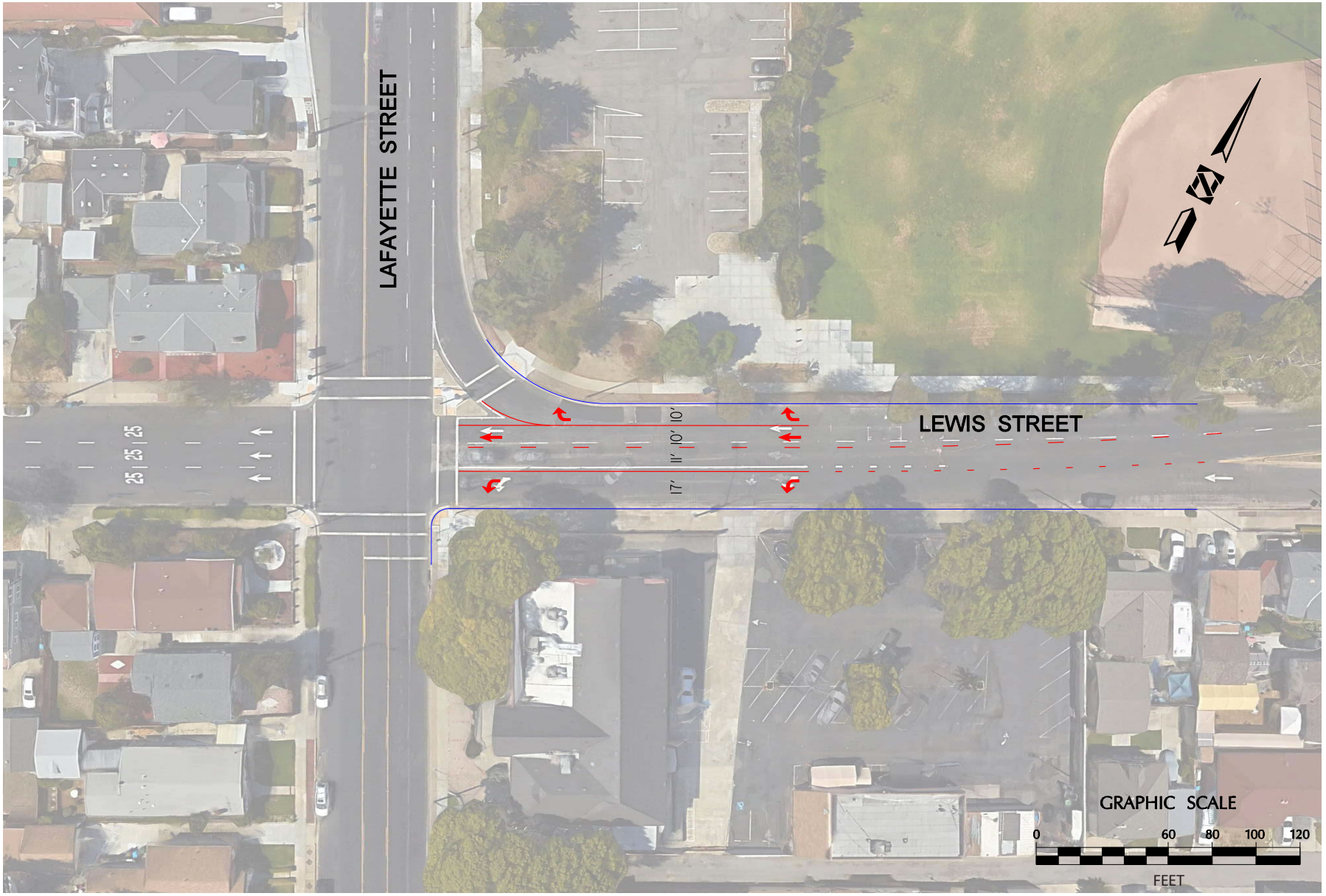
[11] The intersection would operate at LOS F under both 2035 Forecast Year No Build and 2035 Forecast Year BART Extension with TOJD conditions. The increase in average critical delay under 2035 conditions is projected to be 3.9 seconds, just under the significance threshold of 4 seconds. The increase in critical V/C under 2035 conditions is projected to be 0.009, just under the significance threshold of 0.01. Under 2025 conditions both of these values were slightly higher and went over the thresholds.



Source: Hexagon, 2016.

