

# **VTA's BART SILICON VALLEY— PHASE II EXTENSION PROJECT SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TECHNICAL MEMORANDUM**

## **PREPARED FOR:**

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November 2017

Circlepoint. 2017. VTA's BART Silicon Valley—Phase II Extension Project Socioeconomics and Environmental Justice Memorandum. November. San Jose, CA. Prepared for the Santa Clara Valley Transportation Authority, San Jose, CA, and the Federal Transit Administration, Washington, D.C.

## E.1 Introduction

This Errata reflects the modifications to the *Socioeconomics and Environmental Justice Technical Memorandum* that may have resulted from comments received during the public review of the Supplemental Environmental Impact Statement (SEIS) and Subsequent Environmental Impact Report (SEIR) for the BART Silicon Valley Phase II Extension (Phase II) Project or that were required for purposes of clarifications. Changes to the *Socioeconomics and Environmental Justice Technical Memorandum* are shown in ~~strikeout~~ text for deletions and in underline text for additions.

These modifications do not alter the conclusions of the environmental analysis such that new significant environmental impacts have been identified, nor do they constitute significant new information. The modifications are provided by chapter and indicated with the page number from the *Socioeconomics and Environmental Justice Technical Memorandum* that they would replace. This Errata is intended to be used in conjunction with the *Socioeconomics and Environmental Justice Technical Memorandum*.

## E.2 Chapter/Section Changes

### E.2.1 Global Changes to the Memorandum

Two station names from the Phase I Extension have been renamed: Berryessa Station (or Berryessa BART Station) is now Berryessa/North San Jose Station. Milpitas BART Station is officially the Milpitas Station.

### E.2.2 Changes to Chapter 1, *Project Description*

The revised Chapter 1, *Project Description*, is provided at the end of this Errata.

### E.2.3 Changes to Chapter 3, *Regulatory and Environmental Setting*

#### Page 3-3, Section 3.1.2.1

The following policies and goals from the *City of San Jose 2040 General Plan* were added to Table 2. The table header in Table 2 is also updated to indicate that *City of San Jose 2040 General Plan* goals are also listed in the table.

**Table 2 San Jose General Plan Policies**

Number	Policy/Goal
H-2	<u>Preserve and improve San José’s existing affordable housing stock and increase its supply such that 15% or more of the new housing stock developed is affordable to low, very low and extremely low income households. Nothing in this language is intended, directly or indirectly, to impose any requirement on any individual housing project to include an amount or percentage of affordable units. Nothing in this language is intended to, directly or indirectly, result in a finding or determination that an individual housing project is inconsistent with the General Plan, if it does not contain any affordable housing units.</u>
H-2.2	<u>Integrate affordable housing in identified growth locations and where other housing opportunities may exist, consistent with the Envision General Plan</u>
IP-5.1	<u>7. Affordable Housing: Establish an Urban Village wide goal that, with full build out of the planned housing capacity of the given Village, 25% or more of the units built would be deed restricted affordable housing, with 15% of the units targeting households with income below 30% of Area Median Income. This is a goal, not a requirement to be imposed on individual projects.</u>

## E.2.4 Changes to Chapter 4, *Impact Analysis*

### Page 4-3, Section 4.1.1.1

The reference to Mitigation Measure TRA-CNST-D has been corrected as a result of modification to the measures.

Although construction activities would cause disruptions for both tunnel options, VTA will ensure traffic, bicycle, and pedestrian traffic would be maintained to the extent feasible or re-routed.... VTA will also implement Mitigation Measure TRA-CNST-DE and work with the City of San Jose to develop parking management strategies to encourage multi-modal access to the Downtown San Jose area.

### Page 4-5, Section 4.1.1.2

The following discussion has been added due to preconstruction and cut-and-cover construction activities required for the East Tunnel Portal.

#### **Connection to Phase I/East Tunnel Portal**

Construction of the East Tunnel Portal would require preconstruction and cut-and-cover construction activities within the ROW of North Marburg Way between Las Plumas Avenue and Lower Silver Creek. This would result in the closure of North Marburg Way south of Las Plumas Avenue during preconstruction and cut-and-cover construction activities for up to 2.5 years. There are two businesses located adjacent to Lower Silver Creek and east of North Marburg Way, whose primary access is this portion of North Marburg Way, which would be temporarily closed. In order to avoid long-term access restrictions to these two businesses, VTA would negotiate with these properties to provide access via Nipper Avenue while North Marburg Way is closed during

construction. This would avoid the displacement of these businesses. In addition, the Santa Clara Valley Water District (SCVWD) has access to Lower Silver Creek via North Marburg Way. VTA would acquire a temporary access easement for SCVWD from their existing gate to Lower Silver Creek via Nipper Avenue while North Marburg Way is closed during construction. Permanent access to these three properties would be restored from North Marburg Way once construction within this roadway is complete. Acquisitions of easements would be conducted in conformance with all applicable laws and regulations.

## **Page 4-5, Section 4.1.12**

The name of the Five Wounds Portuguese National Church has been corrected.

### **Alum Rock/28<sup>th</sup> Street Station**

The BART Extension would not displace the Five Wounds ~~National~~ Portuguese National Church and associated facilities or the Cristo Rey San Jose Jesuit High School.

## **Page 4-6, Section 4.1.1.2**

The displacements and acquisitions analysis for the San Jose Downtown Station West Option has been modified to differentiate displacements between the Twin-Bore and Single-Bore Options.

### ***Downtown San Jose Station West Option***

Construction of the Downtown San Jose Station West Option ~~would displace six~~ up to eleven businesses. Under the Single-Bore Option, the eleven displaced ~~These~~ businesses include ~~two bars~~ one nightclub, one bakery, one check-cashing store, ~~two~~ one restaurants, four retail, and one gas station, and one bank. ~~Six~~ Under the Twin-Bore Option, seven displaced ~~businesses would be displaced under the Twin-Bore Option; four businesses would be displaced under the Single-Bore Option~~ include one bakery, one check-cashing store, one retail, two restaurants, one gas station, and one bank. The establishments may be an employment source for the local and regional community; thus relocation would have a temporary effect on employees during the transition....

## **Page 4-8, Section 4.1.1.2**

The displacements and acquisitions analysis for the Santa Clara Station has been modified to provide clarification of the potential effects on the Apple Inc. research and development facility.

### ***Santa Clara Station***

Construction of Santa Clara Station would cause the displacement of a currently occupied business site. Apple Inc. operates a research and development facility on site, which represents an employment source for the local and regional community. Thus, relocation

would have a temporary effect on employees during the transition. VTA would work with the tenant to relocate businesses with no anticipated long-term impacts on employees or owners. No residences would be affected.

**Page 4-8, Section 4.1.1.2**

Table 17 has been updated to differentiate displacements between the Twin-Bore and Single-Bore Options at the San Jose Downtown Station West Option.

**Table 17 BART Extension – Summary of Displacements**

Location	Residences	Businesses	RV Storage Spaces	Advertising Signs	Cell Tower
CSAs near East Tunnel Portal	0	7	250	2	0
Alum Rock/28 <sup>th</sup> Street Station	0	4	0	2	0
13 <sup>th</sup> Street Ventilation Structure	0	1	0	2	0
Downtown San Jose Station	-	-	-	-	-
East Option	0	10	0	0	0
West Option (Twin-Bore Only)	0	<del>6</del> 7	0	0	0
West Option (Single-Bore Only)	0	11	0	0	0
Diridon Station	-	-	-	-	-
South Option	1	3	0	0	0
North Option	1	3	0	0	0
Stockton Ave Ventilation Structure <sup>a</sup>	0	1-8	0	0	0
Santa Clara Maintenance Facility	0	0	0	0	1
Santa Clara Station	0	1	0	0	0
<b>Range of Total Displacements</b>	<b>1</b>	<b>23-34</b>	<b>250</b>	<b>6</b>	<b>1</b>
<sup>a</sup> The Stockton Avenue ventilation structure includes displacements presented as a range because three properties are being considered for the four optional locations. The final decision will depend on the environmental analysis conclusions and property negotiations and will be made during Final Design.					

**Page 4-13, Section 4.2.1.2**

The discussion of disproportionate air quality effects on environmental justice populations has been modified to clarify the usage of slurry tunnel boring machines (TBM).

**Air Quality**

Construction associated with the BART Extension would generate criteria pollutant emissions from the following construction activities: (1) utility relocation for underground and overhead utilities along the corridor; (2) site preparation/excavation related to the three underground stations, specifically Alum Rock/28<sup>th</sup> Street, Downtown San Jose (East and West Options), and Diridon (South and North Options); (3) cut-and-

cover operations and excavation of tunnels by use of one or more slurry TBMs; (4) demolition of existing structures, buildings, pavement, and other site features; (5) construction of ventilation facilities, system facilities, station box, track work including crossovers, station campuses, and the Newhall Maintenance Facility; (6) construction workers traveling to and from construction sites; and (7) delivery of construction supplies to construction sites and hauling of debris from construction sites. These construction activities would create emissions of dust (particulate matter), fumes, equipment exhaust, and other air contaminant effects.

## **Pages 4-19 and 4-20, Section 4.2.2.2**

The discussion of disproportionate noise and vibration effects on environmental justice populations has been modified to provide distances between potential sensitive receivers and the BART Extension.

### **Noise and Vibration**

The BART Extension has the potential to cause adverse effects resulting from operational airborne noise and operational groundborne noise as discussed below. No potential adverse effects are anticipated from operational vibration.

Airborne noise impacts from train operations can occur where trains are running on track aboveground, at ventilation facilities where train noise is transmitted to the surface from the tunnel below, and from storage yard tracks and maintenance facility activities. Aboveground BART operations on at-grade track north of I-880 would result in a Moderate Noise Impact at one ground-floor receiver located 290 feet away from the BART alignment, and two second-story receivers near the Santa Clara Station located 223 feet and 235 feet away from the BART alignment. However, the increases are 2 dBA or less, which is not a readily perceived amount. Therefore, no mitigation is proposed.

Operation of emergency ventilation fans, piston relief shafts, traction power substations, and emergency backup generators could result in exceedances of Cities of San Jose and Santa Clara noise criteria at nearby residences located within 200 to 630 feet of these facilities, which would be considered an adverse effect due to airborne noise. However, with implementation of Mitigation Measure NV-A this impact would have no adverse effect.

## **E.2.5 Changes to Chapter 6, *Design Commitments and Mitigation Measures***

### **Pages 6-1 through 6-13, Section 6-1**

The following mitigation measures have been modified.

## **Mitigation Measure TRA-CNST-A: Develop and Implement a Construction Education and Outreach Plan**

VTA will develop a Construction Education and Outreach Plan (CEOP) will be developed by VTA in coordination with the Cities of San Jose and Santa Clara to foster communication between VTA, various municipalities, and the public during the construction phase. VTA will develop the CEOP plan will be implemented after the environmental process is complete and implement it prior to construction. to coordinate construction activities with existing business operations and other development projects and to establish a process that will adequately address the concerns of businesses and their customers, property owners, residents, and commuters. Critical components of this plan will include but are not limited to the following public outreach strategies using a variety of media opportunities. The CEOP will ensure that VTA coordinates construction activities with existing business operations and other development projects to minimize disruption and delays. The CEOP will also establish a process that will address the concerns of businesses and their customers, property owners, residents, and commuters. The CEOP will be incorporated into the plans and specifications of all contracts through which the BART Extension will be implemented.

Critical components of the CEOP will include, but are not limited to, the following requirements.

- Establish field office(s) accessible to the public with dedicated community outreach staff and defined hours.
- Provide and maintain a 24-hour/7-day a week project hotline for emergencies.
- Conduct preconstruction operational surveys of businesses located adjacent to construction areas to ascertain hours of operation, access, deliveries, customer base, special circumstances, and key contacts.
- Coordinate with cities to obtain information about upcoming adjacent construction projects to minimize disruptions and delays.
- Inform and engage partner agencies, stakeholders, including VTA's BART Silicon Valley Phase II Community Working Groups, business organizations, business owners, tenants, the media, and the public on a regular and frequent basis.
- Conduct public workshops, meetings, or webinars for community members. Hold regular meetings with the surrounding businesses and residents throughout the course of construction.
- Distribute and post project information and advanced construction notification via the project website, social and traditional media, signage, face-to-face visits, flyers, mailers, emails, and other communication methods as appropriate.
- Develop a project signage program identifying project corridor, station areas, construction timeline, and funding.



- Display maps and construction schedule information in project field office(s) and around the construction area.
- Increase visibility of alternative parking and access via signage, website postings, and other communication methods.
- Maintain media relations (i.e., news releases, news articles, and interviews).
- Designate community outreach personnel available on site for the duration of the construction project.
- Work with property owners and business owners in the station areas to promote access to businesses during construction, including enhanced signage.
- Provide marketing assistance, technical business support, and cross-promotional efforts to businesses within the area impacted by construction to encourage customers to shop at businesses during construction.
- Establish outreach to stakeholders to provide advanced notice of scheduled utility outages.
- ~~Frequently update stakeholder groups, business organizations, and municipalities.~~
- ~~Conduct public workshops and meetings with community members.~~
- ~~Distribute project information and advanced construction notification via flyers, emails, mailers, and face to face visits.~~
- ~~Continuously share project information and contacts via posts to the website.~~
- ~~Maintain media relations (i.e., news releases, news articles, and interviews).~~
- ~~Maintain onsite outreach coordinator/personnel and 24-hour hotline.~~
- ~~Work with property owners and business owners in the station areas to maintain access to businesses during construction including enhanced signage.~~
- ~~Develop and distribute promotional and marketing materials to encourage customers to shop at businesses during construction.~~

Throughout development and implementation, the education and outreach activities will be comprehensive, seeking widespread involvement; proactive, with efforts geared toward obtaining input, as well as disseminating information; responsive to various needs, including multiple languages and alternative formats; and timely, accurate, and results-oriented.

### **Mitigation Measure TRA-CNST-B: Develop and Implement a Construction Transportation Management Plan**

After the environmental process is complete and prior to beginning any construction activity, VTA will work with the Cities of San Jose and Santa Clara to develop Master Cooperative Agreements that will direct all coordination and partnering efforts between

VTA and the cities prior to and during construction of the BART Extension. One element of the Master Cooperative Agreements with the cities will be the COMP. One of the three parts of the COMP is CTMP.

VTA and its General Engineering Contractor will develop and implement the CTMP in partnership with the Cities of San Jose and Santa Clara to coordinate location-specific circulation and access within and around the construction areas for all modes, including automobiles, trucks and construction vehicles, bicyclists, pedestrians, and public transportation such as buses and light rail. The CTMP will be organized according to each of the ten major project elements listed from east to west along the alignment: East Tunnel Portal, Alum Rock/28th Street Station, 13th Street Ventilation Structure, Downtown San Jose Station, Diridon Station, Stockton Avenue Ventilation Structure, West Tunnel Portal, Newhall Maintenance Facility, Santa Clara Station, and any offsite improvement locations. The CTMP will be tailored to address the site-specific circumstances and sequencing of construction at each of the ten areas. The CTMP will be developed in partnership with the applicable city and incorporated into all plans and specifications of all contracts through which the BART Extension will be implemented.

Critical components of the CTMP are as follows.

- Sequencing schedule depicting the proposed location and timing of construction activities on a routine basis for the duration of the project.
- Proposed phasing of construction, anticipated lane and street closures, detours, temporary signals, and street reconfigurations, including durations of all of the above and signage requirements that the contractor must follow.
- Truck haul routes.
- Location-specific requirements as applicable.
- In addition, VTA will work with the cities to minimize access and circulation construction impacts during special events, including Christmas in the Park, parades, and marathons.

After the TCMP has been approved, individual Traffic Control Plans (TCPs) will be developed for specific design elements at each of the ten major project elements and throughout the 8-year duration of construction. The TCPs will address all modes including automobiles, trucks, and construction vehicles, bicyclists, pedestrians, and public transportation such as buses and light rail. The TCPs will be prepared by the contractor and approved by VTA and the applicable city prior to construction of the specific design element. The TCPs will include site-specific requirements such as the following.

- Alternative access routes where practicable and wayfinding signage for all detours affecting roadway users, including vehicular traffic, trucks and construction vehicles, bicyclists, and pedestrians.

- Early signage of potential construction delays for all roadway users to choose alternate routes.
- Minimum requirements for pedestrians and bicyclists to provide safe travel corridors within and through construction areas or provide detour routes.
- Coordination between VTA and transit providers as necessary prior to construction to ensure that any necessary re-routing of bus routes and temporary relocation of bus stops during construction is done to minimize impacts on bus riders.
- Early signage of potential transit delays for transit riders to plan trips accordingly.
- If the Downtown San Jose Station West Option and the Twin-Bore Option are selected, VTA will design the construction sequencing to minimize disruptions to light rail service and inconvenience to riders. If necessary, bus bridge service will be provided during the temporary closure of light rail service, which will be synchronized with light rail schedules to ensure that there will be minimal delay for transit riders to the extent feasible.
- Notification of the Cities of San Jose and Santa Clara, business owners, residents, and key stakeholders regarding lane and road closures that would affect parking, including both off-street and on-street parking.
- Maps of all publicly available off-street and on-street parking that will be removed during construction.
- Schedule of removal of each parking area.
- Requirement that construction workers must park in construction staging areas or other designated areas.
- In addition, in coordination with city partners, VTA will work with its contractors and the cities to restore parking as construction nears completion to the extent feasible.

~~A Transportation Management Plan will be developed by VTA to coordinate vehicle, bike, pedestrian, and public transportation circulation during construction. Critical components of the plan are as follows:~~

- ~~VTA will coordinate with transit providers as necessary to ensure that appropriate measures are taken to re-route bus routes and to relocate bus stops during construction.~~
- ~~Bus bridge service will be provided during the temporary closure of light rail service (Downtown San Jose Station West Option only).~~
- ~~Pedestrians and bicyclists will be provided with safe travel corridors within and through construction areas, or detour routes will be set up with wayfinding signage.~~

- ~~For vehicular traffic, as part of the CEOP, VTA will inform the Cities of San Jose and Santa Clara staff, media, and public about upcoming construction activities, schedules, roadway closures, and detours within the station areas and system facility locations. In addition, VTA will work with the cities to modify green times at key intersections during construction; set up event timers at key intersections for time of day when closures are planned; modify timing to allow longer gap and maximum times for detour movements at key intersections; provide flag control or temporary signalization at un-signalized intersections; and provide early signage of potential construction delays for motorists to choose alternate routes.~~
- ~~VTA will work with agency staff and the SAP Center to develop an access and circulation plan during construction to minimize impacts on pedestrians and bicyclists traveling through Diridon Station and/or accessing SAP Center (Diridon Station only).~~
- ~~VTA will work with the California Department of Transportation (Caltrans), the Cities of San Jose and Santa Clara, the Downtown Business Association, business owners, and key stakeholders to develop this Transportation Management Plan to minimize adverse effects from construction. As part of the plan, traffic and pedestrian detours, alternate access, signage, and public outreach will be implemented along with special scheduling to offset the adverse effects of street or lane closure.~~

### **Mitigation Measure TRA-CNST-C: ~~Develop and Implement a Parking Management Plan~~**

~~A Parking Management Plan will be developed by VTA to coordinate parking during construction. Critical components of the plan are as follows.~~

- ~~VTA will inform the Cities of San Jose and Santa Clara, the Downtown San Jose Business Association, business owners, residents, and key stakeholders (such as the SAP Center) regarding lane and road closures that would affect parking. VTA will work with the cities to minimize disruptions to parking.~~
- ~~Construction staging areas will be available for public parking if not required for construction activities.~~

### **Mitigation Measure TRA-CNST-CD: Prepare and Implement an Emergency Services Coordination Plan~~Coordinate with Fire and Police Services during Construction~~**

After the environmental process is complete and prior to beginning any construction activity, VTA will work with the Cities of San Jose and Santa Clara to develop Master Cooperative Agreements that will direct all coordination and partnering efforts between VTA and the cities prior to and during construction of the BART Extension. One element of the Master Cooperative Agreements with the cities will be the COMP. One of the three parts of the COMP is the ESCP.

As local emergency service routes and response times could be affected by construction activities, VTA will coordinate with local fire and police services to develop the ESCP to minimize this impact. The ESCP will be incorporated into the plans and specifications of all contracts through which the BART Extension will be implemented.~~minimize this impact.~~ Critical components of coordination are as follows.

- VTA will inform that the local fire and police departments of the construction schedule, and potential lane and road closures.
- VTA will work with emergency providers to ensure emergency access to residents and businesses and to maintain the cities' emergency service response times.
- VTA will work with the local fire and police departments on the detour routes.
- VTA will provide road signage for detours and provide manual traffic control on detour routes as necessary.

### **Mitigation Measure AQ-CNST-A: Implement Dust Control Measures**

VTA will require construction contractors to implement basic construction mitigation measures and additional construction mitigation measures recommended by BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include the following applicable measures or similar performing measures (additional measures may be identified by BAAQMD or the contractor, as appropriate).

- The contractor will water ~~a~~All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, unpaved access roads) ~~shall be watered~~ two times per day or as needed to control dust. In times of drought, an effective combination of dust controls may be used in lieu of watering, such as soil binders/stabilizers, or watering may be used to form a crust on undisturbed areas.
- The contractor will water ~~a~~All exposed surfaces ~~shall be watered~~ at a frequency that will maintain a minimum soil moisture content of 12 percent. Moisture content can be verified by lab samples or a moisture probe, although such verification is typically visual. No visible dust emissions are permitted to leave the construction area.
- The contractor will ~~All haul trucks that transport soil, sand, or other loose material offsite shall be covered or moistened~~ all haul trucks that transport soil, sand, or other loose material offsite such that there are no dust emissions.
- The contractor will remove ~~a~~All visible mud or dirt track-out onto adjacent public roads ~~shall be removed~~ using wet power vacuum street sweepers at least once per day, or more frequently if needed to control track-out during active soil hauling operations. The use of dry power sweeping is prohibited.
- The contractor will limit ~~a~~All vehicle speeds on unpaved roads ~~shall be limited~~ to 15 mph.

- The contractor will complete all paving operations on roadways, driveways, and sidewalks as soon as possible. The contractor will also lay building pads as soon as possible after grading, unless seeding or a soil binder is used.
- The contractor will post a publicly visible sign that includes the telephone number and name of the person to contact at VTA regarding dust complaints. This person will respond and take corrective action within 48 hours. The BAAQMD phone number will also be visible to ensure compliance with applicable regulations.
- The contractor will suspend all excavation, grading, and/or demolition activities when average wind speeds exceed 20 mph.
- The contractor will install windbreaks (e.g., fences with screening) on the windward side(s) of disturbed construction areas where feasible. Windbreaks should have 50 percent (maximum) air porosity.
- The contractor will plant vegetative ground cover (e.g., fast-germinating native grass seed) in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The contractor will limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities in the same area. The contractor will phase activities to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including their tires, will use designated construction entrances/exits that have been constructed with rock, rumble strips, or other features to remove dirt from tires.
- The contractor will install sediment and erosion control devices on sites with a slope greater than 1 percent to prevent silt runoff from entering public roadways.
- The contractor will include the following control measures as consistent with BAAQMD permitting requirements during the operation of concrete batch plants:
  - The construction contractor will ensure that the outlet PM10 grain loading for the baghouse will not exceed 0.01 grains per dry standard cubic foot.
  - The construction contractor will properly maintain the baghouse and keep the baghouse in good operating condition at all times. The construction contractor will equip the baghouse with a device for measuring the pressure drop across the baghouse.
  - The construction contractor will not discharge an air contaminant into the atmosphere for a period or periods aggregating more than 3 minutes in any hour, which is as dark or darker than a Ringelmann 1.0.