Graphics ... 00332.13 (6-22-2016)

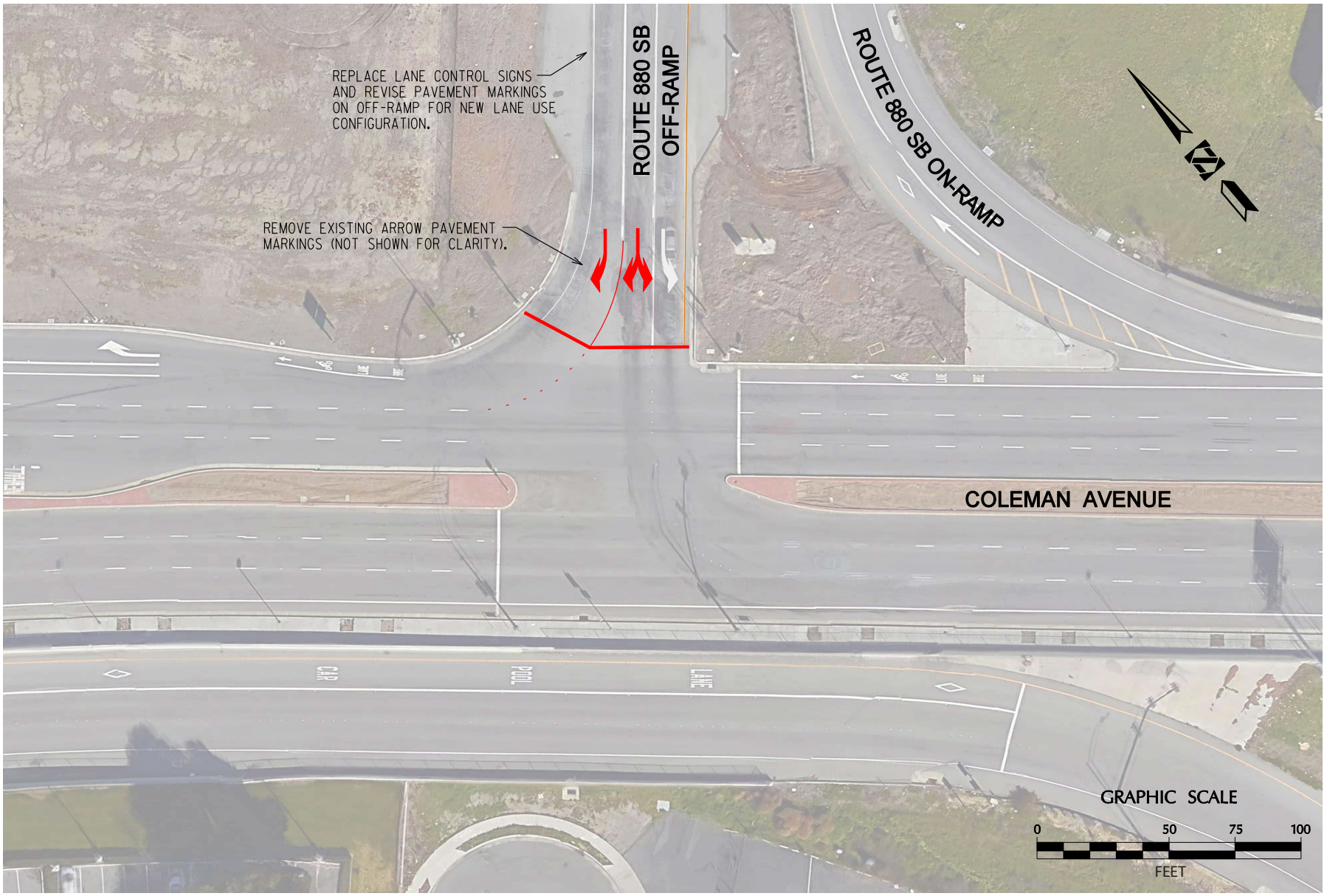
Figure 3-10
Proposed Mitigation for Coleman Avenue and Brokaw Road
VTA's BART Silicon Valley–Phase II Extension Project



Source: Hexagon, 2016.

Graphics ... 0033213 (6-22-2016)

Figure 3-11
Conceptual Striping Plan—Lafayette Street and Lewis Street
VTA's BART Silicon Valley–Phase II Extension Project



Source: Hexagon, 2016.