- The construction contractor will abate stockpiles, conveyors and unpaved roads as necessary with water sprays to maintain compliance with BAAQMD rules and regulations.

### **Mitigation Measure AQ-CNST-B: Use U.S. Environmental Protection Agency (EPA) Tier 4 or Cleaner Engines**

VTA will ensure that all cConstruction contracts ~~shall~~ stipulate that all off-road, diesel-powered equipment used during construction will be equipped with EPA Tier 4 or cleaner engines, except for specialized construction equipment for which an EPA Tier 4 engine is not available. This mitigation measure assumes emission reductions compared with emissions from an average fleet-wide Tier 2 engine.

### **Mitigation Measure AQ-CNST-C: Maintain Construction Equipment**

The contractor will maintain and properly tune aAll construction equipment ~~shall be maintained and properly tuned~~ in accordance with the manufacturer's specifications. A certified mechanic will check aAll equipment ~~shall be checked by a certified mechanic to and determined proper to be running in proper~~ condition prior to operation.

### **Mitigation Measure AQ-CNST-D: Minimize Idling Times**

The contractor will ensure that all iIdling times ~~shall be~~ are minimized, either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by California Airborne Toxic Control Measures, Title 13, Section 2485 of the California Code of Regulations). The contractor will provide cClear signage ~~shall be provided~~ for construction workers at all access points.

### **Mitigation Measure AQ-CNST-E: Use Equipment Meeting ARB Certification Standards**

All contractors ~~shall~~ will use equipment that meets ARB's most recent certification standard for off-road heavy-duty diesel engines.

### **Mitigation Measure AQ-CNST-F: Ensure Heavy-Duty Diesel Trucks Comply with EPA Emissions Standards**

VTA and contractors will ensure that cConstruction contracts ~~shall~~ stipulate that all on-road, heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater will comply with EPA 2007 on-road emission standards for PM<sub>10</sub> and NO<sub>x</sub> (0.01 and 0.20 gram per brake horsepower hour, respectively). These PM<sub>10</sub> and NO<sub>x</sub> standards were phased in through the 2007 and 2010 model years on a percentage-of-sales basis (50 percent of sales from 2007 to 2009 and 100 percent of sales in 2010). This mitigation measure assumes that all on-road, heavy-duty diesel trucks will be model year 2010 and newer and compliant with EPA 2007 on-road emission standards.

**Mitigation Measure AQ-CNST-G: Use Low-Sulfur Fuel**

The contractor will use ~~Low-sulfur fuel will be used~~ (diesel with 15 parts per million or less) in all construction equipment.

**Mitigation Measure AQ-CNST-H: Locate Construction Areas Away from Sensitive Receptors**

The contractor will locate all ~~Construction equipment and staging areas will be located~~ away from sensitive receptors and fresh-air intake vents to buildings and air conditioners, where feasible.

**Mitigation Measure AQ-CNST-I: Use Low-Volatile Organic Compound (VOC) Coatings**

All contractors will ~~shall~~ use low-VOC (i.e., ROG) coatings that are beyond BAAQMD requirements (i.e., Regulation 8, Rule 3: Architectural Coatings [VOC content is limited to 100 grams per liter for flat coating and 150 grams per liter for non-flat coating]).

**Mitigation Measure NV-CNST-A: Incorporate FTA Criteria Compliant Construction Noise and Vibration Specifications**

VTA will incorporate a ~~A comprehensive construction noise and vibration specification will be incorporated~~ into all construction bid documents requiring compliance with FTA criteria. VTA will emphasize ~~t~~he existence and importance of noise and vibration control specifications will be emphasized ~~at~~ pre-bid and preconstruction conferences, if necessary.

**Mitigation Measure NV-CNST-B: Locate Equipment as Far as Feasible from Sensitive Sites**

The contractor will locate ~~s~~Stationary equipment, such as generators and compressors, will be located ~~as far as feasible from noise and vibration sensitive sites, and will be~~ acoustically treated such equipment. The contractor will also locate gGrout batch plants, grout silos, mixers, pumps, diesel pumping equipment, and similar noise and vibration generating equipment will also be located ~~as far as feasible from noise sensitive sites, and be~~ acoustically treated the same if necessary.

**Mitigation Measure NV-CNST-C: Construct Temporary Noise Barriers**

The contractor will install ~~t~~Temporary noise barriers or noise control blankets will be ~~constructed~~ in areas between noisy activities and noise-sensitive receptors, where practical and effective. Temporary noise barriers can reduce construction noise by 5 to 15 dB, depending on the height of the barrier and the placement of the barrier. To be most effective, the contractor will place ~~the barrier will be placed~~ as close as possible to the noise source or the sensitive receptor. Temporary barriers tend to be particularly effective



because they can be easily moved as work progresses to optimize performance. If temporary noise barriers and site layout do not result in compliance with the noise limit, the contractor may consider retrofitting existing windows and doors with new acoustically rated units ~~may be considered~~ for the residential structures.

### **Mitigation Measure NV-CNST-D: Operate Equipment to Minimize Annoying Noise and Vibrations**

Contractors will ~~be required to~~ implement the following measures:

- Use electric instead of diesel-powered equipment, hydraulic tools instead of pneumatic impact tools, and electric instead of air- or gasoline-driven saws, where feasible.
- Use an augering drill-rig for setting piles in lieu of impact pile drivers, where feasible.
- Operate equipment so as to minimize banging, clattering, buzzing, and other annoying types of noises, especially near residential areas during nighttime hours.
- Turn off idling equipment, whenever possible.
- Line haul truck beds with rubber or sand to reduce noise, if needed and requested by ~~VTA the Resident Engineer~~. Line or cover hoppers, conveyor transfer points, storage bins, and chutes with sound-deadening material.
- During nighttime and weekends, use strobe warning lights and/or back-up observers during any back-up operations, where permitted by the local jurisdiction.

### **Mitigation Measure NV-CNST-E. Route Construction Trucks along Truck Routes Least Disturbing to Residents**

The contractor will route cConstruction-related truck traffic ~~will be routed~~ along truck routes and roadways that would cause the least disturbance to residents. The contractor will lay out ~~L~~loading and unloading zones ~~will be laid out~~ to minimize truck idling near sensitive receptors and to minimize truck reversing so back-up alarms are minimized near residences.

### **Mitigation Measure NV-CNST-F: Secure Steel and Concrete Plates over Excavated Holes and Trenches**

The contractor will secure sSteel and/or concrete plates over excavated holes and trenches ~~will be secured~~ to reduce rattling when vehicles pass over. If complaints are received, the contractors will use thicker plates, stiffer beams beneath the plates, and/or rubber gaskets between the beams and plates to further reduce rattling noise and vibration.

### **Mitigation Measure NV-CNST-G: Use Best Available Practices to Reduce Excess Noise and Vibration**

The contractor will ~~be required to~~ use the best available practices to reduce the potential for exceedances of noise and vibration criteria due to construction activities. This may require the use of equipment with special exhaust silencers, construction of temporary enclosures or noise barriers around activities, and tracks for the tracked vehicles to be in good condition.

### **Mitigation Measure NV-CNST-H: Adhere to Local Jurisdiction Construction Time Periods, to the Extent Feasible**

~~The contractor will adhere to~~ local jurisdiction construction time periods ~~will be adhered to~~, to the extent feasible, recognizing that nighttime and weekend construction may be necessary and/or preferred by VTA and local jurisdictions to reduce other related environmental effects such as traffic. VTA will coordinate with the cities of San Jose and Santa Clara on construction operations during nighttime and weekends, and where feasible adhere to local ordinances. San Jose Ordinance 26248, 26594 restricts construction to between 7 a.m. and 7 p.m. Santa Clara Ordinance 1549 § 1, 7-15-86; Ord. 1556 § 1, 9-16-86. Formerly § 18-32.3 restricts construction to between 7 a.m. and 6 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturday.

### **Mitigation Measure NV-CNST-I: Perform Preconstruction Ambient Noise Measurements at All East and West Portal CSAs**

~~Require~~ The contractor will perform preconstruction ambient noise measurements at ~~all the East and West Portal~~ construction staging areas, which include the tunnel portals, stations, and mid-tunnel ventilation sites ~~shaft areas, and at the gap breaker areas~~. These measurements ~~is~~ will ~~serve to~~ document the noise environment just prior to start of construction at representative locations along the alignment. These measurements will be performed continuously over a minimum of 10 days (240 hours) ~~at the staging areas, and at the station and ventilation shaft areas~~. ~~At the gap breaker sites, 4 days (96 hours) of continuous noise measurements will be taken.~~

### **Mitigation Measure NV-CNST-J: ~~Submit~~ Implement a Construction Noise Control Plan and a Noise Monitoring Plan**

~~Require~~ The contractor will ~~submit to the resident engineer~~ a Noise Control Plan and a Noise Monitoring Plan to VTA for approval. The plan will be, prepared by a qualified acoustical engineer whose. The qualifications and proposed noise control and monitoring activities of the acoustical engineer will be subject to approval of VTA prior to construction activities ~~the resident engineer~~. The contractor will update the Noise Control and Monitoring Plan ~~will be updated~~ every 3 months and will include all the pertinent information about the construction equipment and the construction site layout, the projected noise levels, and the noise mitigation measures that may be required to comply

with the noise limits for each sensitive receptor. The Noise Control and Monitoring Plan will also outline the monitoring equipment and procedures ~~used by the contractor~~ will use to perform noise measurements and to identify noise-sensitive ~~receptors~~ structures in the immediate vicinity of construction operations, including details regarding the noise measurement locations, frequency, and duration of measurements. The contractor will document t~~The results of noise monitoring will be documented and submitted the~~ documentation to VTA~~the Resident Engineer~~ weekly. In the event that levels exceed allowable noise limits, VTA~~the resident engineer~~ will ensure that contractually required corrective measures consistent with the Noise Control and Monitoring Plan are implemented.

### **Mitigation Measure NV-CNST-L: Prohibit Operation of Noise-Generating Equipment Prior to Acceptance of Noise Control and Monitoring Plan and Noise Control Plan**

~~Require that t~~The contractor will not operate noise-generating equipment at the construction site prior to acceptance of the Noise Control and Monitoring Plan ~~and the Noise Control Plan~~.

### **Mitigation Measure NV-CNST-M: Install permanent Long-Term Noise Monitors at the Downtown San Jose and Diridon Station CSAs during all Construction Phases**

~~Require t~~The contractor will ~~to~~ install stationary noise monitors at all construction staging areas, which include the tunnel portals, stations, and mid-tunnel ventilation sites, the Downtown San Jose Station and Diridon Station during all the construction phases.<sup>5</sup> Noise sampling noise will be performed continuously at ~~two~~ representative monitoring locations nearest the most sensitive receptor at each location~~station~~. A minimum of two stationary monitors will be required at the Downtown San Jose Station and Diridon Station locations. The monitoring locations may be moved as the construction site work progresses. If required, additional noise monitoring site(s) may be added by the VTA to address any specific situation or concern. At the Alum Rock/28<sup>th</sup> Street Station and the West Portal staging area, stationary noise monitors will also be initially installed; ~~which~~ and may be removed if the noise levels are in compliance with the noise limits when the full-production construction activities are closest to the sensitive receptors. All data gathered by the contractor will be continuously available to ~~the~~ VTA and submitted weekly to ~~the Resident Engineer~~ VTA for approval.

In addition to these stationary noise monitors, the contractor will conduct 30-minute noise sampling with hand-held monitors will be required weekly at the station sites and at other construction sites, including the ventilation shafts and gap breaker stations, to ensure compliance with the noise criteria. If required, additional noise monitoring site(s) may be added by ~~the Resident Engineer~~ VTA to address any specific situation and concern. The contractor will submit n~~Noise data will be submitted to VTA~~ the Resident

~~Engineer~~ for approval on a weekly basis, and will include details on location and type of construction activity and details, photographs, and sketches of noise monitoring locations. A qualified acoustical engineer will determine whether work was within thresholds or not, and indicate any steps taken during monitoring to lower noise levels to within limits.

**Mitigation Measure NV-CNST-N: Ensure Equipment is Pre-certified to Meet Noise Limits**

For major equipment to be used at the surface of the construction site for a total duration greater than 5 days, the contractor will ensure that the equipment is pre-certified by the ~~a~~Acoustical ~~E~~ngineer during field measurements at a test site or guaranteed by the equipment vendor to meet the noise limits developed for construction equipment as shown in Table 18. VTA will re-examine and develop ~~t~~The final limits to be applied ~~will be re-examined and developed~~ during final design, and the contractor will verify ~~ed~~ these limits by the contractor during initial and active performance of the work when the equipment arrives on site. The contractor will retest ~~c~~Construction equipment ~~will be retested~~ at 6-month intervals while in use onsite. Any equipment used during construction may be subject to confirmatory noise level testing while performing the work at the request of VTA ~~the Resident Engineer~~.

**Table 18: Noise Emission Limits for Construction Equipment**

Equipment Type	Typical L <sub>max</sub> Sound Level at 50 feet dBA
Excavators	82
Dump trucks	81
Front end loaders	81
Dozers	82
Concrete trucks	77
Cranes	81
Backhoes	75
Compactors	77
Concrete pumping trucks	77
Small construction vehicles (pickup trucks)	68
Large and small diameter auger drill rigs	81
Diesel generators	69 <sup>a</sup>
Flat-bed semi-trucks	81
Diesel pumping equipment	77
Compressed-air construction tools	81
Rail welding plant	77
Air compressors	70 <sup>a</sup>
Muck conveyer	70
Grout batch plant	80

Equipment Type	Typical $L_{max}$ Sound Level at 50 feet dBA
Welding equipment	73
Grout silos	70
Grout mixers	71
Grout pumps	77
Source: HNTB Companies 2006. <sup>a</sup> Assumed acoustically treated	

### **Mitigation Measure NV-CNST-O: Implement a Complaint Resolution Procedure**

The contractor will implement a complaint resolution procedure will be put in place to rapidly address any noise and vibration problems that may develop during construction. After a complaint is received, the contractor will assign the complaint will be assigned a case number and will contact the person making the complaint contact to receive further clarification on the concern. The contractor will then issue will then be discussed the issue with the construction team to determine the appropriate action to resolve the issue. The contractor will then again contact tThe person making the complaint will then be contacted to describe how the issue has been resolved.

### **Mitigation Measure NV-CNST-P: Implement Conduct Construction Vibration Control and Monitoring Plan**

The contractor will be required to submit a Construction Vibration Control and Monitoring Plan to VTA for approval. The plan will be prepared by a qualified Vibration specialist whose qualifications and proposed vibration control and monitoring activities will be subject to approval of VTA prior to construction activities. The Construction Vibration Control and Monitoring Plan will be updated every 3 months and include all the pertinent information about construction equipment and site layout, the projected vibration levels, and the vibration mitigation measures that may be required to comply with the vibration limits as outlined in this measure for each building type.

The Construction Vibration Control and Monitoring Plan will also outline the monitoring equipment and procedures the contractor will use to perform vibration measurements for vibration-sensitive receptors in the vicinity of construction operations, including details regarding the vibration measurement locations, frequency, and duration of measurements at each location. The plan will outline the protocol for monitoring existing cracks in buildings over time, to determine any construction-related impacts. At a minimum, crack gauges will be installed on existing cracks prior to construction, and monitoring of the gauges will be performed continuously over the course of construction to assess whether new construction-related damage has occurred.

The results of vibration monitoring will be documented and submitted to the VTA weekly. In the event that levels exceed allowable vibration limits, the work will be halted immediately to ensure that no structural damage occurs, and additional required

corrective measures consistent with the Construction Vibration Control and Monitoring Plan will be implemented.

The contractor will initially conduct vibration monitoring daily at the nearest affected buildings (within 100 feet of any building) during any construction activities that could induce vibration impacts, typically within 100 feet of any building. Vibration will also be monitored where vibration is expected to approach the applicable limit based on the building type and condition. Monitoring of utilities that are sensitive to vibration will be coordinated with the utility companies and performed for the nearest affected vibration-sensitive utilities during any construction activities that could induce vibration impacts.

The contractor will perform mMonitoring will be performed continuously at the closest receptor during all demolition and construction activities to ensure vibration levels will not exceed the FTA construction vibration damage criteria for applicable building type, as follows: 0.12 PPV (inches/second) for ~~historic buildings and those buildings that are~~ extremely susceptible to vibration damage, 0.2 PPV (inches/second) for non-engineered timber and masonry buildings, 0.3 PPV (inches/second) for engineered concrete and masonry (no plaster) buildings and 0.5 PPV (inches/second) for reinforced-concrete, steel or timber (no plaster) buildings. For historic buildings, the vibration threshold is between 0.12 to 0.2 PPV (inches/second) depending on the buildings' condition. The results of the preconstruction surveys as outlined in Mitigation Measure NV-CNST-R will be utilized to confirm the structure types and determine which vibration thresholds apply in consultation with a qualified structural engineer and a qualified architectural historian or a historic architect. For utilities, vibration thresholds will follow industry standards in coordination with utility companies, and typically adhere to a 0.5 PPV (inches/second) threshold.

The contractor will measure vVibration will be measured in buildings in the vertical direction on the ground surface or building floor and for utilities in accordance with meter instructions and industry best practices, and measured. Vibration levels will be measured continuously during daily construction operations to ensure that peak vibration-generating work~~construction~~ is captured. . Daily monitoring will be performed during a continuous work shift (typically 8 hours) that includes the closest and most vibration-inducing work .The contractor will compare vVibration in buildings will be compared against both structural and nuisance thresholds in terms of velocity levels in dB ~~re10<sup>-6</sup> inches/second~~ or PPV. Vibration for utilities will be compared against structural thresholds in terms of PPV. If the measured vibration data are in compliance with the vibration limits after work has completed start-up and entered full-production mode (typically within 2 weeks to 30 days), vibration monitoring may be performed once a week instead of continuously each daydaily if approved by VTA. Daily monitoring will be performed during a continuous 8-hour work shift during the closest and most vibration-inducing work.

In the event that inadvertent, cosmetic building damage occurs, vibration limits may require adjustment lower depending on the opinion of the structural engineer and historic architect or architectural historian. In the event of inadvertent damage to historic buildings, repairs will be conducted in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

### **Mitigation Measure NV-CNST-Q: Perform Vertical Direction Vibration Monitoring**

The contractor will perform continuous vertical direction vibration (root mean square) monitoring on the ground at the nearest representative residential structure during muck extraction and supply train operations in the tunnels. These measurements ~~should~~ will be repeated for a minimum of 1 week at approximately 1-mile intervals along the tunnel construction until it is demonstrated that the levels are below the FTA thresholds.

### **~~Mitigation Measure NV-CNST-R: Require Monitoring of Vibration for Peak Particle Velocity~~**

~~A survey of structures potentially impacted by construction vibration will be conducted prior construction and submitted for the Resident Engineer's approval. Vibration for PPV will then be monitored continuously at the closest structures and where vibration is expected to approach the applicable limit based on the building type and condition.~~

### **Mitigation Measure NV-CNST-R: Implement Preconstruction and Post-Construction Building Condition Surveys for Vibration**

The contractor will survey all structures potentially impacted by construction vibration will be conducted prior to construction or release of the TBM and cut-and-cover construction contract(s), and submitted the results to VTA for approval. Surveys will be conducted in all historic buildings or structures where vibration is expected to approach the applicable limit, and in non-historic buildings based on the building type and condition. Preconstruction building condition surveys of the interiors and exteriors of these structures will be conducted by independent surveyors to assess the baseline condition of each property that could be affected by construction vibration. The surveys will include written and photographic (video and still) records, including written descriptions and photos of any cracks. For historic structures, the Conditions Assessment Report in accordance with Section 106 will be prepared along with the preconstruction building condition surveys. The surveys will be performed prior to any vibration-inducing construction to establish baseline building conditions. The results of the preconstruction surveys will be utilized to establish the structure types and determine which vibration thresholds apply in consultation with a qualified structural engineer and a qualified architectural historian or a historic architect, as outlined in Mitigation Measure NV-CNST-P. Vibration will be monitored as required in Mitigation Measure NV-CNST-P to avoid adverse effects on properties during construction activities. The post-

construction survey results will be compared with preconstruction condition surveys so that any construction vibration effects on structures can be assessed.

### **Mitigation Measure NV-CNST-S: Implement Measures to Reduce Vibration from Muck Extraction and Supply Trains**

The ~~construction contractor will ensure that~~ be required to implement measures such that muck extraction and supply train operations do not result in groundborne ~~noise-vibration~~ in excess of 72 VdB at nearby residences. Measures that can be implemented include, but are not limited to, placement of ballast mats underneath tracks on which the muck extraction train rides or the use of a conveyor in place of a train.

### **Mitigation Measure HAZ-CNST-A: Prepare Remedial Action Plans**

Prior to construction, VTA will prepare new and/or amended RAPs ~~will be prepared for~~ the BART Extension, which will be ~~and~~ approved by the Regional Water Quality Control Board. The RAPs will satisfy the key objectives of the CMP (e.g., characterization of soil and ballast quality relative to the maximum acceptable contaminant levels for reuse) and incorporate measures for managing soil, ballast, and groundwater from the CMP (e.g., sampling and analysis, health and safety, stockpiling, offsite disposal, and treatment) to address all known and potential sources of environmental contamination identified in the ISA. VTA will provide ~~m~~ Measures to satisfy r ~~Regulatory notification requirements and approval measures (e.g., additional sampling and analysis), if necessary, for soil excavation and/or dewatering associated with land-use covenants near the Diridon and Santa Clara Stations and over the tunnel alignments between these stations~~ ~~will be provided.~~ The RAPs will also include an assessment of potential vapor intrusion concerns for indoor residents and workers from groundwater contaminant plumes, such as chlorinated solvents. In coordination with the Regional Water Quality Control Board, selected remedial measures to protect human health may include, but are not limited to, source removal of contaminated materials, in-situ treatment, and implementation of engineering controls (e.g., vapor barriers) and/or institutional controls prior to building occupancy.

### **Mitigation Measure NV-A: Implement Noise Reduction Treatments at Ancillary Facilities**

The contractor will implement n ~~Noise reduction treatments will be implemented at~~ ancillary facilities such as tunnel ventilation shafts, pressure relief shafts, traction power substations, and emergency backup generators such that noise levels comply with applicable Cities of San Jose and Santa Clara noise criteria at nearby developed land uses. Treatments that will be implemented, if necessary, include but are not limited to:

- Sound attenuators and acoustical absorptive treatments in ventilation shafts and facilities.



- Sound attenuators for the tunnel emergency ventilation fans.
- ~~p~~Perimeter noise walls (nominally an 8-foot-high wall) placed around emergency generators.

### **Mitigation Measure NV-B: Reduce Groundborne Noise Levels**

~~The contractor will implement an Isolated Slab Track (IST) as the mitigation strategy for groundborne noise is an Isolated Slab Track (IST).~~ An IST is a form of floating slab track (FST). The IST system is constructed with a continuous elastomeric mat instead of discrete elastomeric pads that are typically used for an FST system. An IST can be designed to provide from 10 to 13 dBA of noise reduction. ~~Mitigation Measure NV-B~~ This strategy can also be used under a crossover. The locations for implementing this ~~mitigation measure~~ are shown in Tables 4.12-21 through 4.12-25. The project's final design will determine ~~The specific mitigation strategy, which will be determined in final design and~~ could include alternative strategies that similarly achieve the FTA groundborne noise criteria.

## **E.2.6 Changes to Appendix B, *Acquisitions***

The following changes have been made to Appendix B.

<b>City</b>	<b>APN</b>	<b>Take</b>	<b>Option</b>	<b>Full or Partial Take</b>
City of San Jose	467-24-111	FEE	DTSJ Station East Option, Single-Bore & Twin-Bore Options	full
City of San Jose	467-24-110	FEE	DTSJ Station East Option, Single-Bore & Twin-Bore Options	full
City of San Jose	467-21-004, -005	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-20-079	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
<del>City of San Jose</del>	<del>467-20-072</del>	<del>FEE</del>	<del>DTSJ Station East &amp; West Options, Single-Bore &amp; Twin-Bore Options</del>	<del>full</del>
City of San Jose	467-21-004	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-21-023	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
<u>City of San Jose</u>	<u>467-21-024</u>	<u>FEE</u>	<u>DTSJ Station West Option, Single-Bore Option</u>	<u>full</u>
<u>City of San Jose</u>	<u>467-21-025</u>	<u>FEE</u>	<u>DTSJ Station West Option, Single-Bore Option</u>	<u>full</u>
City of San Jose	467-33-073	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-33-075	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full

# Chapter 1

## Project Description

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The Phase II Project consists of an approximately six-mile extension of the BART system from the terminus of VTA's BART Silicon Valley—Berryessa Extension Project (Phase I) from San Jose to Santa Clara (see Figure 1). Phase I is currently under construction and scheduled to be operational in ~~late 2017~~2018. The Phase II Project would include approximately five miles of subway tunnel from Berryessa/North San Jose Station, continuing through downtown San Jose, and terminating at grade near the Santa Clara Caltrain Station (see Figure 2). In addition, four passenger stations are proposed. Passenger service on the Phase II Project is scheduled to begin in 2025/2026.

There are two construction methods proposed for the five-mile-long tunnel portion of the BART extension—the Twin-Bore and Single-Bore Options—between the East and West Tunnel Portals. Under the Twin-Bore Option, two twin-bore tunnels would be excavated with one track in each. Each tunnel bore would have an outer diameter of approximately 20 feet. The depth of the tunnel would be between 10 and 75 feet below ground surface. The crown, or top, of the tunnel of the Twin-Bore Option would be, on average, 40 feet below the surface. Under the Single-Bore Option, one large-diameter tunnel bore would be excavated, which would contain both northbound and southbound tracks. The tunnel bore would have an outer diameter of approximately 45 feet. The crown, or top, of the tunnel of the Single-Bore Option would be, on average, 70 feet below the surface.

## 1.1 Alignment and Station Features by City

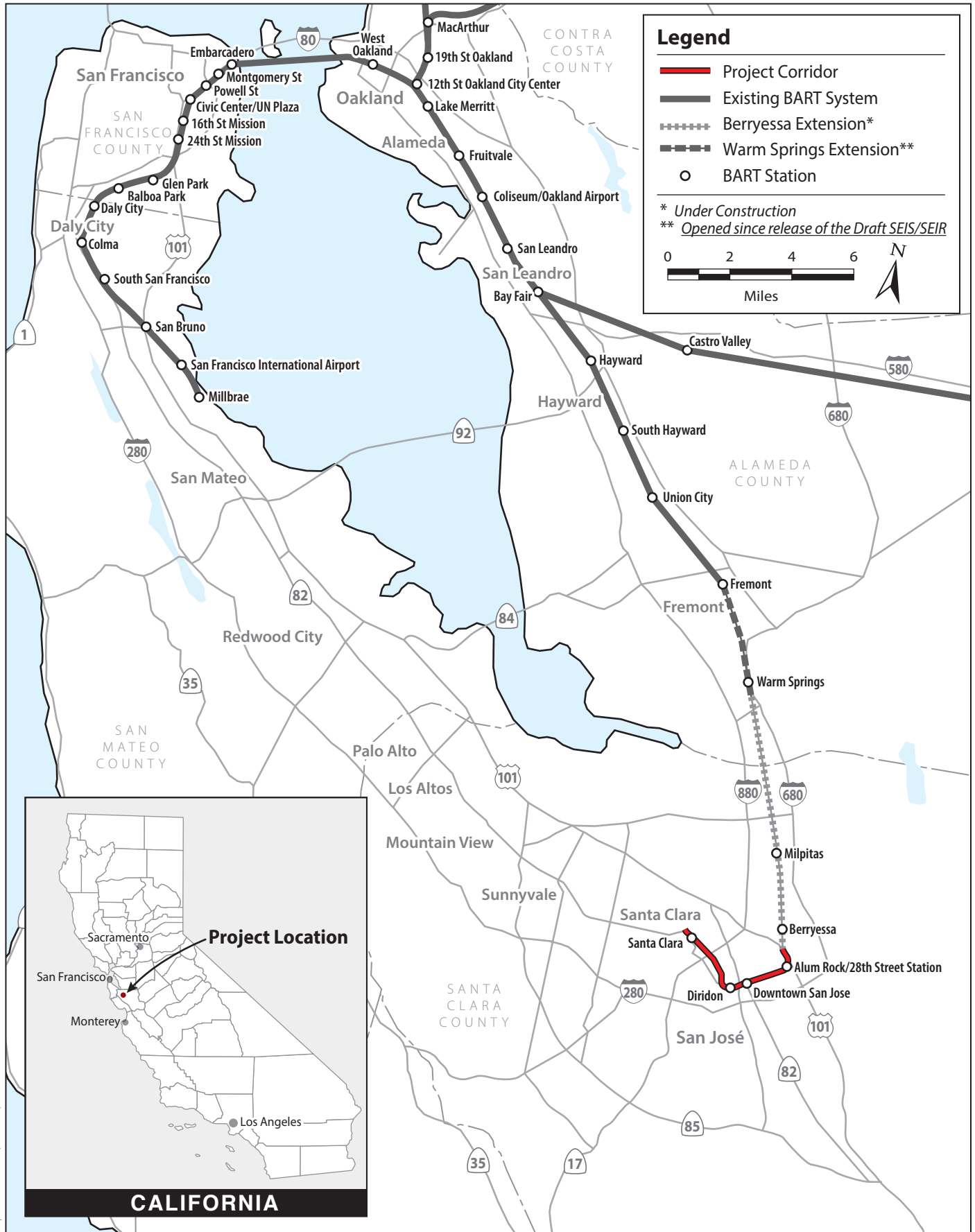
### 1.1.1 City of San Jose

#### 1.1.1.1 Connection to Phase I Berryessa Extension

The BART extension would begin where the Phase I tail tracks end. The at-grade Phase I tail tracks would be partially removed to allow for construction of the bored tunnels, East Tunnel Portal, and supporting facilities.

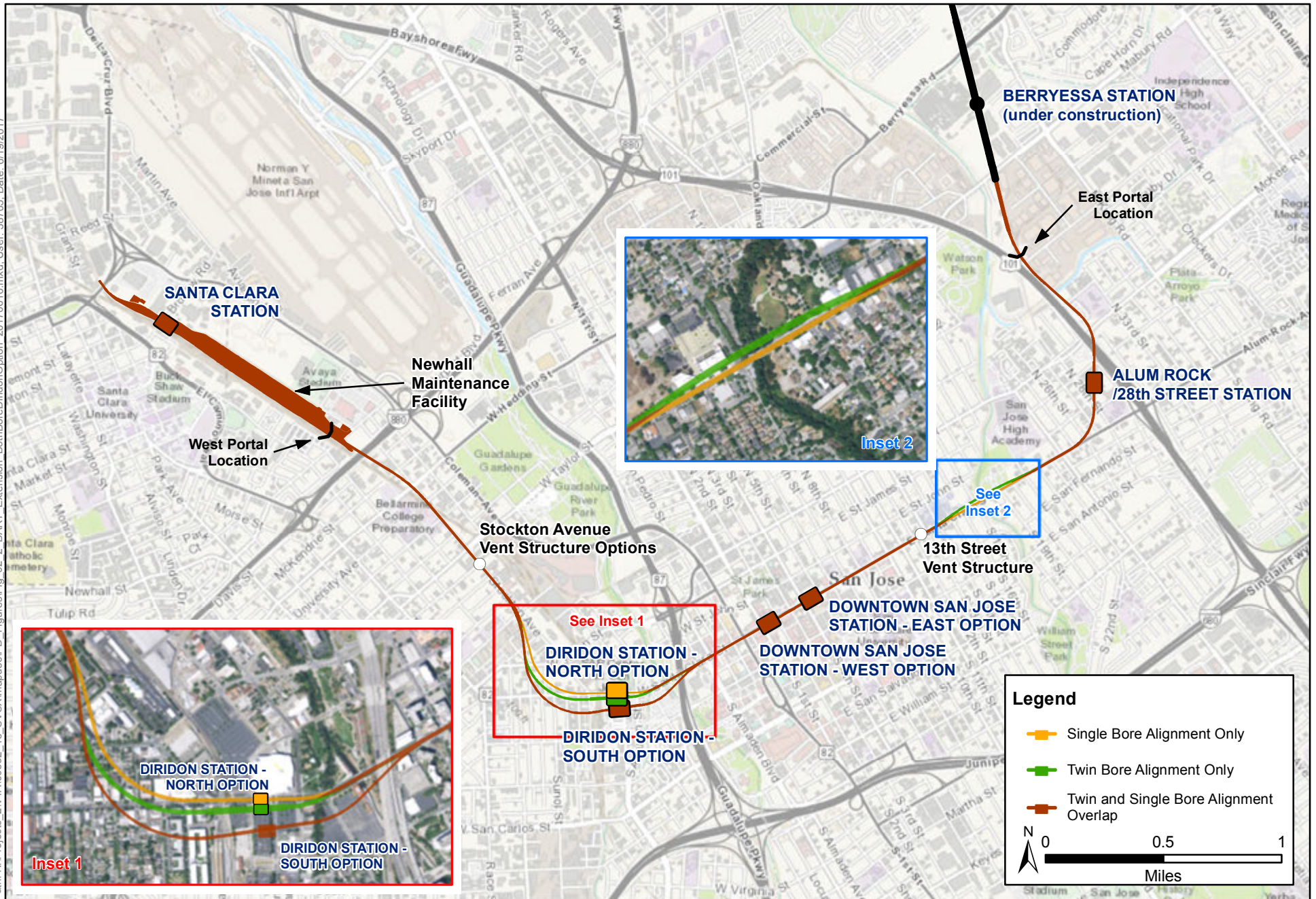
The alignment would transition from a retained-fill configuration east of U.S. 101 and south of Mabury Road near the end of the Phase I alignment into a retained-cut configuration and enter the East Tunnel Portal ~~near~~just north of Las Plumas Avenue.

South of the portal, the alignment would pass beneath North Marburg Way, then approximately 25 feet below the creek bed of Lower Silver Creek for the Twin-Bore Option, or approximately 30 feet for the Single-Bore Option, just to the east of U.S. 101, then curve under U.S. 101 south of the McKee Road overpass, and enter Alum Rock/28<sup>th</sup> Street Station.



**Figure 1**  
**Regional Location (Revised)**  
 VTA's BART Silicon Valley-Phase II Extension Project

Path: K:\Projects\_2\VTAN\00332\_13\_SV\X\mapdoc\IPD\_Figures\Fig\_02\_2\_BART\_Extension\_BothBoreDiridonOption\_20170616.mxd; User: 38705; Date: 6/19/2017



Source: Station and Track, VTA 2014; Basemap, ESRI 2015

**Figure 2**  
**BART Extension Alternative (Revised)**  
VTA's BART Silicon Valley – Phase II Extension Project

### 1.1.1.2 Alum Rock/28<sup>th</sup> Street Station

Alum Rock/28<sup>th</sup> Street Station would be located between U.S. 101 and North 28<sup>th</sup> Street and between McKee Road and Santa Clara Street. The station would be underground with street-level entrance portals with elevators, escalators, and stairs covered by canopy structures. In general, each station would have a minimum of two entrances. Under the Single-Bore Option, an underground concourse level would span between the two entrances adjacent to the tunnel. A parking structure of up to seven levels would accommodate BART park-and-ride demand with 1,200 parking spaces. The station would include systems facilities both above and below ground.

From Alum Rock/28<sup>th</sup> Street Station, the alignment would curve under North 28<sup>th</sup> Street, North 27<sup>th</sup> Street, and North 26<sup>th</sup> Street before aligning under Santa Clara Street. The alignment would continue under the Santa Clara Street right-of-way (ROW) until the alignment approaches Coyote Creek.

### 1.1.1.3 Tunnel Alignment near Coyote Creek

For the Twin-Bore Option, the alignment would transition north of Santa Clara Street beginning just west of 22<sup>nd</sup> Street and pass approximately 20 feet beneath the creekbed of Coyote Creek to the north of Santa Clara Street and avoid the Coyote Creek/Santa Clara Street bridge foundations. The alignment would transition back into the Santa Clara Street ROW near 13<sup>th</sup> Street, west of Coyote Creek. However, for the Single-Bore Option, the alignment would continue directly under Santa Clara Street and pass approximately 55 feet beneath the creekbed of Coyote Creek and approximately 20 feet below the existing bridge foundations.

### 1.1.1.4 13<sup>th</sup> Street Ventilation Structure

A systems facility site would be located at the northwest corner of Santa Clara and 13<sup>th</sup> Streets. This site would include a tunnel ventilation structure, which would be an aboveground structure with an associated ventilation shaft.

### 1.1.1.5 Downtown San Jose Station

There are two station location options for the Downtown San Jose Station: the Downtown San Jose Station East Option and the Downtown San Jose Station West Option, as described in detail below. The alignment for this area would be the same irrespective of the station option.

The station would consist of boarding platform levels and systems facilities aboveground and within the tunnel beneath Santa Clara Street, as well as entrances at street level. In general, each station would have a minimum of two entrances. Elevators, escalators, and stairs that provide pedestrian access to the mezzanine concourse would be at station portal entrances. Escalators and stairs would be covered by canopy structures. The station would not have

dedicated park-and-ride facilities. Under either Downtown San Jose Station Option, streetscape improvements, guided by San Jose’s Master Streetscape Plan, would be provided along Santa Clara Street to create a pedestrian corridor. For the East Option, streetscape improvements would be between 7th and 1st Streets; for the West Option, streetscape improvements would be between 4th and Market Streets.

### **Downtown San Jose Station East Option**

The alignment would continue beneath Santa Clara Street to the Downtown San Jose Station East Option. Under the Twin-Bore Option, crossover tracks would be located east of the Downtown San Jose Station between 7<sup>th</sup> and 5<sup>th</sup> Streets (within the cut-and-cover box). Under the Single-Bore Option, the crossover tracks would be located east of the station ~~between 9<sup>th</sup> and 5<sup>th</sup> Streets~~ within the limits of 8<sup>th</sup> and 13<sup>th</sup> Streets.

### **Downtown San Jose Station West Option**

The alignment would continue beneath Santa Clara Street to the Downtown San Jose Station West Option. Crossover tracks for the Twin-Bore Option would be located east of the Downtown San Jose Station between 2<sup>nd</sup> and 4<sup>th</sup> Streets (within the cut-and-cover box). Under the Single-Bore Option, the crossover tracks would be located east of the station ~~between 7<sup>th</sup> and 2<sup>nd</sup>~~ within the limits of 8<sup>th</sup> and 13<sup>th</sup> Streets.

## **1.1.1.6 Tunnel Alignment into Diridon Station**

There are two station location options at Diridon Station: the Diridon Station South Option and the Diridon Station North Option, as described in detail below. The alignment into Diridon Station varies between the North and South Options and between the Twin-Bore and Single-Bore Tunnel Options as described below.

### **Tunnel Alignment into Diridon Station South Option**

The alignment would continue beneath Santa Clara Street from the Downtown San Jose Station and shift south beginning just west of South ~~Almaden~~ Almaden Boulevard to pass between the SR 87 bridge foundations. For the Twin-Bore Option, the alignment would pass ~~4540~~ 4540 feet below the riverbed of the Guadalupe River, ~~pass beneath~~ pass beneath and a retaining wall west of the river, and ~~over 2025~~ over 2025 feet below the creekbed of Los Gatos Creek. For the Single-Bore Option, the alignment would pass approximately 50 feet below the riverbed of the Guadalupe River, pass under the retaining wall, and approximately 35 feet below the creekbed of Los Gatos Creek. After passing under Los Gatos Creek, the alignment for both options would enter the Diridon Station between Los Gatos Creek and Autumn Street.

### **Tunnel Alignment east of Diridon Station North Option**

Under the Twin-Bore Option, the alignment would continue beneath Santa Clara Street ~~from the Downtown San Jose Station and shift south beginning just west of South Almaden Boulevard to pass between the SR 87 bridge foundations. The alignment would then pass~~

~~45~~ then continue approximately ~~50~~ feet below the riverbed of the Guadalupe River and a retaining wall, then veer back north to a location just south of and adjacent to Santa Clara Street. The alignment passes ~~25-30~~ feet below the creekbed of Los Gatos Creek. After passing under Los Gatos Creek, the alignment would enter Diridon Station ~~under~~ between Autumn and Montgomery Streets and directly south of Santa Clara Street. The Diridon Station North Option is closer to Santa Clara Street in comparison to the South Option.

Under the Single-Bore Option, the alignment would continue ~~and remain~~ beneath Santa Clara Street, ~~and~~ continue ~~4550~~ feet below the riverbed of the Guadalupe River and ~~4050~~ feet below the creekbed of Los Gatos Creek. ~~After passing under Los Gatos Creek, the alignment would shift north and enter Diridon Station.~~ The boarding platforms, with the Single-Bore tunnel, would be located between Autumn and Montgomery and White Streets, directly south of Santa Clara Street. The Diridon Station North Option is closer to Santa Clara Street in comparison to the South Option.

### 1.1.1.7 Diridon Station

There are two station location options for the Diridon Station: the Diridon Station South Option and the Diridon Station North Option. The alignment varies by station location. Diridon Station would be generally located between Los Gatos Creek to the east, the San Jose Diridon Caltrain Station to the west, Santa Clara Street to the north, and West San Fernando Street to the south. The South Option would be located midway between Santa Clara Street and Stover Street. The North Option would be located adjacent to, and just south of, Santa Clara Street.

The station would consist of a boarding platform level, a ~~mezzanine concourse~~ level, and entrances at street-level portals. Under the Single-Bore Option, an underground concourse level would span between the two entrances adjacent to the tunnel. The station would have a minimum of two entrances. Entrances would have elevators, escalators, and stairs covered by canopy structures. Systems facilities would be located aboveground and underground at each end of the station.

~~An~~ The existing VTA bus transit center would be reconfigured for better access and circulation to accommodate projected bus and shuttle transfers to and from the BART station. The reconfiguration would be compatible/consistent with the Diridon Transportation Facilities Master Plan's design of the area. Kiss-and-ride facilities would be located along Cahill Street. No park-and-ride parking would be provided at this station.

### Tunnel Alignment West of Diridon Station North Option

For the South Option, west of the station, the alignment for both the Twin-Bore and Single-Bore Options would continue beneath the Diridon Caltrain Station train tracks and White Street. The alignment would then turn towards the north, crossing under The Alameda at Cleaves Avenue and under West Julian Street at Morrison Avenue before aligning under Stockton Avenue.



Under the Diridon Station North Option and Twin-Bore Option, west of the station, the alignment would continue ~~beneath the Diridon Caltrain Station train tracks and under White and Bush Streets south of The Alameda~~. The alignment would then turn towards the north, crossing under The Alameda at ~~Wilson Avenue~~ Sunol Street and under West Julian Street at ~~Morrison Avenue~~ Cleaves Street before aligning under Stockton Avenue.

Under the Diridon Station North Option and Single-Bore Option, west of the station, the alignment would continue under ~~White and Bush Streets south of Santa Clara Street/The Alameda~~. The alignment would then turn towards the north at Wilson Avenue, crossing under Rhodes Court ~~The Alameda at Sunol Street~~ and under West Julian Street ~~at Morrison Avenue~~ before aligning under Stockton Avenue.

### **1.1.1.8 Tunnel Alignment Along Stockton Avenue**

Around Pershing Avenue, all of the options—the Twin-Bore and Single-Bore Options and the Diridon Station South and North Options—converge back onto the same alignment under Stockton Avenue.

### **1.1.1.9 Stockton Avenue Ventilation Structure**

On the east side of Stockton Avenue between Schiele Avenue and West Taylor Street, there are three alternate locations for a systems facility site that would house a tunnel ventilation structure, which would be an aboveground structure with an associated ventilation shaft.

### **1.1.1.10 Tunnel Alignment near I-880**

The alignment would continue north and cross under the Caltrain tracks ~~then under~~ and Hedding Street. The alignment would continue on the east side of the Caltrain tracks and cross under Interstate (I-) 880 before ascending and exiting the West Tunnel Portal near Newhall Street.

## **1.1.2 City of Santa Clara**

The BART Extension Alternative in Santa Clara would consist of the Newhall Maintenance Facility, system facilities, storage tracks for approximately 200 BART revenue vehicles (passenger cars), the Santa Clara Station, and tail track. The San Jose/Santa Clara boundary is located approximately midway through the Newhall Maintenance Facility.

### **1.1.2.1 Newhall Maintenance Facility**

The Newhall Maintenance Facility is approximately 40 acres would begin north of the West Tunnel Portal at Newhall Street in San Jose and extend to Brokaw Road near the Santa Clara Station in Santa Clara. A single tail track would extend north from the Santa Clara Station and cross under the De La Cruz Boulevard overpass and terminate on the north side of the overpass. The maintenance facility would serve two purposes: (1) general maintenance, running repairs, and storage of up to 200 BART revenue vehicles and (2) general

maintenance of non-revenue vehicles. The facility would also include maintenance and engineering offices and a yard control tower. Several buildings and numerous transfer and storage tracks would be constructed.

### 1.1.2.2 Santa Clara Station

The closest streets to the Santa Clara Station would be El Camino Real to the southwest, De La Cruz Boulevard to the northwest, and Coleman Avenue to the northeast near the intersection of Brokaw Road. The station would be at grade, centered at the west end of Brokaw Road, and would contain an at-grade boarding platform with a ~~mezzanine~~concourse one level below. Access to the ~~mezzanine~~concourse would be provided via elevators, escalators, and stairs covered by canopy structures. An approximately 240-foot-long pedestrian tunnel would connect from the ~~mezzanine~~concourse level of the BART station to the Santa Clara Caltrain plaza, and an approximately 175-foot-long pedestrian tunnel would connect from the ~~mezzanine~~concourse level to a new BART plaza near Brokaw Road. Kiss-and-ride, bus, and shuttle loading areas would be provided on Brokaw Road.

A parking structure of up to five levels would be located north of Brokaw Road and east of the Caltrain tracks within the station area and would accommodate 500 BART park-and-ride parking spaces in addition to public facilities on the site.

An approximately 150-foot-high radio tower and an associated equipment shelter would be located within the systems site.

# **VTA's BART SILICON VALLEY— PHASE II EXTENSION PROJECT SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TECHNICAL MEMORANDUM**

## **PREPARED FOR:**

Santa Clara Valley Transportation Authority  
Federal Transit Administration



## **PREPARED BY:**

Circlepoint  
40 A/B South First Street  
San Jose, CA 95113

November 2016

Circlepoint. 2016. VTA's BART Silicon Valley—Phase II Extension Project Socioeconomics and Environmental Justice Memorandum. November. San Jose, CA. Prepared for the Santa Clara Valley Transportation Authority, San Jose, CA, and the Federal Transit Administration, Washington, D.C.