Graphics ... 0033213 (6-22-2016)

Figure 3-12
Proposed Mitigation for Coleman Avenue and I-880 Southbound Off-ramp
VTA's BART Silicon Valley–Phase II Extension Project

3.5.3.5 Impact BART Extension + TOJD TRA-2: Conflict with the Congestion Management Program

Intersections

As discussed above, there are three CMP intersections that would result in significant impacts under the BART Extension with TOJD Alternative:

- De La Cruz Boulevard and Central Expressway* (2035 Forecast Year conditions).
- Coleman Avenue and I-880 Southbound Ramps * (2035 Forecast Year conditions).
- Coleman Avenue and I-880 Northbound Ramps * (2025 conditions).

No feasible ~~M~~mitigation measures have been identified for the De La Cruz Boulevard and Central Expressway intersection. The mitigation measure for ~~and~~ the Coleman Avenue and I-880 Southbound Ramps intersection ~~are~~is presented above under Impact BART Extension + TOJD TRA-1. This SEIS/SEIR does not include 2025 conditions.

Freeway Segments

The BART Extension with TOJD Alternative would not cause significant increases in traffic volumes (1 percent or more of freeway capacity) on any of the study freeway segments currently operating at LOS F, and none of the study freeway segments currently operating at LOS E or better would worsen to LOS F as a result of the BART Extension with TOJD Alternative. In fact, many freeway segments would experience a decrease in volume, because the reduced number of trips on the freeway (due to the mode shift from passenger vehicles to BART) would more than offset the trips that would be generated by the TOJD portion of the BART Extension with TOJD Alternative. Therefore, based on CMP freeway impact criteria, none of the study freeway segments would be significantly affected by the 2035 Forecast Year BART Extension with TOJD Alternative. Impacts would be *less than significant*, and no mitigation is required.

3.5.3.6 Impact BART Extension + TOJD TRA-3: Cause Changes in Air Traffic Patterns

The BART Extension with TOJD Alternative would not change air traffic patterns, increase air traffic levels, or cause a change in location that result in substantial safety risks. The nearest airport is the Mineta San Jose International Airport, approximately 0.5 mile northeast of Santa Clara Station. The Diridon Station (which is within the City's DSAP) is approximately 0.8 mile to the southeast (City of San Jose 2014). The BART Extension with TOJD Alternative would be within the Airport Influence Area due to height restrictions established by Federal Aviation Regulations Part 77, *Objects Affecting Navigable Airspace*. The TOJD at the Diridon Station is within the approach zone of the Mineta San Jose International Airport and within the City's DSAP, and is therefore subject to restrictive height limits of ~~263 feet~~ 212 feet above mean sea level or approximately 115–120 feet above ground surface for any building in the Diridon Station area.

The TOJD in the area would consist of a maximum height of eight stories (or 120 feet) and would be well below height restrictions found in the Comprehensive Land Use Plan ~~(of 263 feet)~~ for this area. Similarly, to comply with Santa Clara County Airport Land Use Commission restrictions, no structures would exceed an elevation of 150 feet above the ground surface near the Santa Clara Station and Newhall Maintenance Facility. Therefore, impacts on air traffic patterns would be *less than significant* because the BART Extension with TOJD Alternative would not change air traffic patterns and the proposed structures would not interfere with air traffic. No mitigation is required.

3.5.3.7 Impact BART Extension + TOJD TRA-4: Increase Traffic Hazards

Impacts under the BART Extension with TOJD Alternative would be similar to those discussed under Impact BART Extension TRA-4. Impacts related to substantially increasing hazards due to a design feature or incompatible uses would be *less than significant,* and no mitigation is required.

3.5.3.8 Impact BART Extension + TOJD TRA-5: Result in Inadequate Emergency Access

Operations-related impacts under the BART Extension with TOJD Alternative would be similar to those discussed under Impact BART Extension TRA-5. Overall, impacts related to emergency access during operation would be *less than significant,* and no mitigation is required.