# Summary

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The Santa Clara Valley Transportation Authority's (VTA) Bay Area Rapid Transit (BART) Silicon Valley—Phase II Extension Project (BART Extension), for purposes of this technical memorandum, consists of an approximately 6-mile extension of the BART system from the terminus of VTA's BART Silicon Valley—Phase I Berryessa Extension Project (Phase I Project) in San Jose to Santa Clara. The Phase I Project is currently under construction and scheduled to be operational in late 2017. The BART Extension would extend the BART system from the Phase I terminus in the Berryessa neighborhood of San Jose for approximately 6 miles through central San Jose and terminate in the City of Santa Clara. The alignment would include an approximately 5-mile tunnel, or subway, through downtown San Jose. Four stations are under consideration: Alum Rock/28<sup>th</sup> Street, Downtown San Jose, Diridon, and Santa Clara. Two options for the location of the Downtown San Jose Station and for the Diridon Station are currently under consideration. Depending upon funding availability, initial revenue service on the BART Extension is targeted to begin in late 2025/2026.

This technical memorandum evaluates the existing socioeconomic conditions, demographics, and community within the study area. The following analysis isolates the study area to represent a subset of the Cities of San Jose and Santa Clara population that would be closest to the BART Extension and most sensitive to localized effects. San Jose and Santa Clara statistics represent a baseline for demographics on a regional scale and a point of comparison for the study area demographic findings. Additionally, this technical memorandum evaluates potential disproportionately high and adverse effects to environment justice communities as a result of the BART Extension. An environmental justice community is a particular geographic area that meets certain socioeconomic and demographic thresholds. Environmental justice populations can be considered based on their minority population and/or income status.

The block groups that exceed the minority and low-income population percentage thresholds of the city in which they are located and are considered environmental justice populations. The minority population is 71 percent within the City of San Jose and 64 percent within the City of Santa Clara. Approximately 73 percent of the population within the study area is minority. Of the 59 block groups in the study area, 36 block groups are considered minority. The low-income population is 12 percent within the City of San Jose and 9 percent in the City of Santa Clara. Approximately 13 percent of the population within the study area is low-income. Of the 59 block groups in the study area, 27 block groups are considered low-income.

Construction and operation of the BART Extension would result in some potential adverse effects to the surrounding communities and business environment. Additionally, property acquisitions would be required to construct the BART Extension as further described in Section 4.1, *Socioeconomics*. However, VTA will implement mitigation that would reduce potential effects as further described.

Once in operation, the BART Extension would expand BART service to the greater San Jose and Santa Clara communities, thereby increasing connectivity in the regional San Francisco Bay Area. Accordingly, implementation of the BART Extension would accommodate growth on a regional level. Additionally, implementation of the BART Extension would accommodate growth on a regional level and would create direct and indirect jobs associated with operations that would provide new employment opportunities.

A finding on Environmental Justice requires that mitigation and benefits be considered along with the adverse effects impacts. Adverse effects caused by construction would affect both environmental justice populations and non-environmental justice populations, implementation of mitigation measures would reduce construction-period impacts for all populations, and there will be economic benefits created during construction for firms meeting disadvantage business criteria. As a result, construction of the BART Extension would not result in a disproportionately high and adverse effect on environmental justice populations in the study area.

Operation of the BART Extension would result in potential adverse effects regarding noise and vibration. As described, VTA would will implement mitigation that would reduce potential effects to a level such that no adverse effects would occur. The BART Extension would expand BART service to the greater San Jose and Santa Clara community, thereby increasing connectivity in the regional San Francisco Bay Area. The BART Extension would create direct and indirect jobs associated with operations that would provide new employment opportunities for all populations including environmental justice populations. Implementation of the BART Extension would facilitate residential and employment growth and infill development planned for the area. Once in operation, the BART Extension would increase regional mass transit access and reduce air pollutant emissions by shifting more users to public transit. Such effects would benefit environmental justice and non-environmental justice populations. No disproportionately high and adverse effects from operation of the BART Extension would result for environmental justice populations.

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# Chapter 1

## Project Description

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The BART Extension consists of an approximately six-mile extension of the BART system from the terminus of VTA's BART Silicon Valley—Berryessa Extension Project (Phase I) from San Jose to Santa Clara (see Figure 1). Phase I is currently under construction and scheduled to be operational in late 2017. The BART Extension would include approximately five miles of subway tunnel from Berryessa Station, continuing through downtown San Jose, and terminating at grade near the Santa Clara Caltrain Station (see Figure 2). In addition, four passenger stations are proposed. Passenger service on the BART Extension is scheduled to begin in 2025/2026.

There are two construction methods proposed for the five-mile-long tunnel portion of the BART Extension—the Twin-Bore and Single-Bore Options—between the East and West Tunnel Portals. Under the Twin-Bore Option, two twin-bore tunnels would be excavated with one track in each. Each tunnel bore would have an outer diameter of approximately 20 feet. The depth of the tunnel would be between 10 and 75 feet below ground surface. The crown, or top, of the tunnel of the Twin-Bore Option would be, on average, 40 feet below the surface. Under the Single-Bore Option, one large-diameter tunnel bore would be excavated which would contain both northbound and southbound tracks. The tunnel bore would have an outer diameter of approximately 45 feet. The crown, or top, of the tunnel of the Single-Bore Option would be, on average, 70 feet below the surface.

## 1.1 Alignment and Station Features by City

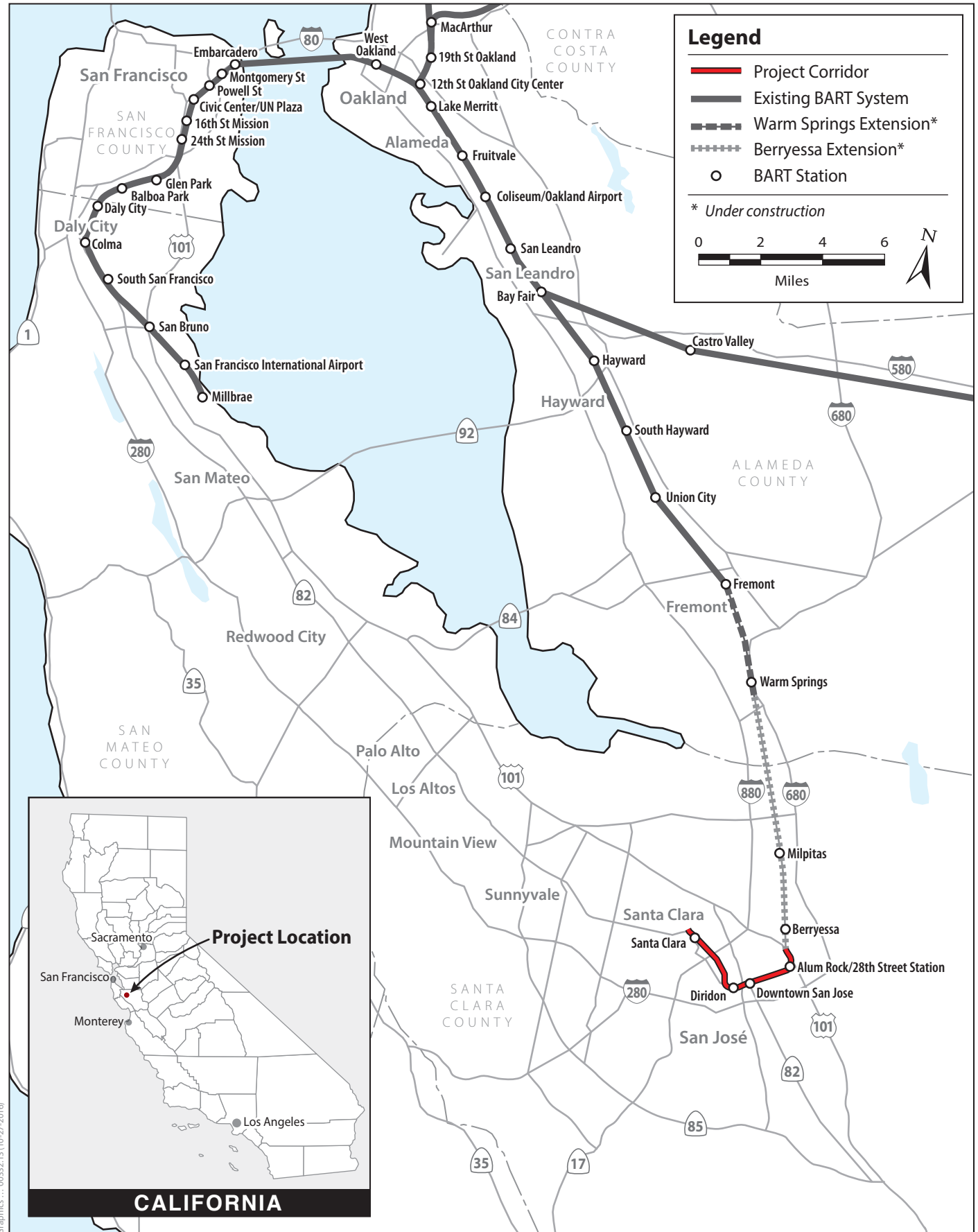
### 1.1.1 City of San Jose

#### 1.1.1.1 Connection to Phase I Berryessa Extension

The BART Extension would begin where the Phase I tail tracks end. The at-grade Phase I tail tracks would be partially removed to allow for construction of the bored tunnels, East Tunnel Portal, and supporting facilities.

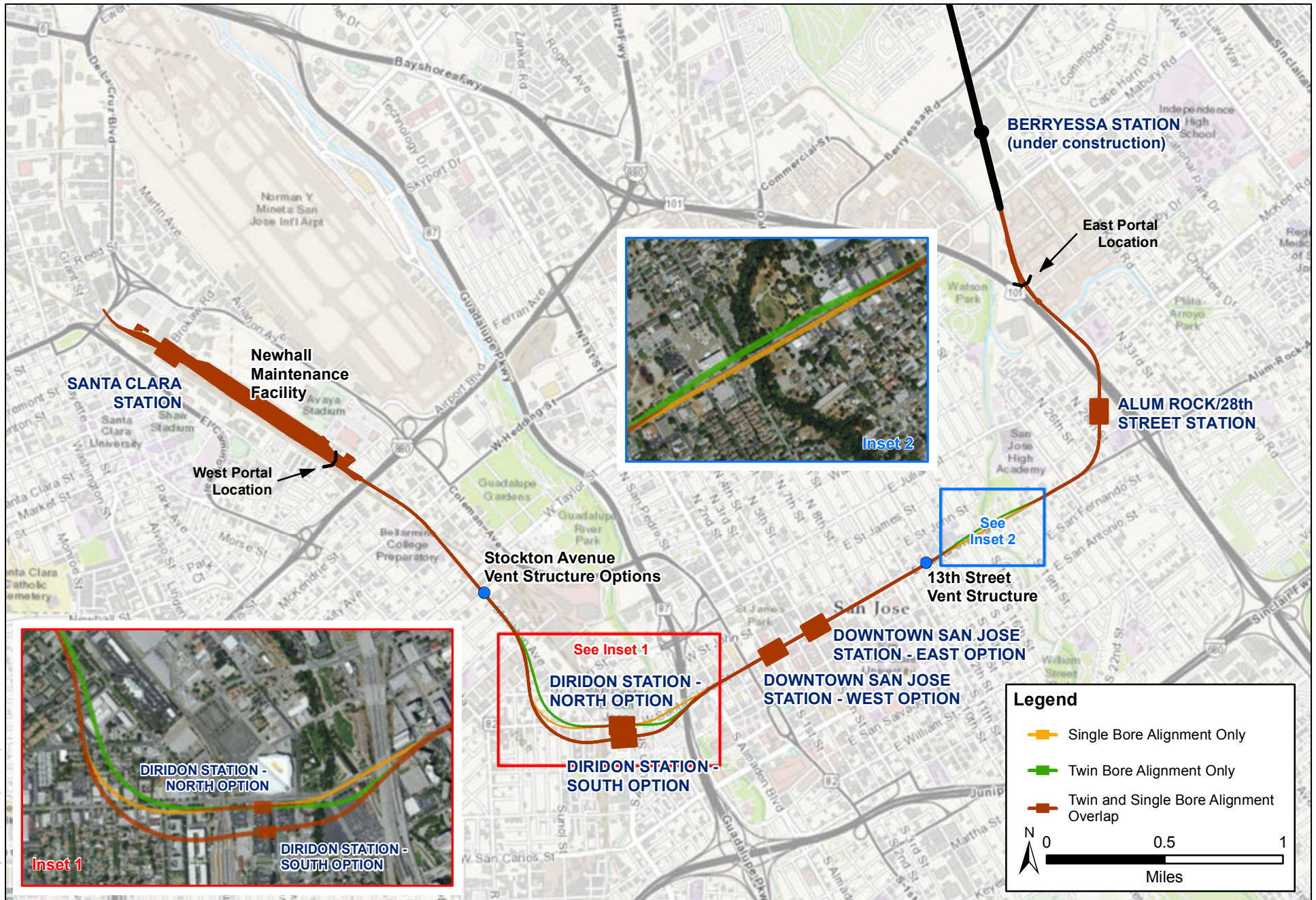
The alignment would transition from a retained-fill configuration east of U.S. 101 and south of Mabury Road near the end of the Phase I alignment into a retained-cut configuration and enter the East Tunnel Portal just north of Las Plumas Avenue.

South of the portal, the alignment would pass beneath North Marburg Way, then approximately 25 feet below the creek bed of Lower Silver Creek for the Twin-Bore Option, or approximately 30 feet for the Single-Bore Option, just to the east of U.S. 101, then curve under U.S. 101 south of the McKee Road overpass, and enter Alum Rock/28<sup>th</sup> Street Station.



Graphics ... 00332.13 (10-27-2016)

**Figure 1**  
**Regional Location**  
 VTA's BART Silicon Valley-Phase II Extension Project



GIS -> Graphics... 0033213 (10-27-2016)

Source: Station and Track, VTA 2014; Basemap, ESRI 2015

**Figure 2**  
**BART Extension**  
 VTA's BART Silicon Valley – Phase II Extension Project

### **1.1.1.2 Alum Rock/28<sup>th</sup> Street Station**

Alum Rock/28<sup>th</sup> Street Station would be located between U.S. 101 and North 28th Street and between McKee Road and Santa Clara Street. The station would be underground with street-level entrance portals with elevators, escalators, and stairs covered by canopy structures. In general, each station would have a minimum of two entrances. A parking structure of up to seven levels would accommodate BART park-and-ride demand with 1,200 parking spaces. The station would include systems facilities both above and below ground.

From Alum Rock/28th Street Station, the alignment would curve under North 28th Street, North 27th Street, and North 26th Street before aligning under Santa Clara Street. The alignment would continue under the Santa Clara Street right-of-way (ROW) until the alignment approaches Coyote Creek.

### **1.1.1.3 Tunnel Alignment near Coyote Creek**

For the Twin-Bore Option, the alignment would transition north of Santa Clara Street beginning just west of 22<sup>nd</sup> Street and pass approximately 20 feet beneath the creekbed of Coyote Creek to the north of Santa Clara Street and avoid the Coyote Creek/Santa Clara Street bridge foundations. The alignment would transition back into the Santa Clara Street ROW near 13<sup>th</sup> Street, west of Coyote Creek. However, for the Single-Bore Option, the alignment would continue directly under Santa Clara Street and pass approximately 55 feet beneath the creekbed of Coyote Creek and approximately 20 feet below the existing bridge foundations.

### **1.1.1.4 13<sup>th</sup> Street Ventilation Structure**

A systems facility site would be located at the northwest corner of Santa Clara and 13<sup>th</sup> Streets. This site would include a tunnel ventilation structure, which would be an aboveground structure with an associated ventilation shaft.

### **1.1.1.5 Downtown San Jose Station**

There are two station location options for the Downtown San Jose Station: the Downtown San Jose Station East Option and the Downtown San Jose Station West Option, as described in detail below. The alignment for this area would be the same irrespective of the station option.

The station would consist of boarding platform levels and systems facilities aboveground and within the tunnel beneath Santa Clara Street, as well as entrances at street level. In general, each station would have a minimum of two entrances. Elevators, escalators, and stairs that provide pedestrian access to the mezzanine would be at station portal entrances. Escalators and stairs would be covered by canopy structures. The station would not have dedicated park-and-ride facilities. Under either Downtown San Jose Station Option, streetscape improvements, guided by San Jose's Master Streetscape Plan, would be provided along Santa Clara Street to create a pedestrian corridor. For the East Option, streetscape improvements

would be between 7th and 1st Streets; for the West Option, streetscape improvements would be between 4th and Market Streets.

### **Downtown San Jose Station East Option**

The alignment would continue beneath Santa Clara Street to the Downtown San Jose Station East Option. Under the Twin-Bore Option, crossover tracks would be located east of the Downtown San Jose Station between 7<sup>th</sup> and 5<sup>th</sup> Streets (within the cut-and-cover box). Under the Single-Bore Option, the crossover tracks would be located east of the station between 9<sup>th</sup> and 5<sup>th</sup> Streets.

### **Downtown San Jose Station West Option**

The alignment would continue beneath Santa Clara Street to the Downtown San Jose Station West Option. Crossover tracks for the Twin-Bore Option would be located east of the Downtown San Jose Station between 4<sup>th</sup> and 2<sup>nd</sup> Streets (within the cut-and-cover box). Under the Single-Bore Option, the crossover tracks would be located east of the station between 7<sup>th</sup> and 2<sup>nd</sup> Streets.

## **1.1.1.6 Tunnel Alignment into Diridon Station**

There are two station location options at Diridon Station: the Diridon Station South Option and the Diridon Station North Option, as described in detail below. The alignment into Diridon Station varies between the North and South Options and between the Twin-Bore and Single-Bore Tunnel Options as described below.

### **Tunnel Alignment into Diridon Station South Option**

The alignment would continue beneath Santa Clara Street from the Downtown San Jose Station and shift south beginning just west of South Almaden Boulevard to pass between the SR 87 bridge foundations. For the Twin-Bore Option, the alignment would pass 40 feet below the riverbed of the Guadalupe River and a retaining wall west of the river, and over 20 feet below the creekbed of Los Gatos Creek. For the Single-Bore Option, the alignment would pass 50 feet below the riverbed of the Guadalupe River, the retaining wall, and the creekbed of Los Gatos Creek. After passing under Los Gatos Creek, the alignment for both options would enter the Diridon Station between Los Gatos Creek and Autumn Street.

### **Tunnel Alignment east of Diridon Station North Option**

Under the Twin-Bore Option, the alignment would continue beneath Santa Clara Street from the Downtown San Jose Station and shift south beginning just west of South Almaden Boulevard to pass between the SR 87 bridge foundations. The alignment would then pass 45 feet below the riverbed of the Guadalupe River and a retaining wall, then veer back north to a location just south of and adjacent to Santa Clara Street. The alignment passes 25 feet below the creekbed of Los Gatos Creek. After passing under Los Gatos Creek, the alignment would enter Diridon Station under Autumn Street and directly south of Santa Clara Street.

The Diridon Station North Option is closer to Santa Clara Street in comparison to the South Option.

Under the Single-Bore Option, the alignment would continue beneath Santa Clara Street, continue 50 feet below the riverbed of the Guadalupe River and 50 feet below the creekbed of Los Gatos Creek. After passing under Los Gatos Creek, the alignment would shift north and enter Diridon Station between Autumn and Montgomery Streets, directly south of Santa Clara Street. The Diridon Station North Option is closer to Santa Clara Street in comparison to the South Option.

### **1.1.1.7 Diridon Station**

There are two station location options for the Diridon Station: the Diridon Station South Option and the Diridon Station North Option. The alignment varies by station location. Diridon Station would be generally located between Los Gatos Creek to the east, the San Jose Diridon Caltrain Station to the west, Santa Clara Street to the north, and West San Fernando Street to the south. The South Option would be located midway between Santa Clara Street and Stover Street. The North Option would be located adjacent to, and just south of, Santa Clara Street.

The station would consist of a boarding platform level, a mezzanine level, and entrances at street-level portals. The station would have a minimum of two entrances. Entrances would have elevators, escalators, and stairs covered by canopy structures. Systems facilities would be located aboveground and underground at each end of the station.

An existing VTA bus transit center would be reconfigured for better access and circulation to accommodate projected bus and shuttle transfers to and from the BART station. Kiss-and-ride facilities would be located along Cahill Street. No park-and-ride parking would be provided at this station.

#### **Tunnel Alignment West of Diridon Station North Option**

For the South Option, west of the station, the alignment for both the Twin-Bore and Single-Bore Options would continue beneath the Diridon Caltrain Station train tracks and White Street. The alignment would then turn towards the north, crossing under The Alameda at Cleaves Avenue and under West Julian Street at Morrison Avenue before aligning under Stockton Avenue.

Under the Diridon Station North Option and Twin-Bore Option, west of the station, the alignment would continue beneath the Diridon Caltrain Station train tracks and White Street. The alignment would then turn towards the north, crossing under The Alameda at Wilson Avenue and under West Julian Street at Cleaves Street before aligning under Stockton Avenue.

Under the Diridon Station North Option and Single-Bore Option, west of the station, the alignment would continue under White and Bush Streets south of The Alameda. The

alignment would then turn towards the north, crossing under The Alameda at Sunol Street and under West Julian Street at Morrison Avenue before aligning under Stockton Avenue.

### **1.1.1.8 Tunnel Alignment along Stockton Avenue**

Around Pershing Avenue, all of the options—the Twin-Bore and Single-Bore Options and the Diridon Station South and North Options—converge back onto the same alignment under Stockton Avenue.

### **1.1.1.9 Stockton Avenue Ventilation Structure**

On the east side of Stockton Avenue between Schiele Avenue and West Taylor Street, there are three alternate locations for a systems facility site that would house a tunnel ventilation structure, which would be an aboveground structure with an associated ventilation shaft.

### **1.1.1.10 Tunnel Alignment near I-880**

The alignment would continue north and cross under the Caltrain tracks and Hedding Street. The alignment would continue on the east side of the Caltrain tracks and cross under Interstate (I-) 880 before ascending and exiting the West Tunnel Portal near Newhall Street.

## **1.1.2 City of Santa Clara**

The BART Extension in Santa Clara would consist of the Newhall Maintenance Facility, system facilities, storage tracks for approximately 200 BART revenue vehicles (passenger cars), the Santa Clara Station, and tail track. The San Jose/Santa Clara boundary is located approximately midway through the Newhall Maintenance Facility.

### **1.1.2.1 Newhall Maintenance Facility**

The Newhall Maintenance Facility would begin north of the West Tunnel Portal at Newhall Street in San Jose and extend to Brokaw Road near the Santa Clara Station in Santa Clara. A single tail track would extend north from the Santa Clara Station and cross under the De La Cruz Boulevard overpass and terminate on the north side of the overpass. The maintenance facility would serve two purposes: (1) general maintenance, running repairs, and storage of up to 200 BART revenue vehicles and (2) general maintenance of non-revenue vehicles. The facility would also include maintenance and engineering offices and a yard control tower. Several buildings and numerous transfer and storage tracks would be constructed.

### **1.1.2.2 Santa Clara Station**

The closest streets to the Santa Clara Station would be El Camino Real to the southwest, De La Cruz Boulevard to the northwest, and Coleman Avenue to the northeast near the intersection of Brokaw Road. The station would be at grade, centered at the west end of Brokaw Road, and would contain an at-grade boarding platform with a mezzanine one level

below. Access to the mezzanine would be provided via elevators, escalators, and stairs covered by canopy structures. An approximately 240-foot-long pedestrian tunnel would connect from the mezzanine level of the BART station to the Santa Clara Caltrain plaza, and an approximately 175-foot-long pedestrian tunnel would connect from the mezzanine level to a new BART plaza near Brokaw Road. Kiss-and-ride, bus, and shuttle loading areas would be provided on Brokaw Road.

A parking structure of up to five levels would be located north of Brokaw Road and east of the Caltrain tracks within the station area and would accommodate 500 BART park-and-ride parking spaces in addition to public facilities on the site.

An approximately 150-foot-high radio tower and an associated equipment shelter would be located within the systems site.

This memorandum satisfies a requirement for federally funded projects and provides the analysis for the National Environmental Policy Act (NEPA) Build Alternative, which is the 6-mile extension of BART from Berryessa Station to Santa Clara. VTA's transit-oriented joint development (TOJD) has no federal nexus, and it is not included in this memorandum.



This socioeconomics/environmental justice technical memorandum follows the Federal Transit Administration (FTA) Environmental Justice Circular (FTA C 4703.1) from August 15, 2012. This chapter outlines the quantitative and qualitative data assumptions used to analyze the socioeconomic, environmental justice, and Title VI considerations of the BART extension.

## 2.1 Study Area Data

The BART extension is located within the San Jose and Santa Clara city limits as described in Chapter 1, *Project Description*. The study area, for the purposes of this memorandum, represents U.S. Census Block Groups (59 block groups) located within 0.5 mile of the alignment.<sup>1</sup> Figure 3 depicts the study area block groups. The information presented for this memorandum was obtained from the U.S. 2010 decennial census and the American Community Survey (ACS) 5-year estimates 2010-2014. The analysis compares study area-specific demographics to the City of San Jose (San Jose) and City of Santa Clara (Santa Clara) demographics.

## 2.2 Demographic Data

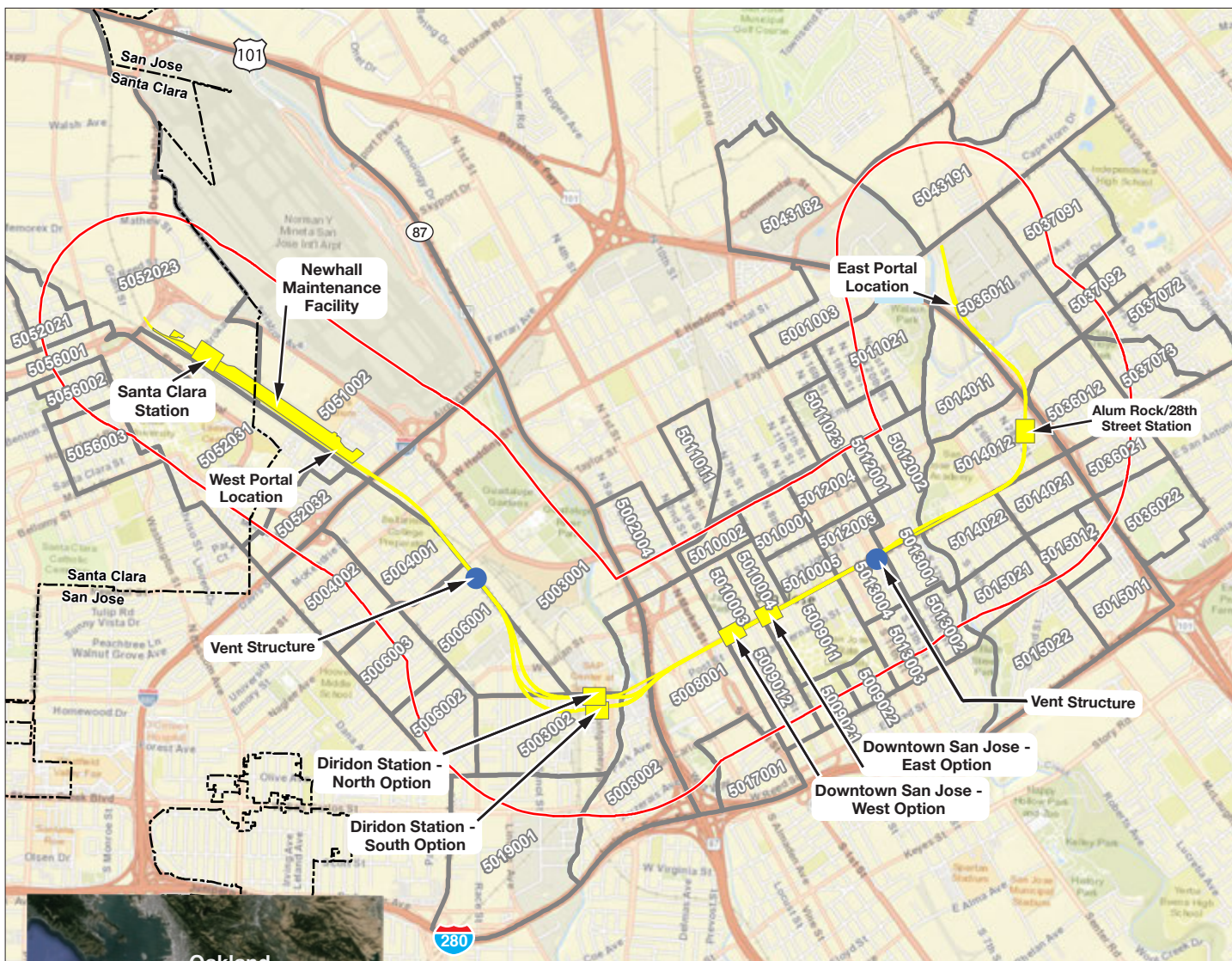
The demographic profile focuses on races, ethnicities, population trends, employment, and income within the study area. Analyzing the demographic profile allows planners to understand the values of the community.

The 2010 US decennial census provides data for race, ethnicity, and population at a block-group level; however, data for income and socioeconomic information are not available from the 2010 US decennial census at the block-group or tract level. As such, the U.S. Census Bureau recommends use of ACS data for this information.<sup>2</sup> The ACS 5-year estimates are an ongoing Census Bureau survey that samples a percentage of the population each year. The data provides an updated representation of the population.






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<sup>1</sup> A census tract is a geographic region within a county. The census tract is broken into smaller block groups, which provide specific data for a more refined geography. Block groups are generally the size of several city blocks, and are therefore a useful geography boundary to represent a community.

<sup>2</sup> U.S. Census Bureau, 2015. Accessed from <https://ask.census.gov/faq.php?id=5000&faqId=93>



**Legend**

-  BART Extension Alignment
-  0.5-Mile Study Area
-  Census Block Groups
-  Vent Structure
-  Station



**Study Area**

**Figure 3**

Sources: Geografika, 2016; Circlepoint, 2016

Accordingly, the ACS 2010-2014 data is the best available data at this time for income and socioeconomics and is therefore used in this analysis. The 2013 Association of Bay Area Government's (ABAG)<sup>3</sup> Projections were used for future conditions.

## 2.2.1 Race and Ethnicity

The FTA Circular C4703.1 defines a minority as persons who are American Indian, Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian, and other Pacific Islander. An environmental justice minority population is one in which the minority population is greater than 50 percent of the total population of the community or when the minority population in a community is meaningfully greater than the majority of the general population. For the purposes of this analysis, a minority population (within each census block group) is considered meaningfully greater if the minority population exceeds the minority population of the city where it is located. 2010 Census Block Groups were used to collect race and ethnicity data to determine the environmental justice minority population block groups.

Categories on the decennial census questionnaire reflect the social definition of race that is recognized in the US. Based on the 2010 U.S. Census, the race categories are as follows: White; Black or African American; Asian; American Indian and Alaska Native; Native Hawaiian or Other Pacific Islander; Some Other Races; and Two or More Races in combination.

The Office of Management and Budget (OMB) requires federal agencies to use a minimum of two ethnicities in collecting and reporting data: "Hispanic or Latino" or "Not Hispanic or Latino". A person that selects Hispanic or Latino is a person of Cuban, Mexican, or any Spanish culture or origin, regardless of race.<sup>4</sup>

## 2.2.2 Low-Income

The FTA Circular defines *low-income* as a person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines (Table 1). The average household size within the study area is 2.9 persons per household (averaged to 3), which correlates to the HHS poverty guideline threshold of \$20,090. A low-income population means any readily identifiable group of low-income persons who live in geographic proximity. For the purposes of this analysis, a low-income population (within each census block group) is considered meaningfully greater if the low-income population exceeds the low-income population of the city where it is located.

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<sup>3</sup> The ABAG is the Bay Area's Metropolitan Planning Organization responsible for making long-term forecasts or population, housing, and employment. Forecasts, or "Projections," are made every two years.

<sup>4</sup> U.S. Census. 2012. About Hispanic Origin. Accessed from <http://www.census.gov/population/hispanic/about/>

**Table 1 Poverty Guidelines – 2015**

<b>Persons in Family/Household</b>	<b>Poverty Guideline</b>
1	\$11,770
2	\$15,930
3	\$20,090
4	\$24,250
5	\$28,410
6	\$32,570
7	\$36,730
8	\$40,890
Source: U.S. Department of Health & Human Services 2015.	

## **3.1 Regulatory Setting**

This report has been prepared in compliance with the laws and regulations discussed below.

### **3.1.1 Federal**

#### **3.1.1.1 Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations**

Executive Order (EO) 12898 directs Federal agencies to “promote nondiscrimination in Federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters related to human health or the environment.” The order directs agencies to use existing law to ensure that when they act:

- They do not discriminate on the basis of race, color, or national origin
- They ensure public participation
- They identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations.

Environmental Justice is defined as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, adoption, implementation and enforcement of environmental laws and policies.” (California Senate Bill 115, Solis.)

#### **3.1.1.2 Federal Transit Administration Circular 4703.1**

The Federal Transit Administration (FTA) Circular 4703.1 (August 2012), *Environmental Justice Policy Guidance for Federal Transit Administration Recipients*, provides recipients of FTA financial assistance with guidance in order to incorporate environmental justice principles into plans, projects, and activities that receive funding from FTA. The Circular provides guidance in addressing, as appropriate, disproportionately adverse human health or environmental effects of programs, policies, and activities on minority populations and/or low-income populations. Environmental justice and non-discrimination principles are incorporated into decision-making processes.

### **3.1.1.3 U.S. Department of Transportation Order 5610.2(a)**

The U.S. Department of Transportation (USDOT) Order 5610.2(a) (updated May 2012), *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, sets forth the USDOT policy to consider environmental justice principles in all USDOT programs, policies, and activities. It describes how the objectives of environmental justice will be integrated into planning and programming, rulemaking, and policy formulation.

### **3.1.1.4 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970**

The Uniform and Real Property Acquisition Policies Act provides important protections and assistance for people affected by federally funded projects. The act was passed by Congress to ensure that people whose real property is acquired, or who require relocation as a result of projects receiving federal funds, will be treated fairly and equitably and will receive assistance in moving from the property they occupy. Direct property acquisition under a project requires providing for relocation assistance services to affected homeowners, renters, and tenant businesses. In addition, residential and commercial property owners should be paid fair market value of any property acquired as a result of a project.

### **3.1.1.5 Title VI of the Civil Rights Act of 1964**

The Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal funding. Direct property acquisition as part of the BART Extension would require implementation of this act along with the Uniform Relocation Assistance and Real Property Acquisition Policies Act.

## **3.1.2 Local**

### **3.1.2.1 City of San Jose**

The majority of San Jose's growth is planned for specifically identified Growth Areas within the city limits. The City supports infill growth to maximize mixed-use development and create new opportunities for jobs. The City promotes growth and development trends that maintain social equity by using community-based planning mechanisms. Focused Growth Areas would strategically place high-density housing options in locations with access to public transportation and are within proximity to retail and other services in the surrounding neighborhoods. Growth Areas are planned to encourage pedestrian and bicycle activity with the hope of fostering community identity, while protecting the quality of existing neighborhood character. Portions of the corridor are located within the Urban Village Plan Area, Downtown Plan Area, and the Transit Employment Center within the Urban Growth Boundary line. Accordingly, the City selected these areas for new growth, fiscal, economic, and transportation growth.

The City supports plans to expand BART service and new stations to San Jose in the *City of San Jose 2040 General Plan* (SJGP). The SJGP indicates that new station service would support new development and employment in concentrated areas surrounding such station locations. San Jose includes goals and policies in the SJGP to support community and economic growth as shown Table 2.

**Table 2 San Jose General Plan Policies**

<b>Number</b>	<b>Policy</b>
IE-1.3	As part of the intensification of commercial, Village, Industrial Park and Employment Center job Growth Areas, create complete, mixed-employment areas that include business support uses, public and private amenities, child care, restaurants and retail goods and services that serve employees of these businesses and nearby businesses.
IE-1.4	Manage land uses to enhance employment lands to improve the balance between jobs and workers residing in San José. Strive to achieve a minimum ratio of 1.3 jobs/employed resident to attain fiscal sustainability for the City.
IE-1.5	Promote the intensification of employment activities on sites in close proximity to transit facilities and other existing infrastructure, in particular within the Downtown, North San José, the Berryessa International Business Park and Edenvale.
IE-1.6	Plan land uses, infrastructure development, and other initiatives to maximize utilization of the Mineta San José International Airport, existing and planned transit systems including fixed rail (e.g., High-Speed Rail, BART and Caltrain), Light-Rail and Bus Rapid Transit facilities, and the roadway network. Consistent with other General Plan policies, promote development potential proximate to these transit system investments compatible with their full utilization. Encourage public transit providers to serve employment areas.
IE-1.7	Advance the Diridon Station Area as a world-class transit hub and key transportation center for Northern California.
IE-1.8	Measure and report the number of jobs created in identified Growth Areas during the City Council's periodic review of this General Plan.
IE-1.9	Invest in strategic infrastructure improvements, as appropriate, in order to encourage private investment, reduce new construction costs, increase business efficiency, and in order to support business retention and growth, stimulate economic activity, and employ people.
IE-1.13	Achieve goals related to Quality Neighborhoods, including diverse housing options, a walkable/bikable public street and trail network and compact, mixed-use development where infrastructure exists to distinguish San José as a livable and attractive city, to promote interaction among community members, and to attract talented workers to the City.
IE-4.5	Continue implementation of improvements to Mineta San José International airport facilities pursuant to the Airport Master Plan to maintain and expand regional, trans-continental, and international Airport operations.
IE-4.7	Support Valley Transportation Authority efforts to extend BART service to Downtown San José and to Diridon Station
IE-6.3	Attract job opportunities accessible to all of San José's residents, particularly residents in low-income neighborhoods.
LU-1.1	Foster development patterns that will achieve a complete community in San José, particularly with respect to increasing jobs and economic development and increasing the City's jobs-to-employed resident ratio while recognizing the importance of housing and a resident workforce.
LU-1.3	Within Identified Growth Areas, where consolidation of parcels is necessary to achieve viable designated land uses or other objectives of the Envision General Plan, limit residential development of individual parcels that do not conform to approved Village Plans or further other plan objectives.

Number	Policy
LU-2.1	Provide significant job and housing growth capacity within strategically identified “Growth Areas” in order to maximize use of existing or planned infrastructure (including fixed transit facilities), minimize the environmental impacts of new development, provide for more efficient delivery of City services, and foster the development of more vibrant, walkable urban settings.
LU-2.2	<p>Downtown – The City’s Downtown Strategy plans for ambitious job and housing growth capacity in the Downtown area to reinforce its role as San Jose’s civic, cultural and symbolic center and to support key infrastructure investments, including the planned BART and High-Speed Rail systems.</p> <p>Employment Lands – The Plan supports significant intensification of employment activity within each of the City’s major employment districts (North San José, Monterey Corridor, Edenvale, Berryessa/International Business Park, Mabury, East Gish and Senter Road and North Coyote Valley). Within the North San José, Berryessa / International Business Park and Old Edenvale areas, a centralized sub-area with strong transit access has been designated as an Employment Center to support mid-rise or high-rise employment development. The Employment Center in the northeast corner of the Berryessa / International Business Park area is also classified as a BART station area due to its proximity to the planned Milpitas BART station and existing Capitol Avenue Light Rail stations.</p> <p>Urban Villages: BART/Caltrain Station Areas – To maximize utilization of the Caltrain and BART systems, support regional commuting and foster the City’s growth as a regional job center, significant new job growth capacity is planned for the each of the BART / Caltrain Urban Villages. Significant job and housing growth capacity is planned for the Berryessa BART station area in order to support intensification of the station area as a regional employment destination and to achieve a level of density consistent with that planned for other BART and Light Rail station areas.</p>
TR-1.1	Accommodate and encourage use of non-automobile transportation modes to achieve San José’s mobility goals and reduce vehicle trip generation and vehicle miles traveled (VMT).
TR-1.2	Update the City’s engineering standards for public and private streets based on the new street typologies that incorporate the concept of “complete streets.”
TR-3.7	Regularly collaborate with BART to coordinate planning efforts for the proposed Silicon Valley Rapid Transit Corridor Project (SVRTC Project) to San José/Santa Clara with appropriate land use designations and transportation connections.
Source: City of San Jose 2012.	

### 3.1.2.2 City of Santa Clara

City of Santa Clara encourages new development to meet the needs of projected population growth and to ensure new development is accommodated and supported with the appropriate infrastructure and economic services. Such growth is focused to particular areas, as discussed in the *City of Santa Clara 2010-2035 General Plan* (SCGP). The BART extension would be within the Santa Clara Station Focus Area. Santa Clara projects future development in this area to include extended BART service. The Santa Clara Station Area is currently served by Caltrain, Altamont Commuter Express, and VTA bus lines and is consistent with designated land uses and SCGP policies. The Santa Clara Station Focus Area would provide opportunities for new development of housing, offices, retail, hotels, restaurants, and parks within its geographic area with an assumed development of 1,490,000 square feet for commercial development, 550,000 square feet for office development, and 1,663 additional dwelling units. Santa Clara includes goals and policies in the SCGP to support community and economic growth as shown Table 3.



**Table 3 Santa Clara General Plan Policies**

<b>Number</b>	<b>Policy</b>
5.8-3-P1	Support a coordinated regional transit system that circles the South Bay and the Peninsula, including existing and planned Bay Area Rapid Transit, Amtrak, Altamont Commuter Express, Caltrain, Valley Transportation Authority and High Speed Rail facilities.
5.8.3-P3	Support transit priority for designated Bus Rapid Transit, or similar transit services, through traffic signal priority, bus queue jump lanes, exclusive transit lanes and other appropriate techniques.
5.8.3-P4	Encourage the continued efforts by other agencies to provide transit services that are accessible and meet the needs of all segments of the population, including youth, seniors, persons with disabilities and low-income households
5.8.3-P5	Facilitate implementation of the transit system defined in the transit network classifications and illustrated on the Transit Network Diagram in Figure 5.7-2.
5.8-3-P6	Encourage additional multimodal transit centers and stops in order to provide convenient access to commuter rail, buses, shuttle and taxi services.
5.8.3-P7	Provide transit stops at safe, efficient and convenient locations to maximize ridership, including near employment centers, higher-density residential developments and Downtown.
5.8.3-P9	Require new development to incorporate reduced onsite parking and provide enhanced amenities, such as pedestrian links, benches and lighting, in order to encourage transit use and increase access to transit services.
5.8.4-P4	Facilitate implementation of the bicycle and pedestrian classifications as illustrated on the Bicycle and Pedestrian Network Diagram in Figure 5.7-3.
5.3.1-P5	Implement a range of development densities and intensities within General Plan land use classification requirements to provide diversity, use land efficiently and meet population and employment growth.
5.4.3-G3	A link between the Santa Clara Station and a variety of transit options that offer viable transportation alternatives throughout the City and the region.
Source: City of Santa Clara 2010a	

## 3.2 Environmental Setting

### 3.2.1 Socioeconomics

This section describes the existing socioeconomic conditions within the study area. The study area is defined as the block groups within a 0.5-mile buffer of the alignment. The following analysis isolates the study area to represent a subset of the Cities of San Jose and Santa Clara population that would be closest to the BART Extension and most sensitive to localized effects. San Jose and Santa Clara statistics represent a baseline for demographics on a regional scale and a point of comparison for the study area demographic findings. This analysis compares if and how the study area demographics deviate from the regional demographics (i.e., San Jose and Santa Clara).

#### 3.2.1.1 Population Trends

Table 4 shows the San Jose and Santa Clara populations. San Jose is the largest city within Santa Clara County with over 945,942 people in 2010. ABAG projects the population to

grow to approximately 1,334,100 people by 2040; a 41 percent increase. Santa Clara’s population was 116,468 people in 2010. ABAG projects that Santa Clara will grow to approximately 156,500 people over the next several decades; a 34 percent increase.

San Jose and Santa Clara have grown over the past 40 years, largely owing to an increase in job growth associated with the high-technology sector. Accessibility to public transit is a major factor in growth trends moving forward. Caltrain service between San Francisco and San Jose, Amtrak Capital Corridor, and VTA light rail network provide access to San Jose and Santa Clara, which has contributed to development trends and population growth as well.

**Table 4 Population Change 2010–2040**

Geographic Area	Population		
	2010	2040	Percent Change
San Jose	945,942	1,334,100	41%
Santa Clara	116,468	156,500	34%

Source: ABAG 2013.

### 3.2.1.2 Housing and Development

The U.S. Census Bureau defines a household as a group of people, related or not, living together in a dwelling unit. Table 5 shows the average household sizes of San Jose and Santa Clara. The average household size is approximately 2.9 people per household within San Jose and Santa Clara.

**Table 5 Average Household Size**

Area	People Per Household
San Jose	3.1
Santa Clara	2.7
<i>Average</i>	2.9

Source: ACS 2010–2014

The SJGP indicates it is no longer feasible for the City to accommodate the increasing population through outward expansion. Such development would have negative economic implications for San Jose as a result of diminished municipal service levels. However, cultural values in San Jose are shifting to demonstrate a growing interest in infill and urban environments. The city expects to attract a younger age group between 20 and 34 that are seeking a more urban lifestyle and to live closer to their workplace.

Santa Clara expects to see new high-density housing opportunities as well. Such development encourages affordable and accessible homes for the community and assists in maintaining existing character and integrity of established neighborhoods. Much of the areas

surrounding the existing Santa Clara Caltrain Station and other transit corridors are considered underutilized and are therefore target focus areas for infill redevelopment.

Infill development trends within established growth and focus areas of San Jose and Santa Clara are becoming more common as local goals and policies focus on opportunities to better utilize existing development (Section 3.1, *Regulatory Setting*). Table 6 summarizes housing growth projections within San Jose and Santa Clara. ABAG projects that the number of households in San Jose will increase by 43 percent by 2040. This matches the anticipated San Jose population increase by 41 percent by 2040 identified in Table 5. The Santa Clara projections for housing growth also is projected to increase consistent with population at 33 percent and 34 percent, respectively; a slightly lower percent change than San Jose.

**Table 6 2010–2040 Household Growth**

Geographic Area	Households		
	2010	2040	Percent Change
San Jose	301,366	432,030	43%
Santa Clara	43,021	57,260	33%

Source: ABAG 2013.

### 3.2.1.3 Jobs and Employment

Table 7 provides a breakdown of employment industries by sector. Managerial and professional sector jobs are the largest percentage of jobs for San Jose, Santa Clara, and the study area. Such professions include financial, computer, engineering, sciences, education, community service, healthcare, and technical occupations. Approximately 37 percent of the study area works in the management and professional sector, which is lower than the Santa Clara percentage (51 percent) and the San Jose percentage (43 percent). Additionally, the study area has a higher percentage of service-related jobs (19 percent) than the respective city percentages. Service sector jobs include food preparation, law enforcement, and maintenance occupations.

As discussed in Section 3.1, *Regulatory Setting*, local goals and policies encourage development and employment opportunities in particular areas. San Jose and Santa Clara aim to spur economic and job growth through strategic land use planning that increases the job-to-employed ratio.