3.5.3.9 Impact BART Extension + TOJD TRA-6: Conflict with Transit, Bicycle, or Pedestrian Policies, Plans, or Programs

Transit Services

The BART Extension with TOJD Alternative consists of the 6-mile-long extension of the BART system from the Berryessa neighborhood in San Jose through downtown San Jose and west into Santa Clara and includes four new BART stations. Therefore, the BART Extension with TOJD Alternative is foremost a transit project and represents a substantial improvement to the transit system in the study areas. Additionally, the BART Extension is being integrated with VTA's light rail and bus systems and would not adversely affect transit facilities or services within the Cities of San Jose or Santa Clara in the vicinity of the BART Extension, BART stations, and TOJDs.

Alum Rock/28th Street Station

The City of San Jose's General Plan identifies the transit commute mode split target as "at least 20 percent" for the year 2040. The BART Extension with TOJD Alternative includes providing BART service to the neighborhood surrounding the Alum Rock/28th Street Station and constructing TOJD on top of or next to the Alum Rock/28th Street Station. Therefore, the BART Extension with TOJD Alternative would be expected to contribute to the attainment

of that mode split target. Impacts would be *less than significant*, and no mitigation is required.

Santa Clara Station

The City of Santa Clara's General Plan identifies a Santa Clara Station Focus Area, which is based on the Santa Clara Station Area Plan. The Santa Clara Station Area Plan has been cooperatively developed by the City Of Santa Clara, City of San Jose, and VTA and covers 432 acres of land surrounding the Santa Clara Transit Center and the Phase II BART station. The Santa Clara Station would be situated at the center of the Santa Clara Station Focus Area. Within the Santa Clara Station Focus Area, pedestrian and bicycle circulation have priority. High-density development, including a mix of office and residential uses, close to transit services is a goal for this planning area. Another goal of the Santa Clara Station Focus Area is to provide a link between the Santa Clara Caltrain Station and other transit options throughout the City of Santa Clara and beyond.

The City of Santa Clara General Plan aims to support a coordinated regional transit system that includes BART, Amtrak, ACE, Caltrain, VTA LRT and bus services, and High-Speed Rail facilities.

Based on the analysis above, the BART Extension with TOJD Alternative would be consistent with the goals and policies of the San Jose and Santa Clara General Plans. Impacts would be *less than significant*, and no mitigation is required.

Bicycle and Pedestrian Facilities

Pedestrian facilities consist mostly of sidewalks along the streets in the vicinity of the rail alignment and Alum Rock/28th Street and Santa Clara Station areas. Crosswalks with pedestrian signal heads are located at all of the signalized intersections in the study areas. The overall network of sidewalks and crosswalks within the vicinity of the alignment would provide good connectivity and provide pedestrians with safe routes between the Alum Rock/28th Street and Santa Clara Stations' TOJD sites and the surrounding land uses and transit services in the station areas.

Alum Rock/28th Street Station

The City of San Jose's General Plan identifies the bicycle commute mode split target as 15 percent or more for the year 2040. This level of bicycle mode share is a reasonable goal for the BART Extension with TOJD Alternative, particularly if BART and LRT services are utilized in combination with bicycle commuting. As part of the reconstruction of North 28th Street, the BART Extension with TOJD Alternative would accommodate the Five Wounds Trail between Santa Clara and Julian Streets.

The pedestrian facilities in the vicinity of the Alum Rock/28th Street Station are not an especially pedestrian-friendly environment at present. There are locations, such as the crosswalks near the U.S. 101 on- and off-ramps, where walking is not as comfortable as it

could be. The City of San Jose plans to improve the pedestrian environment in this area through its ongoing efforts to promote greater usage of alternative modes of travel.

With the BART Extension with TOJD Alternative, a pedestrian connection along the south side of the Alum Rock/28th Street Station area at North 28th Street from Santa Clara Street would be provided. This pedestrian connection, which would include amenities such as street trees, wide sidewalks, bicycle facilities, and pedestrian-scaled lighting, would link the BART station entrances with buses operating on Santa Clara Street/Alum Rock Avenue, enhancing connectivity of pedestrian facilities surrounding the station. Additionally, the BART Extension with TOJD Alternative would add sidewalks around the perimeter of the Alum Rock/28th Street Station and the west side of 28th Street from the station entrance to Santa Clara Street. Crosswalks at the signalized intersections of North 28th Street/East St. James Street and North 28th Street/Five Wounds Lane would also be provided, including pedestrian push buttons and signal heads.

In combination with planned pedestrian/bicycle improvements in the study area, the BART Extension with TOJD Alternative pedestrian/bicycle improvements would help enhance pedestrian/bicycle facilities in the area. Therefore, the BART Extension with TOJD Alternative would not have a negative effect on bicycle or pedestrian facilities in the vicinity of Alum Rock/28th Street Station, and no additional improvements are necessary.

There are four schools within an approximately 0.5-mile walk of Alum Rock/28th Street Station: (1) Cristo Rey San Jose Jesuit High School, on the south side of Five Wounds Lane adjacent to Five Wounds Portuguese National Church; (2) San Jose High School, to the west on Julian Street and accessible via St. James Street; (3) Rocketship Discovery Prep (Grades K–5) on Wooster Avenue north of Julian Street; and (4) Anne Darling Elementary School, just east of U.S. 101 on the corner of McKee Avenue and 33rd Street.

VTA would work closely with these schools to implement a Safe Routes to Schools Program. Safe Routes to Schools is designed to decrease traffic and pollution and increase the health of children and the community as a whole. The program promotes walking and biking to school through education and incentives. The program also addresses the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create safer streets. A comprehensive Safe Routes to Schools program would identify a focused area surrounding the schools, provide a map with the routes that children can take to school, and recommend improvements to routes if necessary.

Santa Clara Station

As discussed previously, there is less connectivity in the pedestrian facilities near the Santa Clara Station, due to the Caltrain tracks, the nearby Mineta San Jose International Airport, and the fact that some of the nearby streets serving industrial land uses do not include sidewalks.

A pedestrian tunnel would connect from the ~~mezzanine~~ concourse level of the proposed Santa Clara Station to the existing Santa Clara Caltrain Station center platform. This

pedestrian connection would link the station with other pedestrian and transit facilities to the west of the railroad tracks, enhancing connectivity of pedestrian facilities surrounding the station and transit services. Additionally, with the exception of the east side of Lafayette Street, sidewalks are found along most local roadways in the area and along the local residential streets and collectors near the Santa Clara Station site. All signalized intersections in the vicinity of the Santa Clara Station have marked crosswalks on all or most of the legs of the intersection combined with pedestrian push buttons and pedestrian signal heads. In combination with planned pedestrian/bicycle improvements in the area, the BART-sponsored pedestrian/bicycle improvements would help enhance pedestrian/bicycle facilities in the area. Therefore, the BART Extension with TOJD Alternatives would result in *less-than-significant* impacts on bicycle and pedestrian circulation, and no mitigation measures are required.

In combination with planned pedestrian/bicycle improvements in this study area, the BART Extension with TOJD Alternative would enhance pedestrian/bicycle facilities along Brokaw Road. Therefore, the BART Extension with TOJD Alternative would improve bicycle or pedestrian facilities in the vicinity of the Santa Clara Station.

Overall, the BART Extension with TOJD Alternative would not conflict with transit, bicycle, or pedestrian policies, plans, or programs, and impacts would be *less than significant*. No mitigation is required.

3.5.3.10 Impact BART Extension + TOJD TRA-7: Interfere with Activities at Event Centers

Operations-related impacts under the BART Extension with TOJD Alternative would be similar to those discussed under Impact BART Extension TRA-7. Overall, there would be *no adverse effects* related to event centers during operations under NEPA, and impacts related to event centers would be *less than significant* under CEQA, and no mitigation is required.

3.5.3.11 Impact BART Extension + TOJD TRA-8: Increase Demand for Parking

Revisions to the significance thresholds for CEQA that became effective on January 1, 2010, eliminated effects on parking. The revisions to the CEQA thresholds were based on the decision in *San Franciscans Upholding the Downtown Plan v. City & County of SF, 102 Cal.App.4th 65 (Sept. 30, 2002),* in which the court ruled that parking deficits are an inconvenience to drivers but not a significant physical impact on the environment. As a result of this change to the State CEQA Guidelines, VTA adopted new significance thresholds that did not include the effects of parking on November 4, 2010.

Parking conditions evolve over time as people alter their modes and patterns of travel in response to changing land uses and transportation options. The availability of parking spaces is not part of the permanent physical environment subject to environmental review. Therefore, the loss of parking spaces by itself or the generation of parking demand by itself are not considered a direct significant impact on the physical environment in this document.