**Table 7 Employment by Sector**

Sector	San Jose		Santa Clara		Study Area	
	Persons	Percent	Persons	Percent	Persons	Percent
<i>Employed civilian population 16 years and over</i>	512,413	100%	55,528	100%	43,258	100%
Management, professional	221,402	43%	28,498	51%	16,322	37%
Service	92,042	18%	5,142	9%	8,535	19%

Sector	San Jose		Santa Clara		Study Area	
	Persons	Percent	Persons	Percent	Persons	Percent
Sales and office	108,264	21%	12,862	23%	9,532	22%
Natural resource, construction, maintenance	37,558	7%	3,127	6%	4,415	10%
Production, transportation, and material moving	53,147	10%	5,899	11%	4,454	10%

Source: ACS 2010–2014.

Table 8 outlines projected employment growth within San Jose and Santa Clara from 2010 to 2040. San Jose is projected to have a 39 percent increase in employment; Santa Clara is projected to have a 29 percent increase in employment.

**Table 8 2010–2040 Employment Growth**

Geographic Area	Employment (Jobs)		
	2010	2040	Percent Change
San Jose	377,140	524,510	39%
Santa Clara	112,890	146,180	29%

Source: ABAG 2013.

Table 9 summarizes the employment and unemployment rates for San Jose, Santa Clara, and the study area from the 2014 ACS data. Approximately 12 percent of the study area is unemployed, which is higher than the unemployment rates in San Jose and Santa Clara which are 6 percent and 5 percent, respectively.

**Table 9 Employment/Unemployment Rates**

Area	Total Labor Force Population	Employed		Unemployed	
		Persons	Percent	Persons	Percent
San Jose	530,500	499,700	94%	30,800	6%
Santa Clara	65,800	62,700	95%	3,100	5%
Study Area	54,646	47,969	88%	6,677	12%

Source: California Employment Development Department 2014; ACS 2010–2014.

### 3.2.1.4 Income

Table 10 summarizes the median household income for San Jose and Santa Clara from the ACS 2014 estimates. The median household income is also defined for the study area. The study area median household income is \$61,063, which is approximately \$33,000 less than the Santa Clara overall average. The study area median household income is approximately \$23,000 less than the San Jose overall average.

**Table 10 Median Household Income**

Geographic Area	Median Household Income
San Jose	\$83,787
Santa Clara	\$93,840
Study Area	\$61,063
Source: ACS 2010–2014.	

Table 11 summarizes per capita income levels from the ACS 2014 estimates. Individuals within the study area make roughly \$5,500 per year less than the overall average in San Jose, and \$11,800 per year less than overall average in Santa Clara.

**Table 11 Per Capita Income**

Area	Per Capita Income
San Jose	\$34,992
Santa Clara	\$41,222
Study Area	\$29,439
Source: ACS 2010–2014.	

## 3.2.2 Environmental Justice Populations

This section discusses the existing conditions related to environmental justice along the BART Extension alignment (including staging areas).

An environmental justice community is a particular geographic area that meets certain socioeconomic and demographic thresholds. Environmental justice populations can be considered based on their minority population and/or income status.

The study area represents U.S. Census Block Groups (59 block groups) located within 0.5 mile of the alignment.

### 3.2.2.1 Minority Populations

San Jose and Santa Clara are generally diverse communities, representing a variety of races and ethnicities as shown in Table 12. The study area provides a more localized assessment of the community demographics within the areas immediately surrounding the alignment. Table 13 further summarizes these demographics by outlining the percent minority.

Figure 4 depicts the percent minority distribution. Table 14 summarizes the minority percent within the study area. The minority percentage of block groups that exceed the minority percentage of the city (San Jose at 71 percent and Santa Clara at 64 percent) in which they are located are shown in **bold**. The block groups in bold represent the populations with the greatest concentrations of minority populations within the study area and are considered environmental justice populations.

**Table 12 Demographic Profile of the Study Area and Region**

<b>Population</b>	<b>City of San Jose</b>	<b>City of Santa Clara</b>	<b>Study Area</b>
<b>Total Population</b>	<b>945,942 (100%)</b>	<b>116,468 (100%)</b>	<b>89,896 (100%)</b>
<i>Hispanic or Latino (of any race)</i>	<i>313,636 (33%)</i>	<i>22,589 (19%)</i>	<i>39,252 (44%)</i>
<i>Not Hispanic or Latino</i>	<i>632,306 (67%)</i>	<i>93,879 (81%)</i>	<i>50,644 (56%)</i>
White	271,382 (29%)	42,026 (36%)	24,357 (27%)
Black or African American	27,508 (2%)	2,929 (3%)	3,329 (4%)
American Indian and Alaska Native	2,255 (0.2%)	240 (0.2%)	245 (0.2%)
Asian	300,022 (32%)	43,531 (38%)	19,735 (22%)
Native Hawaiian and Other Pacific Islander	3,492 (0.4%)	604 (0.5%)	377 (0.4%)
Some Other Race	1,820 (0.2%)	321 (0.3%)	252 (0.3%)
Two or More Races	25,827 (3%)	4,228 (4%)	2,349 (3%)
Source: U.S. Census 2010.			

**Table 13 Minority Percent**

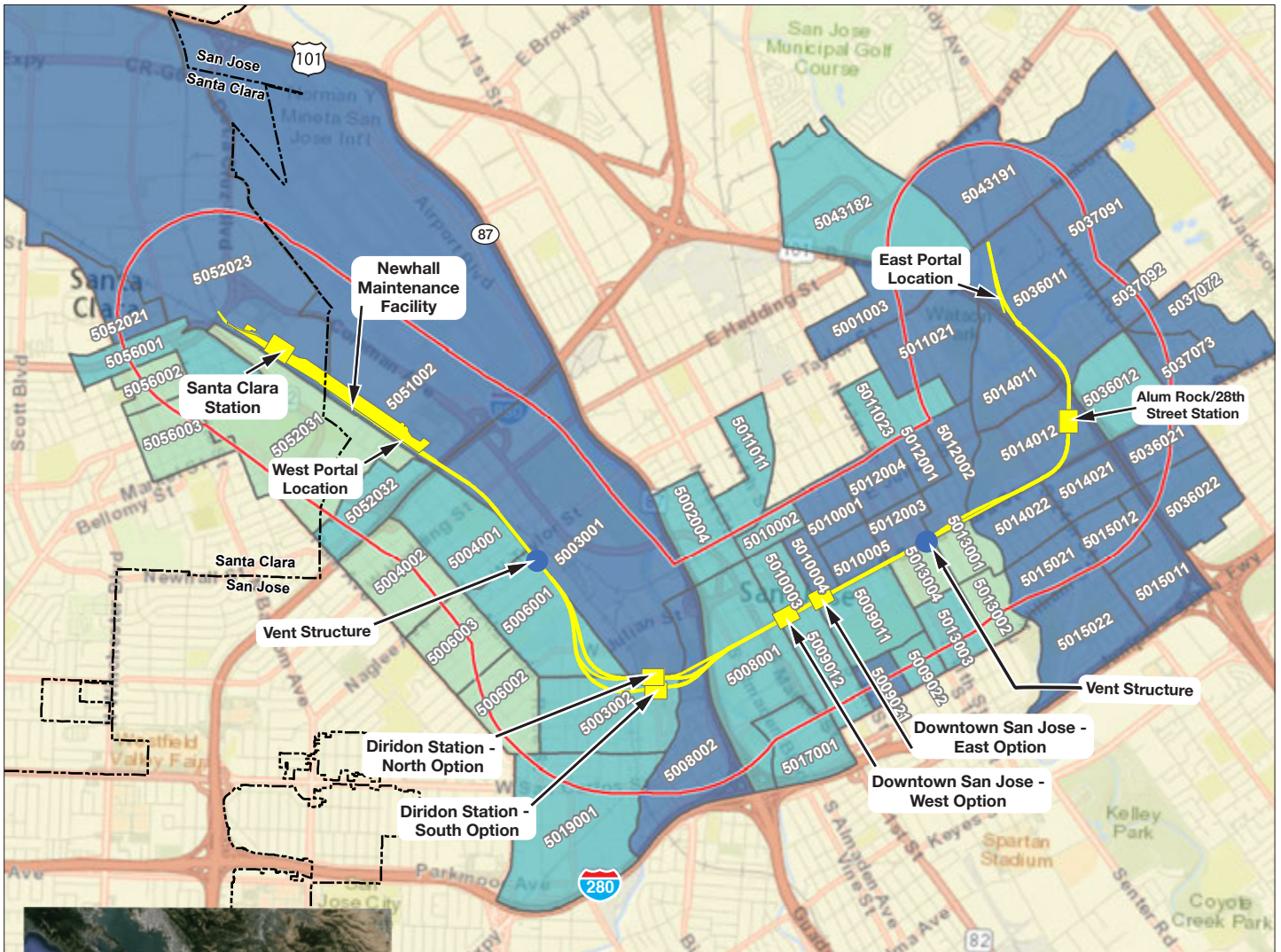
<b>Location</b>	<b>Percent Minority</b>
San Jose	71%
Santa Clara	64%
Study Area	73%
Source: U.S. Census 2010.	

**Table 14 Study Area Minority Percent Distribution**

	Minority Percent
<b>San Jose Block Groups</b>	
<b>Block Group 3, Census Tract 5001</b>	<b>87%</b>
Block Group 4, Census Tract 5002	51%
<b>Block Group 1, Census Tract 5003</b>	<b>77%</b>
Block Group 2, Census Tract 5003	53%
Block Group 1, Census Tract 5004	58%
Block Group 2, Census Tract 5004	49%
Block Group 1, Census Tract 5006	60%
Block Group 2, Census Tract 5006	30%
Block Group 3, Census Tract 5006	41%
Block Group 1, Census Tract 5008	58%
<b>Block Group 2, Census Tract 5008</b>	<b>75%</b>
<b>Block Group 1, Census Tract 5009.01</b>	<b>73%</b>
Block Group 2, Census Tract 5009.01	59%
<b>Block Group 1, Census Tract 5009.02</b>	<b>83%</b>
Block Group 2, Census Tract 5009.02	64%
<b>Block Group 1, Census Tract 5010</b>	<b>86%</b>
<b>Block Group 2, Census Tract 5010</b>	<b>72%</b>
<b>Block Group 3, Census Tract 5010</b>	<b>73%</b>
<b>Block Group 4, Census Tract 5010</b>	<b>75%</b>
<b>Block Group 5, Census Tract 5010</b>	<b>75%</b>
Block Group 1, Census Tract 5011.01	68%
<b>Block Group 1, Census Tract 5011.02</b>	<b>78%</b>
<b>Block Group 3, Census Tract 5011.02</b>	<b>73%</b>
<b>Block Group 1, Census Tract 5012</b>	<b>79%</b>
<b>Block Group 2, Census Tract 5012</b>	<b>82%</b>
<b>Block Group 3, Census Tract 5012</b>	<b>77%</b>
<b>Block Group 4, Census Tract 5012</b>	<b>79%</b>
Block Group 1, Census Tract 5013	44%
Block Group 2, Census Tract 5013	34%
Block Group 3, Census Tract 5013	60%
Block Group 4, Census Tract 5013	48%
<b>Block Group 1, Census Tract 5014.01</b>	<b>92%</b>
<b>Block Group 2, Census Tract 5014.01</b>	<b>83%</b>
<b>Block Group 1, Census Tract 5014.02</b>	<b>75%</b>
<b>Block Group 2, Census Tract 5014.02</b>	<b>87%</b>
<b>Block Group 1, Census Tract 5015.01</b>	<b>96%</b>
<b>Block Group 2, Census Tract 5015.01</b>	<b>93%</b>
<b>Block Group 1, Census Tract 5015.02</b>	<b>83%</b>
<b>Block Group 2, Census Tract 5015.02</b>	<b>92%</b>
Block Group 1, Census Tract 5017	70%
Block Group 1, Census Tract 5019	68%
<b>Block Group 1, Census Tract 5036.01</b>	<b>78%</b>
<b>Block Group 2, Census Tract 5036.01</b>	<b>72%</b>

	<b>Minority Percent</b>
<b>Block Group 1, Census Tract 5036.02</b>	<b>88%</b>
<b>Block Group 2, Census Tract 5036.02</b>	<b>95%</b>
<b>Block Group 2, Census Tract 5037.07</b>	<b>95%</b>
<b>Block Group 3, Census Tract 5037.07</b>	<b>90%</b>
<b>Block Group 1, Census Tract 5037.09</b>	<b>98%</b>
<b>Block Group 2, Census Tract 5037.09</b>	<b>97%</b>
Block Group 2, Census Tract 5043.18	56%
<b>Block Group 1, Census Tract 5043.19</b>	<b>91%</b>
<b>Block Group 2, Census Tract 5051</b>	<b>78%</b>
Block Group 2, Census Tract 5052.03	55%
<b>Santa Clara Block Groups</b>	
<b>Block Group 1, Census Tract 5052.02</b>	<b>75%</b>
<b>Block Group 3, Census Tract 5052.02</b>	<b>83%</b>
Block Group 1, Census Tract 5052.03	49%
Block Group 1, Census Tract 5056	51%
Block Group 2, Census Tract 5056	47%
Block Group 3, Census Tract 5056	44%
Source: U.S. Census 2010.	
Note: Bolded text identifies an environmental justice population because the minority percentage exceeded the minority percentage of the city in which they are located (San Jose: 71%; Santa Clara: 64%).	





**Legend**

- 25-49%
- 50-74%
- 75-100%
- BART Extension Alignment
- 0.5-Mile Study Area
- # Census Block Groups
- Vent Structure
- Station



**Minority Percent Distribution**

Figure **4**

Sources: Geografika, 2016; Circlepoint, 2016

### 3.2.2.2 Low-Income Populations

The study area contains high percentage of low-income individuals. A low-income environmental justice population refers to the median household income compared to the HHS poverty guidelines within geographic proximity to the alignment. The average household size is 2.9 persons per household (averaged to 3), which correlates to the HHS poverty guideline threshold of \$20,090. Figure 5 depicts the ranges of median household income amongst the population.

Table 15 identifies the low-income population of the entire study area as well as within San Jose and Santa Clara. Approximately 13 percent of individuals living within the study area are low-income. The study area average is slightly more than the San Jose and Santa Clara overall averages of 12% and 9% respectively. Table 16 outlines the census block groups that are considered low income. The low-income percentage of block groups that exceed the low-income percentage of the city in which they are located are shown in **bold**. The block groups in bold represent the populations with the greatest low-income populations within the study area and are considered environmental justice populations. Figure 6 depicts the low-income percent ranges within the study area.

**Table 15 Low-Income Population**

Geographic Area	Percent Individuals Below Poverty Level
San Jose	12%
Santa Clara	9%
Study Area	13%
Source: ACS 2010–2014.	

**Table 16 Environmental Justice Block Groups – Low-Income**

	Low-Income Percent
<b>San Jose Block Groups</b>	
Block Group 3, Census Tract 5001	0%
Block Group 4, Census Tract 5002	2%
<b>Block Group 1, Census Tract 5003</b>	<b>37%</b>
Block Group 2, Census Tract 5003	3%
Block Group 1, Census Tract 5004	0%
<b>Block Group 2, Census Tract 5004</b>	<b>21%</b>
Block Group 1, Census Tract 5006	4%
Block Group 2, Census Tract 5006	0%
Block Group 3, Census Tract 5006	4%
Block Group 1, Census Tract 5008	6%
Block Group 2, Census Tract 5008	4%

	<b>Low-Income Percent</b>
<b>Block Group 1, Census Tract 5009.01</b>	<b>48%</b>
Block Group 2, Census Tract 5009.01	9%
<b>Block Group 1, Census Tract 5009.02</b>	<b>43%</b>
<b>Block Group 2, Census Tract 5009.02</b>	<b>43%</b>
<b>Block Group 1, Census Tract 5010</b>	<b>23%</b>
Block Group 2, Census Tract 5010	0%
Block Group 3, Census Tract 5010	8%
Block Group 4, Census Tract 5010	0%
<b>Block Group 5, Census Tract 5010</b>	<b>18%</b>
<b>Block Group 1, Census Tract 5011.01</b>	<b>16%</b>
Block Group 1, Census Tract 5011.02	2%
<b>Block Group 3, Census Tract 5011.02</b>	<b>15%</b>
Block Group 1, Census Tract 5012	5%
<b>Block Group 2, Census Tract 5012</b>	<b>16%</b>
<b>Block Group 3, Census Tract 5012</b>	<b>22%</b>
<b>Block Group 4, Census Tract 5012</b>	<b>34%</b>
Block Group 1, Census Tract 5013	0%
Block Group 2, Census Tract 5013	0%
Block Group 3, Census Tract 5013	0%
Block Group 4, Census Tract 5013	11%
<b>Block Group 1, Census Tract 5014.01</b>	<b>21%</b>
<b>Block Group 2, Census Tract 5014.01</b>	<b>21%</b>
<b>Block Group 1, Census Tract 5014.02</b>	<b>26%</b>
Block Group 2, Census Tract 5014.02	10%
<b>Block Group 1, Census Tract 5015.01</b>	<b>23%</b>
Block Group 2, Census Tract 5015.01	9%
<b>Block Group 1, Census Tract 5015.02</b>	<b>21%</b>
<b>Block Group 2, Census Tract 5015.02</b>	<b>13%</b>
Block Group 1, Census Tract 5017	0%
Block Group 1, Census Tract 5019	9%
<b>Block Group 1, Census Tract 5036.01</b>	<b>23%</b>
<b>Block Group 2, Census Tract 5036.01</b>	<b>20%</b>
Block Group 1, Census Tract 5036.02	10%
<b>Block Group 2, Census Tract 5036.02</b>	<b>23%</b>
<b>Block Group 2, Census Tract 5037.07</b>	<b>19%</b>
Block Group 3, Census Tract 5037.07	8%
<b>Block Group 1, Census Tract 5037.09</b>	<b>30%</b>
<b>Block Group 2, Census Tract 5037.09</b>	<b>47%</b>
Block Group 2, Census Tract 5043.18	0%
Block Group 1, Census Tract 5043.19	4%

	<b>Low-Income Percent</b>
Block Group 2, Census Tract 5051	0%
Block Group 2, Census Tract 5052.03	0%
<b>Santa Clara Block Groups</b>	
<b>Block Group 1, Census Tract 5052.02</b>	<b>16%</b>
<b>Block Group 3, Census Tract 5052.02</b>	<b>28%</b>
Block Group 1, Census Tract 5052.03	6%
Block Group 1, Census Tract 5056	0%
<b>Block Group 2, Census Tract 5056</b>	<b>12%</b>
Block Group 3, Census Tract 5056	5%
Source: ACS 2010–2014.	
Note: Bolded text identifies an environmental justice population because the low-income percentage exceeded the low-income percentage of the city they are located (San Jose: 12%; Santa Clara: 9%).	

### 3.2.2.3 Environmental Justice Populations

The study area is 73 percent minority. For comparison, the Cities of San Jose and Santa Clara are 71 and 64 percent minority, respectively. As the majority of the study area is within the City of San Jose, the study area minority demographics do not deviate largely from the City of San Jose minority demographics.

The average median household income of the overall study area is \$61,063 per year, and 13 percent of the study area is considered to be low income. For comparison, the Cities of San Jose and Santa Clara median household income is \$83,787 and \$93,840 per year, respectively; the percent low income is 12 and 9 percent, respectively.

Figure 7 summarizes the geographic locations (census block groups) of the populations with the greatest concentrations of minority and low-income percentage within the study area and are considered to be environmental justice populations. Such environmental justice determinations were based on the minority and low-income criteria outlined above in the *Minority* and *Low-Income* subsections. If the minority population percentage exceeded the threshold of the city in which they are located (San Jose at 71 percent and Santa Clara at 64 percent) or if the low-income population exceeded the threshold of the city (San Jose at 12 percent and Santa Clara at 9 percent), the population would be considered an environmental justice population. If the population did not exceed such thresholds, the population would not be considered an environmental justice population.

As described above, the census block groups identified in bold in Tables 14 and 16 exceed the minority and low-income population percentage thresholds of the city in which they are located and are therefore considered environmental justice populations. These environmental justice populations are shown in Figure 7. The minority environmental justice populations are shown in blue, and the low-income environmental justice populations are shown with a cross hatching. The section below describes each of the BART Extension elements and the environmental justice populations that surround each element.

## **BART Extension Alignment from East to West**

At the eastern end of the BART Extension, the extension would be at grade where it would connect to the Phase I Extension before diving underground into a tunnel and crossing under U.S. 101 and into the underground station at Alum Rock/28th Street Station. Aboveground station elements at the Alum Rock/28th Street Station would include station entrances, systems facilities, and a parking garage. The area surrounding the aboveground tracks on the east side of U.S. 101 is almost entirely industrial, and the area surrounding the proposed Alum Rock/28th Street Station contains mostly residential neighborhoods between Julian Street and Santa Clara Street. As shown in Figure 7, the census block groups surrounding the alignment between Mabury Road and Santa Clara Street exceed the minority and low-income population percentage thresholds of the City of San Jose and are therefore considered to be environmental justice populations.

The alignment would remain underground starting at Alum Rock/28th Street Station and would reemerge north of Interstate (I-) 880 at the proposed Newhall Maintenance Facility and Santa Clara Station. However, other BART Extension features such as mid-tunnel ventilation structures and station facilities, including entrances, systems facilities, and parking, would be above ground. The surrounding land uses and presence of environmental justice populations are described in detail below.

The alignment would curve west from Alum Rock/28th Street Station and line up directly under Santa Clara Street as it travels west toward downtown San Jose. An aboveground ventilation structure is proposed at 13th Street on the north side of Santa Clara Street. The area surrounding the ventilation structure is mostly commercial along Santa Clara Street and residential to the north and south. As shown in Figure 7, the census block groups located immediately adjacent to this vent structure and north of Santa Clara Street exceed the minority and low-income population percentage thresholds of the City of San Jose and are, therefore, considered to be environmental justice populations. Census block groups south of Santa Clara Street and across from the 13th Street Ventilation Structure do not exceed the minority or low-income population percentage thresholds of the City of San Jose and are, therefore, not considered to be environmental justice populations.

The alignment would continue west to the Downtown San Jose Station East and West Options. The areas that surround these station options are predominantly commercial interspersed with residential uses. While both options would be below ground, station entrances and systems facilities would be aboveground.

For the East Option, as shown in Figure 7, most of the census block groups (except the southwest block group) adjoining the aboveground station have minority populations that exceed the City of San Jose's minority population percentage thresholds and are, therefore, considered to be environmental justice populations. The census block groups to the east and south of the station have low-income populations that exceed the City of San Jose's low-income population percentage thresholds; therefore, these populations are considered to be environmental justice populations. The other census block groups adjacent to the East Option

do not exceed the City of San Jose's minority or low-income population percentage thresholds and are, therefore, not considered environmental justice populations.

For the West Option, only the census block group to the north exceeds the City of San Jose's minority population percentage thresholds and is, therefore, considered an environmental justice population. However, none of the census block groups surrounding the West Option exceed the City of San Jose's minority or low-income population percentage thresholds; therefore, these are not considered low-income environmental justice populations.

The alignment would continue west, pass under State Route 87, and enter the proposed Diridon Station South and North Options underground, but both options would include aboveground system facilities, station entrances, and a reconstructed bus transit center. The land uses within and around the Diridon Station South and North Options include the Caltrain Station and associated tracks to the west, the SAP Center to the North, residential and industrial uses to the south, and commercial/office establishments to the east.

For the Diridon Station South and North Options, the census block groups to the north and east exceed the City of San Jose's minority population percentage thresholds, and the census block group to the north also exceeds the City of San Jose's low-income population percentage thresholds; therefore, these census block groups are considered environmental justice populations. The other census block groups do not exceed the City of San Jose's minority or low-income population percentage thresholds and are, therefore, not considered environmental justice populations.