However, parking losses caused by a project or parking demand generated by a project in excess of the parking provided could result in a significant indirect impact on the environment if drivers circling for parking cause significant secondary effects on traffic operations or air quality. The other criteria in this Draft SEIS/SEIR for evaluation of traffic operations and air quality are used as the thresholds for evaluating these secondary effects. The following discussion of parking is for information purposes for CEQA and impact analysis purposes for NEPA and as background to the evaluation of any secondary effects on traffic operations and air quality.

The amount of BART parking demand and supply associated with the BART Extension was addressed in Section 3.5.2.12, *Impact BART Extension TRA-8,* and would be similar to the BART Extension with TOJD Alternative. The amount of parking demand and supply associated with the TOJD land uses at the Alum Rock/28th Street Station and the Santa Clara Station are addressed below and shown in Table 3-40. The discussion below regarding parking at both stations is illustrative only, and a final determination regarding the amount of required parking will be made in conjunction with each specific TOJD proposal when detailed plans are submitted to the city in which the TOJD is located.

Alum Rock/28th Street Station

As noted in Chapter 2, *Alternatives*, a total of 2,150 parking spaces would be provided at the Alum Rock/28th Street Station: 1,650 spaces for the office use, 100 spaces for the retail use, and 400 spaces for the residential use. TOJD at the Alum Rock/28th Street Station would be subject to the parking requirements of the City of San Jose, as follows.

- Office: 4 spaces per 1,000 square feet.
- Retail: 5 spaces per 1,000 square feet.
- ~~Apartments~~Residential: 1.25 spaces per studio or 1-bedroom unit and 1.7 spaces per 2-bedroom unit.

Because the number of studio, 1-bedroom, and 2-bedroom apartments among the maximum of 275 units proposed for this station is still a preliminary estimate, the actual number of spaces required may change if the mix of different types of units is different from the estimate used in Table 3-40. This analysis, which is illustrative only, assumes that half of the units will be studio or 1-bedroom units and half will be 2-bedroom units.

For mixed-use projects in the City of San Jose, the Planning Director may reduce the required parking spaces by up to 50 percent, including any other allowed exceptions or reductions, so long as: (1) the reduction in parking will not adversely affect surrounding projects, (2) the reduction in parking will not rely upon or reduce the public parking supply, and (3) the project provides a detailed Transportation Demand Management (TDM) program and demonstrates that the TDM program can be maintained indefinitely. The TOJD at the Alum Rock/28th Street Station would meet all three of these requirements, and so would be eligible to request a reduction from the standard parking requirements.

It is common for mixed-use projects to request a reduction in parking requirements based on an analysis of how many parking spaces could be shared among the different land uses. The shared parking analysis for the TOJD is based on the Urban Land Institute's publication *Shared Parking*, 2nd Edition (Smith 2005), which provides parking occupancy rates for many land uses according to the time of day. These parking occupancy rates can be applied to the parking demand for each proposed land use. Comparing the parking requirement for each land use separately with the cumulative parking demand for all land uses combined shows whether parking demand can be reduced with a shared parking plan. For example, because office space has peak parking demand during the day and residential uses have peak parking demand at night, office and residential uses have complementary parking needs and are frequently good candidates for shared parking. The analysis for the Alum Rock/28th Street Station indicates that a reduction of 51 spaces would be justified due to shared parking among uses.

Table 3-40: TOJD Parking

TOJD Site	Size	Required Parking Rate[a]	Required Parking Spaces	Parking Spaces Proposed
Alum Rock 28th Street Station[b]				
Office	500,000 s.f.	4.0	2,000	1,650
Retail	20,000 s.f.	5.0	100	100
Residential	138 Studio/1-BR	1.25	173	
	137 2-BR	1.7	233	
Total Residential	275		406	400
Total TOJD			**2,506**	
Reduction due to Shared Parking[c]			-51	
Reduction due to 16% transit mode share for office[d]			-320	
Total after Reductions			**2,135**	**2,150**
Santa Clara Station				
Office	500,000 s.f.	3.33	1,665	1,650
Retail	30,000 s.f.	5.0	150	150
Residential	10 Studio	1	10	
	100 1-BR	1.5	150	
	110 2-BR	2	220	
Total Residential	220		380	400
Total TOJD			**2,195**	**2,200**

s.f. = square feet; BR =bedroom

[a] Parking rates for Alum Rock/28th Street Station are based on City of San Jose Zoning Code, Chapter 20.90, Parking and Loading. Parking Rates for Santa Clara Station are based on City of Santa Clara Zoning Code, Chapters 28.22 and 18.74. Parking rates are given per 1,000 s.f. for office and retail uses, and per unit for apartments.

[b] For mixed-use projects in the City of San Jose, the Planning Director may reduce the required parking spaces by up to 50%, including any other allowed exceptions or reductions, so long as: (1) the reduction in parking will not adversely

TOJD Site	Size	Required Parking Rate[a]	Required Parking Spaces	Parking Spaces Proposed
affect surrounding projects; (2) the reduction in parking will not rely upon or reduce the public parking supply; and (3) the project provides a detailed TDM program and demonstrates that the TDM program can be maintained indefinitely. [c] Reduction for shared parking in a mixed-use project based on Urban Land Institute's *Shared Parking* (Smith 2005). [d] A 16% transit mode share was projected for the office use at Alum Rock/28th Street Station by the model. Applying a 16% reduction to San Jose's parking rate would result in a rate of 3.36 spaces per 1,000 s.f. instead of 4 spaces per 1,000 s.f.				

The travel demand forecasting model used for the traffic analysis of the 2035 Forecast Year BART Extension with TOJD Alternative projected a 16 percent transit mode share for the office use at the Alum Rock/28th Street Station. A 16 percent transit mode share indicates that at least 16 percent of the workers in the TOJD offices would not need to park their car there. Because the BART Extension with TOJD Alternative would include a TDM program that encourages bicycling, walking, and ridesharing in addition to transit use, the number of employees who do not need a parking space is likely to be much higher than 16 percent. Given that the TOJD would literally be on top of a BART station and would likely need fewer parking spaces than office developments in other parts of San Jose, a 16 percent reduction in San Jose's parking requirement for office uses would be a very conservative reduction for this location. Reducing San Jose's parking requirement by 16 percent results in a rate of 3.36 spaces per 1,000 square feet and a reduction of 320 parking spaces.

The TOJD would prepare a TDM program for all land uses and would implement unbundled parking for the apartments, which would likely reduce parking demand even further. However, based only on the reductions for shared parking and for the transit mode share for the office use, a total of 2,135 spaces would be required. The 2,150 parking spaces proposed would meet the requirements of the City of San Jose and would meet the parking demand generated by the TOJD. Therefore, there is not projected to be a significant indirect impact on the environment caused by drivers circling for parking, resulting in significant secondary effects on traffic operations or air quality. Thus, there would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA, and no mitigation is required.

Santa Clara Station

A total of 2,200 parking spaces would be provided for the TOJD at the Santa Clara Station: 1,650 spaces for the office use, 150 spaces for the retail use, and 400 spaces for the residential use. TOJD at the Santa Clara Station would be subject to the parking requirements of the City of Santa Clara, as follows.

- Office: 3.33 spaces per 1,000 square feet.
- Retail: 5 spaces per 1,000 square feet.
- ~~Apartments~~Residential: 1 space per studio unit, 1.5 spaces per 1-bedroom unit, and 2 spaces per 2-bedroom unit.

Based on these rates, the BART Extension with TOJD Alternative would be required to provide a total of 2,195 parking spaces for all the TOJD land uses. Because the number of studio, 1-bedroom, and 2-bedroom apartments among the maximum of 220 units proposed for this station is still a preliminary estimate, the actual number of spaces required may change if the mix of different types of units is different from the estimate used in Table 3-40. In order to make this analysis of parking requirements conservative, this estimate, which is illustrative only, assumes that there will be 10 studio units, 100 1-bedroom units, and 110 2-bedroom units.

The TOJD at the Santa Clara station would also implement a TDM program for all land uses and would implement unbundled parking for the apartments. Also, the Santa Clara Station TOJD could utilize a shared parking approach, as at the Alum Rock/28th Street Station, and the transit share for the TOJD office use projected by the model for the Santa Clara Station is 24 percent, even higher than at the Alum Rock/28th Street Station.

However, even without any reductions, the 2,200 spaces provided would meet the Santa Clara parking requirement and would meet the parking demand generated by the TOJD. Therefore, there is not projected to be a significant indirect impact on the environment caused by drivers circling for parking, resulting in significant secondary effects on traffic operations or air quality. Thus, there would be *no adverse effects* under NEPA, and impacts would be *less than significant* under CEQA, and no mitigation is required.