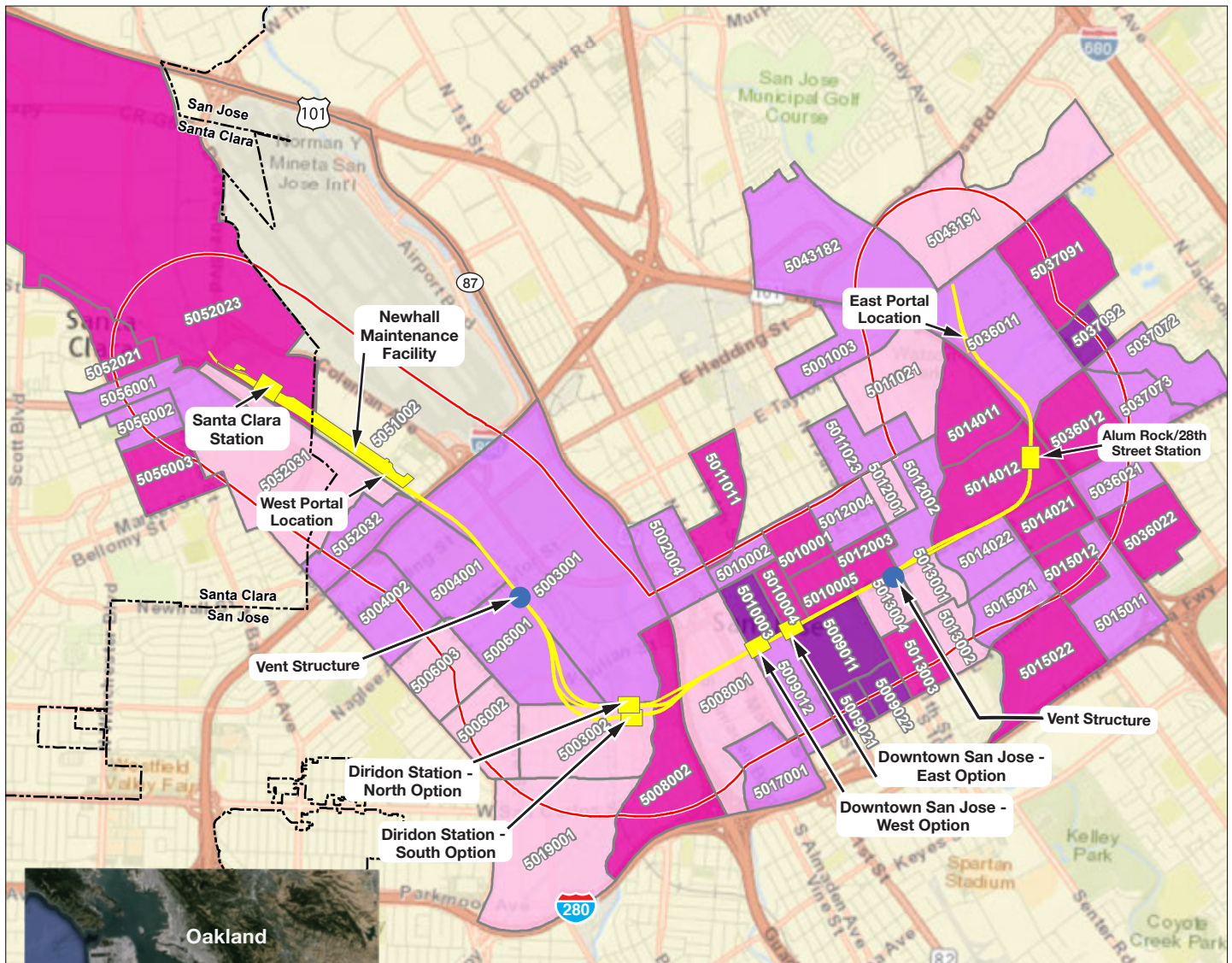
The alignment would continue west then swing northwest and line up under Stockton Avenue south of I-880. The Stockton Ventilation Structure would be located at Stockton Avenue south of Taylor Street. Land uses to the north, east, and southeast of the Stockton Avenue Vent Structure are mostly industrial and commercial uses. The census block group to the north and east exceeds the City of San Jose's minority and low-income population percentage thresholds; therefore, it is considered to be an environmental justice population. The census block groups to the west and southwest do not exceed the City of San Jose's minority or low-income population percentage thresholds. Therefore, they are not considered environmental justice populations.

The alignment would continue northwest, pass under I-880, and enter into the Newhall Maintenance Facility and Santa Clara Station, both of which would be aboveground and located within an industrial area with some residential uses to the southwest, south, and southeast.

The Newhall Maintenance Facility is located within the City of San Jose and City of Santa Clara. The census block groups to the north, northeast, and east of the Newhall Maintenance Facility exceed the City of San Jose and the City of Santa Clara's minority and low-income population percentage thresholds and are, therefore, considered environmental justice populations. The census block groups to the southwest and south do not exceed the City of

San Jose or the City of Santa Clara's minority or low-income population percentage thresholds; therefore, they are not considered environmental justice populations.

The Santa Clara Station is located within the City of Santa Clara. The census block groups to the southwest and south of the station do not exceed Santa Clara's minority or low-income population percentage thresholds; therefore, they are not considered environmental justice populations. However, census block groups to the north, northeast, and east exceed the City of Santa Clara's minority and low-income population percentage thresholds and are, therefore, considered environmental justice populations.



**Legend**

- BART Extension Alignment
- 0.5-Mile Study Area
- Census Block Groups
- Vent Structure
- Station

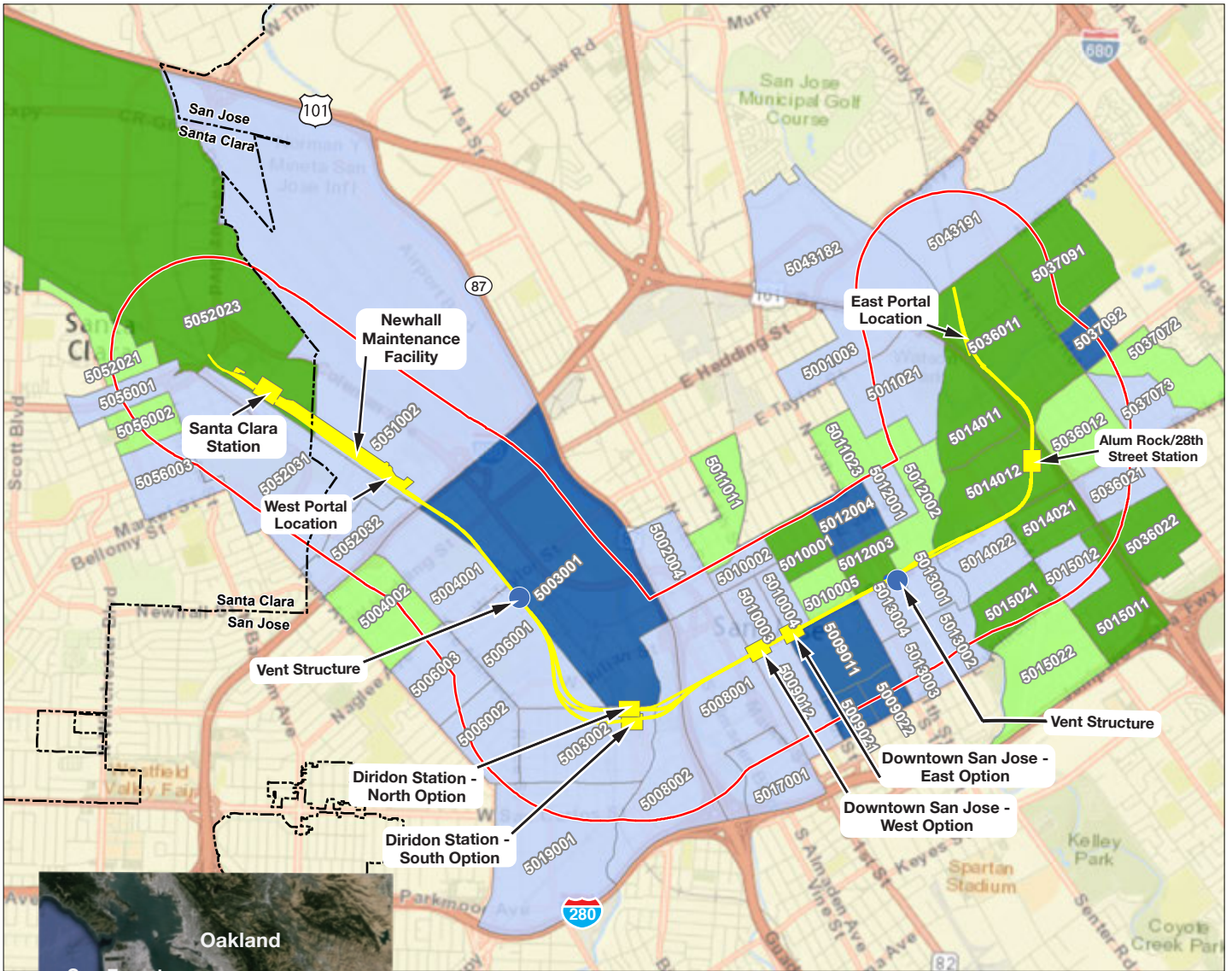
- \$ 0 - 24,999
- \$ 25,000 - 49,999
- \$ 50,000 - 74,999
- \$ 75,000 +

**Median Household Income**










**Figure**

Sources: Geografika, 2016; Circlepoint, 2016





**Legend**

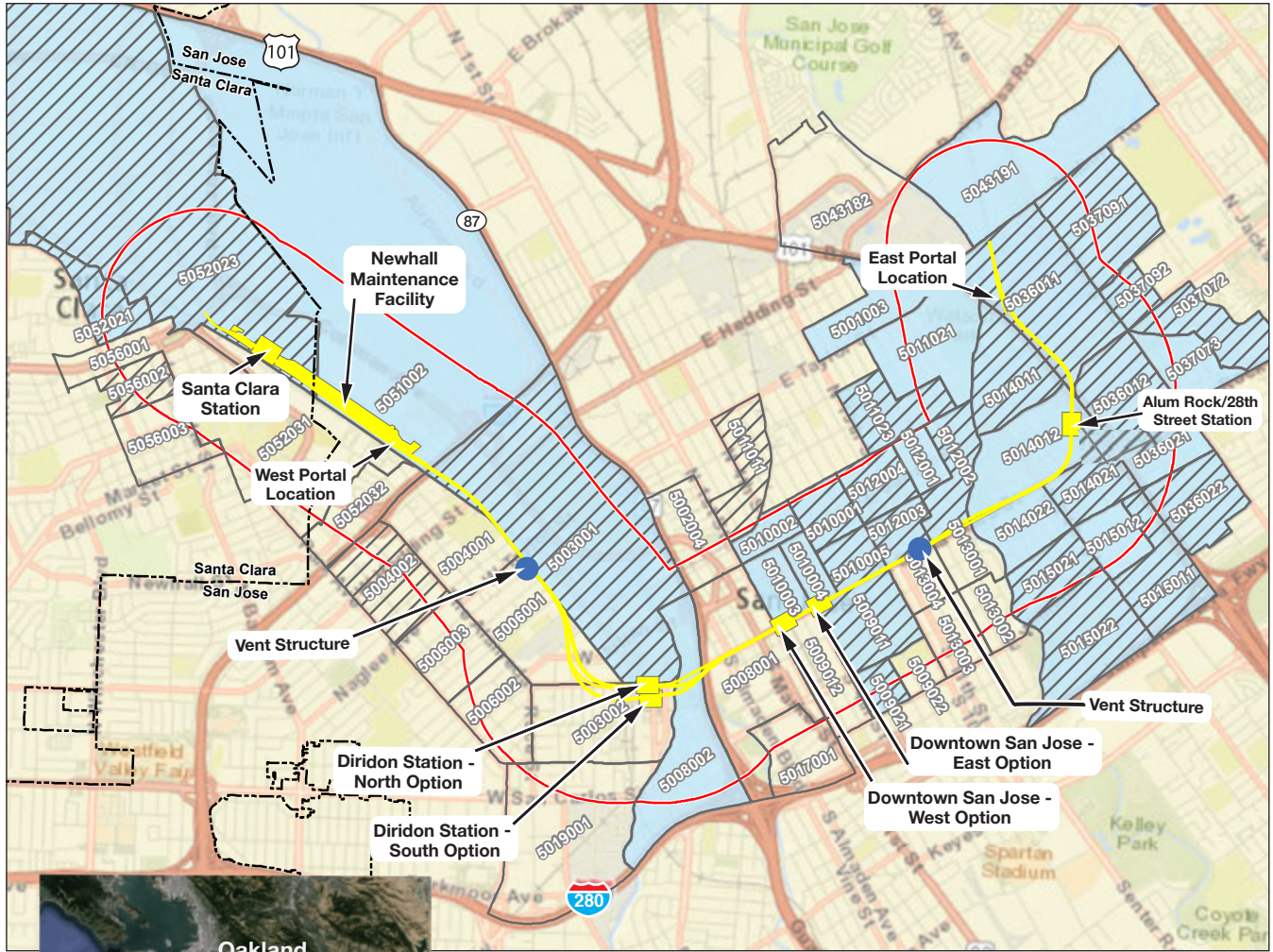
- |   |        |   |                          |
|---|--------|---|--------------------------|
|  | 0-10%  |  | BART Extension Alignment |
|  | 11-20% |  | 0.5-Mile Study Area      |
|  | 21-30% |  | Census Block Groups      |
|  | 31+ %  |  | Vent Structure           |
|   |        |  | Station                  |



**Percent Below Poverty**

**Figure**

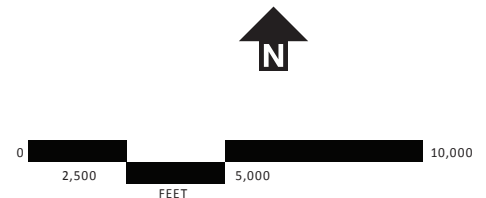
Sources: Geografika, 2016; Circlepoint, 2016



**Legend**

- BART Extension Alignment
- 0.5-Mile Study Area
- Census Block Groups
- Environmental Justice Minority Block Groups
- Environmental Justice Low-Income Block Group
- Station
- Vent Structure

Note: Identified environmental justice block groups in this figure exceed the low-income and/or minority percentages of the city they are located.



Source: Circlepoint, 2016.

| **Figure 7**  
**Environmental Justice Communities**  
 VTA's BART Silicon Valley-Phase II Extension Project

This section describes the existing socioeconomic conditions within the study area. The study area is defined as the block groups within a 0.5-mile buffer of the alignment. The following analysis isolates the study area to represent a subset of the Cities of San Jose and Santa Clara population that would be closest to the BART Extension and most sensitive to localized effects. San Jose and Santa Clara statistics represent a baseline for demographics on a regional scale and a point of comparison for the study area demographic findings. This analysis compares if and how the study area demographics deviate from the regional demographics (i.e., San Jose and Santa Clara).

## 4.1 Socioeconomics

### 4.1.1 Construction

The following impacts would occur during construction.

#### 4.1.1.1 Community Disruptions

Construction of the BART Extension has the potential to adversely affect traffic, transit, and parking, which could impede access to public facilities, businesses, and residences. Residents, businesses, and visitors along the alignment would also be subject to noise, dust, vibration, and emissions from construction equipment during construction. These impacts could discourage or restrict pedestrian activity along the blocks under construction and reduce foot traffic, which could potentially impact local businesses through lost revenues. In addition, on-street parking availability within the study area would be limited during construction. Vehicular traffic and parking effects are outlined in *VTA's BART Silicon Valley—Phase II Extension Project Transportation Impact Analysis of the BART Extension Only* (Hexagon 2016). Community members would experience construction-related effects for several years and, in some cases, up to 8 years until the BART Extension is in operation. Additionally, construction would require acquisition of right-of-way, which would result in the displacement of several businesses and one residence located within the BART Extension footprint. Existing business types and notable facilities near proposed BART Extension components are described below.

- **Alum Rock/28<sup>th</sup> Street Station:** the area surrounding the proposed station includes mostly small retail and light industrial establishments. Additionally, the Portuguese Band and Social Center is on the west side of the site, and the Five Wounds National Portuguese Church and the Cristo Rey San Jose Jesuit High School are southeast of the site. Although several roads would be closed during construction, access to nearby businesses and the school would be maintained.

- **Tunnel Alignment near Coyote Creek:** the area surrounding the proposed 13<sup>th</sup> Street Ventilation Facility includes restaurants, pharmacies, and other commercial businesses. The alignment would be mostly underground in this area, but the aboveground ventilation facility would require lane closures, detours, etc.
- **Downtown San Jose Station East Option:** the San Jose First United Methodist Church, Our Lady of La Vang Parish, and First Presbyterian Church are near the Downtown San Jose Station East Option. Nearby restaurants, sandwich shops, coffee shops, and bars cater to employees in the surrounding offices. A grocery store, several salons, jewelry stores, clothing stores, and other stores occupy much of the ground-level frontage along Santa Clara Street near the station area. Horace Mann Elementary School is also along Santa Clara Street between 6<sup>th</sup> and 7<sup>th</sup> Streets. Construction of the station and associated CSAs would require lane, street, and sidewalk closures. Additionally, construction would remove off-street parking spaces (most located at VTA's Mitchell Block property off Market Street) and on-street publicly available parking spaces.
- **Downtown San Jose Station West Option:** a mixture of offices, banks, retail stores, bars, and restaurants are located near the Downtown San Jose Station West Option. The Trinity Cathedral, Daughters of Zion Ministries, and First Presbyterian Church are churches near the proposed station. A pharmacy, several salons, jewelry stores, clothing stores, and other stores occupy much of the ground-level frontage along Santa Clara near the station. Construction of the station and associated CSAs would require lane, street, and sidewalk closures. Additionally, construction would remove off-street parking spaces (most located at VTA's Mitchell Block property off Market Street) and on-street publicly available parking spaces.
- **Diridon Station South and North Options:** several restaurants are located near the SAP Center. Offices and industrial businesses are located near South Montgomery Street and Autumn Street and typically operate during normal business hours. During construction of Diridon Station, off-street and on-street publicly available parking spaces would be removed in the area bounded by Santa Clara Street/The Alameda to the north, San Fernando Street to the south, Los Gatos Creek to the east, and the railroad corridor to the west. Construction would also require full and partial closures of Autumn, Montgomery, and Cahill Streets south of Santa Clara Street.
- **Continuation of Tunnel Alignment:** many retail shops, restaurants, offices, pharmacies, grocery stores, and light industrial businesses exist along this portion of the alignment. Pockets of restaurants and bars increase where the alignment is closer to Downtown San Jose and the SAP Center. Several auto-part and light industrial stores are in this area as well. The alignment would be underground along this portion of the BART Extension. Near Stockton Avenue and south of Taylor Street, there are three alternate locations for the Stockton Avenue Mid-Tunnel Ventilation Facility. Construction activities for the Stockton Ventilation Facility include short-term lane closures.

- **End-of-the-Line Newhall Maintenance Facility:** the existing restaurants surrounding the end-of-the-line Newhall Maintenance Facility include a few on the west side of the Caltrain tracks off El Camino Real. The Avaya Stadium and a commercial shopping center is near the facility. Construction vehicles would use Brokaw Road and Newhall Drive which may require lane closures and detours. Newhall Drive is in the vicinity of Avaya Stadium but no stadium access or parking is allowed from this street.
- **Santa Clara Station:** existing businesses surrounding the Santa Clara Station include larger box-type retail, a dentist office, and several other small offices and restaurants. All of these establishments have off-street parking lots for their employees and patrons. The area surrounding Santa Clara Station is largely residential on the west side of El Camino Real and is close to Santa Clara University. Construction would require access to Brokaw Avenue, which is a dead-end road that also provides access to Costco and other businesses. The eastern half of Brokaw Road would remain open to vehicular traffic, and therefore access to the businesses would not be reduced.

Construction of the BART Extension would result in disruptions to nearby businesses and a potential loss of income while access is limited and detoured. These effects would be experienced across the entire study area, but vary in severity based on location and also type of tunnel boring method chosen. Compared to the Twin-Bore Option, the Single-Bore Option would involve less cut-and-cover excavation at the stations and would thereby result in less disruption to pedestrian and vehicular access. Overall, construction of the BART Extension would be disruptive to the local community. VTA will work with property and business owners to minimize disruption and maintain access throughout construction.

Although construction activities would cause disruptions for both tunnel options, VTA will ensure traffic, bicycle, and pedestrian traffic would be maintained to the extent feasible or re-routed. The severity of these effects would be reduced by adherence to regulations and implementation of mitigation. VTA will work with property and business owners to minimize disruption and maintain access throughout construction and would implement Mitigation Measure TRA-CNST-A and prepared a *Construction Education and Outreach Plan*. Mitigation Measure TRA-CNST-A would implement an extensive outreach program to notify the public of upcoming construction activities and provide frequent updates, a dedicated onsite outreach coordinator, and 24-hour hotline. The overall intent of Mitigation Measure TRA-CNST-A is to coordinate construction activities with existing business operations and other development projects and to establish a process that will adequately address the concerns of businesses and their customers, property owners, residents, and commuters. VTA will work with property owners and business owners in the station areas to maintain access to businesses during construction to the extent feasible. VTA will also implement Mitigation Measure TRA-CNST-C and work with the City of San Jose to develop parking management strategies to encourage multi-modal access to the Downtown San Jose area. Construction of the BART Extension would also provide work opportunities for the community, which would be beneficial for the local economy. Additionally, mitigation measures for air quality (Mitigation Measures AQ-CNST-A through AQ-CNST-I) and noise

construction (Mitigation Measures NV-CNST-A through NV-CNST-S) would reduce potential effects on businesses except for construction noise impacts at the Downtown San Jose and Diridon Stations.

Given the long period of construction and potential for disruption to access for local businesses in Downtown San Jose, socioeconomic impacts are considered *adverse* during construction. The severity of the impacts would be greater for the Twin-Bore Option than for the Single-Bore Option due to the more extensive cut-and-cover station and crossover construction proposed under the Twin-Bore Option that would require major street and lane closures.

Construction would be disruptive to the local community and those that travel to Downtown San Jose for work under both the Twin-Bore and Single-Bore Options. Roadway and sidewalk closures would be most disruptive during peak commute times during the day from bus rerouting, bus stop relocation, loss of parking, and vehicular accessibility. While road closure may affect vehicle access, many of the Downtown businesses cater to employees in the surrounding offices and rely heavily on pedestrian access. Pedestrian traffic may decrease due to limited access during construction. However, VTA will maintain pedestrian access whenever feasible and will work with property and business owners to minimize disruption of access to businesses during construction. Additionally, construction workers may become new customers to businesses, which may help to offset construction impacts. VTA will work with property and business owners to minimize disruption and maintain access throughout construction.

While construction would be phased with not all impacts happening at once or at one location, and although VTA will implement a comprehensive Construction Education and Outreach Plan, construction impacts would last for up to 8 years. Construction activities would adversely impact the local business community.

Construction activities would provide employment opportunities for the local community. In addition, according to FTA Circular 4220.1F – Third Party Contracting Guidance, each FTA recipient must comply within applicable Federal laws and regulations that provide competitive opportunities for a contractor that qualifies as a disadvantaged business enterprise (DBE), minority-owned firm, women’s business enterprise, or small business. Therefore, implementation of the BART Extension would create economic benefits for disadvantaged contracting firms that meet such criteria during construction. VTA’s BART Silicon Valley—Berryessa Extension Project, or Phase I Project, also followed such requirements, including an 18 percent DBE goal.

Although operation of the BART Extension would have a long-term beneficial effect on the community and business viability by increasing regional mass transit access and reducing air pollutant emissions, the estimated construction duration of 8 years and associated disruptions to the Downtown San Jose area would result in a short-term *adverse effect* on socioeconomics during construction.

### 4.1.1.2 Displacements and Acquisitions

The BART Extension would require property acquisitions and resultant displacements from acquiring the underlying property in whole or in part. The types of displacements associated with the BART Extension are described below.

#### **Connection to Phase I/East Tunnel Portal**

Several construction staging areas would be required to construct the BART Extension and are considered to be temporary property acquisitions. Although use of these properties would only be temporary during construction, all existing businesses would be relocated, and all existing structures would be demolished and removed to allow for the use of these sites for storage of construction equipment and materials. Acquisition of these staging areas would displace 6 industrial businesses, 1 non-profit business, and approximately 250 RV storage tenant spaces. These RV spaces are used for parking and storage, not for residential purposes. The businesses that would be displaced in this area are mostly industrial or commercial warehouse types of establishments within an entirely industrial area. These establishments may be an employment source for the local and regional community; thus, relocation would have a temporary effect on employees during the transition. VTA will work with the business owners to relocate businesses with no anticipated long-term impacts on employees or owners. No residential properties would be acquired in this segment of the alignment.

#### ***Tunnel Easements***

Tunnel easements would be obtained from approximately 40 private properties for the tunnel alignment from the East Tunnel Portal to US 101. Tunnel easements would not require property acquisitions or other associated surface impacts because they would be entirely underground.

#### **Alum Rock/28<sup>th</sup> Street Station**

Construction of Alum Rock/28<sup>th</sup> Street Station would cause the displacement of four light industrial businesses and one billboard structure with double-facing advertising signs. The businesses that would be displaced in this area are mostly industrial warehouse types of establishments within an entirely industrial area. These establishments may be an employment source for the local and regional community; thus, relocation would have a temporary effect on employees during the transition. The BART Extension would not displace the Five Wounds National Portuguese Church and associated facilities or the Cristo Rey San Jose Jesuit High School.

#### ***Tunnel Easements***

Tunnel easements would be obtained from an estimated 12 private properties for the tunnel alignment from 28<sup>th</sup> to 24<sup>th</sup> Streets. Tunnel easements would not require property acquisitions or other associated surface impacts because they would be entirely underground.

### **Tunnel Alignment near Coyote Creek**

Construction of the 13<sup>th</sup> Street Ventilation Structure would cause the displacement of one medical office business and one billboard structure with double-facing advertising signs. This business is not likely to be a large source of employment within the local community. No residential properties would be acquired in this segment of the alignment.

### ***Tunnel Easements***

Near Coyote Creek, tunnel easements would be obtained from an estimated 13 private properties between 22<sup>nd</sup> and 12<sup>th</sup> Streets. Tunnel easements would not require property acquisitions or other associated surface impacts because they would be entirely underground.

### **Downtown San Jose Station**

#### ***Downtown San Jose Station East Option***

Construction of the East Option would displace nine businesses. The businesses include one discount grocery store, one hair salon, two bars, one bakery, one check cashing store, three restaurants, and one gas station. These establishments may be an employment source for the local and regional community; thus relocation would have a temporary effect on employees during the transition. Additionally, residents and employees that work in the downtown area access these businesses regularly for errands or during the work day. Community members and consumers would be able to access similar types of business establishments that offer comparable services within the nearby area. No residential properties would be acquired for the Downtown San Jose Station East Option.

#### ***Downtown San Jose Station West Option***

Construction of the Downtown San Jose Station West Option would displace six businesses. These businesses include two bars, one bakery, one check-cashing store, one restaurant, and one gas station. The establishments may be an employment source for the local and regional community; thus relocation would have a temporary effect on employees during the transition. Additionally, residents and employees who work in the downtown area access these businesses regularly for errands or during the work day. Community members and consumers would be able to access similar types of business establishments that offer comparable services within the nearby area. No residential properties would be acquired for the Downtown San Jose Station West Option.

### **Diridon Station**

#### ***Diridon Station South and North Options***

The Diridon Station South and North Options would cause the same displacements: two industrial businesses and one residence. These establishments may be an employment source for the local and regional community; thus relocation would have a temporary effect on employees during the transition. VTA will work with the business owners to relocate businesses with no anticipated long-term impacts on employees or owners.



There would be one displacement of a single-family residence on South Autumn Street; however, the property owner would be compensated in compliance with all the requirements of the Uniform Act and state regulations—Relocation Assistance and Real Property Acquisition Guidelines (Title 25, California Administrative Code Ch. 6, Art 1, Section 6000 et seq.). The residence is surrounded by industrial and commercial uses; only one other residence is located on Autumn Street between Santa Clara and San Fernando Streets. The removal of this residence would not cause or contribute to the physical division of a community.

### ***Tunnel Easements***

Tunnel easements would be obtained for an estimated 9 private properties for the alignment from Almaden Boulevard to Diridon Station and from approximately 33 private properties for the alignment from Diridon Station to just north of Pershing Avenue. Tunnel easements would not require property acquisitions or other associated surface impacts because they would be entirely underground.

### **Continuation of Tunnel Alignment**

Of the three alternate locations for a mid-tunnel ventilation facility between Diridon Station and Santa Clara Station, the most southern alternate location would cause the displacement of one industrial business; the second alternate location would cause the displacement of eight industrial businesses; the third and most northern alternate location would cause the displacement of two industrial businesses.

The businesses that would be displaced in this area are mostly industrial warehouse establishments. As a result, local residents of the community likely do not visit these establishments on a regular daily basis. However, these establishments may be an employment source for the local and regional community; thus, relocation would have a temporary effect on employees during the transition.

### ***Tunnel Easements***

An estimated five tunnel easements would be obtained from private properties between Emory Street and the Newhall Maintenance Facility. Tunnel easements would not require property acquisitions or other associated surface impacts because they would be entirely underground.

### **End-of-the-Line Newhall Maintenance Facility**

The Newhall Maintenance Facility would be constructed on the former UPRR Newhall Yard. No residential or business displacements would be required; however, one cellular tower located just south of De La Cruz Boulevard would need to be relocated within the same parcel to avoid conflict with the alignment. The property is owned by the City of Santa Clara and leased to a private company. Relocation of the cellular tower would require a building permit from the City of Santa Clara and new lease agreement.

### **Santa Clara Station**

Construction of Santa Clara Station would cause the displacement of a business. No residences would be affected.

Table 17 provides a summary of the number and type of displacement that would occur. Appendix B of this memorandum includes proposed acquisitions by type and assessor parcel number (APN).

Approximately 1 residence, 23 to 34 businesses, 250 recreational vehicle (RV) storage tenants, 6 advertising signs, and one cell tower (relocated within the same parcel to avoid conflict with the alignment) would be displaced by the BART Extension. The estimate of permanent displacements herein is based on property utilization in the winter of 2016. Estimates presented here are based on *Project Plans and Profiles*, and *BART Station Site Plans*.

Additionally, tunnel easements would be obtained from private properties, but would not require property acquisitions or other associated surface impacts because they would be entirely underground. Approximately 110 tunnel easements under private properties and 26 tunnel easements under public rights-of-way (ROW) (City streets, highways, Caltrain, City parks, and waterways) would be required to construct the tunnel alignment. These tunnel easements would not cause the displacement of any businesses or residences.

VTA will adhere to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) and FTA guidelines in acquiring real estate and relocating occupants, in addition to applicable state laws and regulations. During final design, the ROW drawings, which will identify all permanent and temporary property acquisitions for the BART Extension, will be finalized. VTA will prepare a Real Estate Acquisition Management Plan (RAMP) and Relocation Assistance Plan (RAP), as required by the FTA, based on those parcels identified in the final ROW plans. Therefore, *no adverse socioeconomic effects* related to displacement and relocation would occur.

**Table 17 BART Extension – Summary of Displacements**

<b>Location</b>	<b>Residences</b>	<b>Businesses</b>	<b>RV Storage Spaces</b>	<b>Advertising Signs</b>	<b>Cell Tower</b>
CSAs near East Tunnel Portal	0	7	250	2	0
Alum Rock/28 <sup>th</sup> Street Station	0	4	0	2	0
13 <sup>th</sup> Street Ventilation Structure	0	1	0	2	0
Downtown San Jose Station	-	-	-	-	-
East Option	0	10	0	0	0
West Option	0	6	0	0	0
Diridon Station	-	-	-	-	-
South Option	1	3	0	0	0
North Option	1	3	0	0	0

<b>Location</b>	<b>Residences</b>	<b>Businesses</b>	<b>RV Storage Spaces</b>	<b>Advertising Signs</b>	<b>Cell Tower</b>
Stockton Ave Ventilation Structure <sup>a</sup>	0	1-8	0	0	0
Santa Clara Maintenance Facility	0	0	0	0	1
Santa Clara Station	0	1	0	0	0
<b>Range of Total Displacements</b>	<b>1</b>	<b>23-34</b>	<b>250</b>	<b>6</b>	<b>1</b>
Source: VTA 2016.					
<sup>a</sup> The Stockton Avenue ventilation structure includes displacements presented as a range because several location options are considered. The final decision will depend on the environmental analysis conclusions and property negotiations and will be made during Final Design.					

## 4.1.2 Operations

The following impacts are long-term impacts that would occur once the BART Extension is constructed and operational.

### 4.1.2.1 Population

Implementation of the BART Extension would expand BART service to the greater San Jose and Santa Clara communities, thereby increasing connectivity in the regional San Francisco Bay Area. Accordingly, implementation of the BART Extension would accommodate growth on a regional level.

By increasing connectivity and access to BART service, the BART Extension would indirectly result in the development and intensification of land uses in cities surrounding the study area. However, indirect growth potentially resulting from the BART Extension is already planned for and forecasted in land use regulating documents (i.e., SJGP and SCGP) and is discussed in Section 3.1, *Regulatory Setting*. Such infill-type development intensification would most likely occur in areas already planned for growth by the surrounding cities. Therefore, *no adverse impacts* related to population would occur.

### 4.1.2.2 Employment

As further described below, above-ground BART Extension features would require displacement and relocation of some businesses, which would potentially result in some job loss; however, VTA will work with the business owners to relocate businesses to eliminate long-term impacts on employees or owners. The BART Extension would generate some direct employment associated with operation and maintenance of BART service. Once in operation, the BART Extension would also indirectly facilitate residential and employment growth planned for the regional area, particularly around station areas, consistent with the general plans. Expanded BART service would improve transit reliability and services throughout the corridor and provide new stations that would improve regional access to downtown employment opportunities. As indicated, approximately 12 percent of the study area population is unemployed. Thus, such opportunities would be a beneficial impact, particularly in the immediate areas surrounding the alignment. Additionally, enhanced access

to public transit would likely increase the ability for residents to travel to other cities in the Bay Area for other available employment opportunities. Therefore, *no adverse impacts* related to employment would occur.

### 4.1.2.3 Summary of Socioeconomics

Most of the property acquisitions required for the BART Extension would displace industrial and commercial types of businesses. VTA will work with the business owners to relocate businesses to minimize long-term impacts on employees and owners. One residence would be displaced under all options at Diridon Station. However, the property owner would be compensated in compliance with all the requirements of the Uniform Act and state regulations—Relocation Assistance and Real Property Acquisition Guidelines (Title 25, California Administrative Code Ch. 6, Art 1, Section 6000 et seq.). The residence is surrounded by industrial and commercial uses; only one other residence is located on Autumn Street between Santa Clara and San Fernando Streets. The removal of this residence would not cause or contribute to the physical division of a community. VTA will prepare a RAMP and RAP, as required by FTA, addressing all of the parcels identified in the final ROW plans. VTA will adhere to the Uniform Act and FTA guidelines in acquiring real estate and relocating occupants, in addition to applicable state laws and regulations.

The final property acquisitions required to construct the BART Extension may change (i.e., increase or decrease in size, change type, and/or change from permanent to temporary, etc.) during final design and construction. Also, during final design and construction, additional easements may be identified such as temporary construction easements, temporary access easements, and long-term maintenance and access easements. It is the intent of this and previous environmental documents to disclose the potential environmental impacts of acquisitions known at the time the environmental document is prepared while recognizing that some adjustments may be necessary based on final design and/or working with individual property owners during the acquisition process or during construction. Should additional modifications beyond the scope of this environmental document trigger the need for additional environmental review, the necessary additional environmental analyses will be prepared.

Implementation of the BART Extension would accommodate growth on a regional level. By increasing connectivity and access to BART service, the BART Extension would indirectly result in the development and intensification of land uses in cities surrounding the study area. However, such population is anticipated in San Jose and Santa Clara land use planning documents. Once in operation, the BART Extension would also indirectly facilitate residential and employment growth planned for the regional area, particularly around station areas, consistent with the general plans. As a result, the BART Extension would have *no adverse effect* on socioeconomics.

#### 4.1.2.4 Relocation Programs/Requirements

All displacement and relocation activities would be conducted in accordance with the Uniform Act, which ensures the fair and equitable treatment of persons and businesses whose real property is acquired or who are displaced as a result of a federal or federally assisted project. Government-wide regulations provide procedural and other requirements (appraisals, payment of fair market value, notice to owners, etc.) in the acquisition of real property and provide for relocation payments and advisory assistance in the relocation of persons and businesses.

VTA's Relocation Program, which complies with federal relocation requirements, provides assistance to affected residence and business owners. This assistance, which varies on a case-by-case basis, can be both financial (e.g., moving costs, rent subsidies, relocation costs, personal property losses, reestablishment expenses, etc.) and technical (e.g., providing information regarding suitable replacement sites, providing referrals, assisting with lease negotiations, assisting with moving logistics, etc.). Business owners also have the option of receiving a fixed payment in lieu of the payments for actual moving and related expenses and actual reasonable reestablishment expenses.

When acquisition occurs, properties would be appraised at fair market value and offers would be based on just compensation. For relocation, the availability of alternate sites would vary; however, the economy is characterized by a comfortable vacancy rate in the BART Extension area, which could easily accommodate the need for relocation space in a similar price range.

During final design and engineering, VTA may determine that some parcels can be temporarily leased prior to being needed for construction. Also, the number of displacements, property acquisitions, and related relocations and easements required could change during final design and engineering, as could the amount of land required from individual parcels.

Federal and state laws require consistent and fair treatment of owners of property to be acquired, including just compensation for their property. These laws also require uniform and equitable treatment of displaced persons or businesses. The provisions of VTA's Relocation Program will mitigate any adverse effects of the business and residential displacements.

## 4.2 Environmental Justice Findings

A transportation project must consider potential effects of a project on a minority or low-income community that is considered an environmental justice population, as described in Section 3.2.2, *Environmental Justice Population*.

According to the FTA Circular 4703.1, Potential effects on environmental justice populations are measured by intensity using the terms *adverse effect* and *disproportionately high and adverse effect*, which are defined as follows.

- An *adverse effect* on minority and low-income populations means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to:
  - Bodily impairment, infirmity, illness or death;
  - Air, noise, and water pollution and soil contamination;
  - Destruction or disruption of human-made or natural resources;
  - Destruction or diminution of aesthetic values;
  - Destruction or disruption of community cohesion or a community's economic vitality;
  - Destruction or disruption of the availability of public and private facilities and services;
  - Vibration;
  - Adverse employment effects;
  - Displacement of persons, businesses, farms, or nonprofit organizations;
  - Increased traffic congestion, isolation, exclusion, or separation of minority or low-income individuals within a given community or from the broader community; and
  - The denial of, reduction in, or significant delay in the receipt of, benefits of USDOT programs, policies, or activities.
- A *disproportionately high and adverse effect* on minority and low-income populations means an adverse effect that:
  1. Is predominately borne by a minority population and/or a low-income population, or
  2. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

## 4.2.1 Construction

Construction of the BART Extension would require acquisition of right-of-way, which would result in the displacement of several businesses and one residence. The right-of-way needs are described in Section 4.1, *Socioeconomics*. Many of these displacements and relocations would occur within low-income and minority populations. Additionally, the BART Extension would also have construction-related effects on the community from air quality, hazards, noise and vibration, traffic, and visual changes. While construction activities are projected to last up to approximately 8 years, community members would experience construction-related effects intermittently depending on the phase of construction.

### 4.2.1.1 Discussion of No Adverse Effects

The resource topic below would have *no disproportionately high and adverse effect* on environmental justice populations.

#### Electromagnetic Fields and Electromagnetic Interference

No construction adverse effects were identified for EMF generation; therefore, no disproportionately high and adverse effects would occur for environmental justice communities and this topic is not discussed further.

### 4.2.1.2 Discussion of Potential Adverse Effects

*A disproportionately high and adverse effect* on environmental justice populations could occur if, the effect:

1. Is predominately borne by a minority population and/or a low-income population, or
2. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

The following subsections discuss the potential adverse effects of the BART Extension identified in this document and analyzes whether these effects would constitute disproportionately high and adverse effects on environmental justice populations. It should be noted that Mitigation Measure TRA-CNST-A (Develop and Implement a Construction Education and Outreach Plan) would apply and be designed to address all of the environmental topic areas below.

#### Air Quality

Construction associated with the BART Extension would generate criteria pollutant emissions from the following construction activities: (1) utility relocation for underground and overhead utilities along the corridor; (2) site preparation/excavation related to the three underground stations, specifically Alum Rock/28<sup>th</sup> Street, Downtown San Jose (East and West Options), and Diridon (South and North Options); (3) cut-and-cover operations and excavation of tunnels by use of one or more TBMs; (4) demolition of existing structures, buildings, pavement, and other site features; (5) construction of ventilation facilities, system facilities, station box, track work including crossovers, station campuses, and the Newhall Maintenance Facility; (6) construction workers traveling to and from construction sites; and (7) delivery of construction supplies to construction sites and hauling of debris from construction sites. These construction activities would create emissions of dust (particulate matter), fumes, equipment exhaust, and other air contaminant effects.

Construction activities would exceed BAAQMD's NO<sub>x</sub> threshold. Mitigation measures would control fugitive dust (AQ-CNST-A) and reduce NO<sub>x</sub> emissions (AQ-CNST-B through AQ-CNST-I). Implementation of Tier 3 engine exhaust controls would reduce

equipment-related NO<sub>x</sub>. However, the NO<sub>x</sub> emissions would still be greater than the BAAQMD threshold even after mitigation. Therefore, construction would result in adverse, short-term air quality effects with regard to NO<sub>x</sub> emissions.

For comparative purposes, because the area to be disturbed by cut-and-cover excavation for the Single-Bore Option would be much smaller than for the Twin-Bore Option, air pollutant emissions would be less for the Single-Bore Option than with the Twin-Bore Option with regard to impacts on the surrounding community.

Because the area within 0.5 miles of the alignment is mostly minority and low-income and construction of stations and aboveground facilities would be in areas that are predominantly minority and low-income, adverse air quality construction effects would be mostly borne by environmental justice populations. However, areas around the Downtown San Jose and Diridon Stations are frequented by non-environmental justice populations, including office goers and transit users who would also be exposed to the same level of emissions from construction activities. Therefore, effects from construction would occur within or immediately adjacent to populations that are considered to be environmental justice populations as well as non-environmental justice populations. The same mitigation measures would be implemented throughout the construction area irrespective of location.

In an overall assessment of construction air quality, taking into account the benefits of extending BART service to minority and low-income areas and providing additional transit opportunities to this area, this effect is *not disproportionately high and adverse* on environmental justice populations for both the Twin-Bore and Single-Bore Options.

## **Socioeconomics**

Construction of the BART Extension has the potential to adversely affect traffic and transit, which would impede access to public facilities, businesses, and residences within the study area. Residents, businesses, and visitors along the alignment would also be subject to noise, dust, vibration, and emissions from construction equipment during construction. These impacts could discourage or restrict pedestrian activity along the blocks under construction and reduce foot traffic, which could impact local business revenues. In addition, on-street parking availability within the study area would be limited during construction. Due to the impacts listed above, and due to the long construction duration, there would be an *adverse effect* on socioeconomics during construction.

For comparative purposes, because the area to be disturbed by cut-and-cover excavation for the Single-Bore Option would be much smaller than for the Twin-Bore Option, the socioeconomic effects would be less for the Single-Bore Option than with the Twin-Bore Option with regard to impacts on the surrounding community.

As described, the study area is composed of predominantly environmental justice populations, although there are non-environmental justice populations distributed within a 0.5-mile distance of the alignment. Both environmental justice populations and



non-environmental justice populations visit and are employed by business establishments and offices within the study area.

VTA will ensure traffic, bicycle, and pedestrian traffic would be maintained where feasible. The severity of these effects would be reduced by adherence to regulations and associated mitigation. VTA will work with property and business owners to minimize disruption and maintain access throughout construction. VTA will implement Mitigation Measure TRA-CNST-A and prepare a *Construction Education and Outreach Plan*. Construction of the BART Extension would also provide work opportunities for the community. This is a potentially beneficial effect for the local economy. Therefore, although the BART Extension would cause adverse socioeconomic effects during construction, these adverse effects would be *not disproportionately high and adverse* to environmental justice populations for both the Twin-Bore and Single-Bore Options.

Displacements would occur with areas inhabited by both environmental justice populations and non-environmental justice populations. The same relocation assistance benefits would be provided for all displacements. All displacement and relocation activities would be conducted in accordance with the Uniform Act, which ensures the fair and equitable treatment of persons and businesses whose real property is acquired or who are displaced as a result of a federal or federally assisted project.

## Hazards and Hazardous Materials

Known and/or anticipated subsurface contaminations are located within the study area of the BART Extension. Disturbance of contaminated materials during construction activities, such as excavation and dewatering, could pose a potential threat to human health and the environment.

For comparative purposes, because the area to be disturbed by cut-and-cover excavation for the Single-Bore Option would be much smaller than for the Twin-Bore Option, the hazardous materials effects would be less for the Single-Bore Option than with the Twin-Bore Option.

As described, the study area is composed of predominantly environmental justice populations, although there are non-environmental justice populations distributed within a 0.5-mile distance of the alignment. The study area contains known hazardous materials release sites. These sites are located throughout the study area within areas that are considered to be environmental justice populations and within areas that are not considered to be environmental justice populations. Implementation of the CMP and Mitigation Measure HAZ-CNST-A would ensure that site-specific remedial action plans are prepared and implemented so that no adverse effect on human health and the environment would occur. As a result, the hazardous materials effects on environmental justice populations would not be appreciably more severe or greater in magnitude than the adverse effect on non-environmental justice populations. Therefore, hazardous materials effects from construction would be *not disproportionately high and adverse* on environmental justice populations for both the Twin-Bore and Single-Bore Options.

## Noise and Vibration

Construction of the BART Extension has the potential to generate high levels of noise and vibration. Construction of the stations and ventilation structures would potentially result in adverse effects on nearby sensitive receptors when construction noise would exceed city standards. Additionally, use of the TBM would result in potentially adverse effects on sensitive receptors (particularly those within 50 feet of the TBM) for a temporary period (about 4 days).

To the extent feasible, construction would adhere to the noise ordinances of the local jurisdiction. The local jurisdiction's construction work hours are as follows.

- In the City of San Jose, construction work will be limited where feasible to the hours of 7 a.m. to 7 p.m. every day of the week, except holidays.
- In the City of Santa Clara, construction work will comply, where feasible, with Section 9.10.040 of the City of Santa Clara City Code, which includes regulations related to noise generated by construction and stipulates that no construction activity will commence prior to 7 a.m. or continue later than 6 p.m. Monday through Friday, or prior to 9 a.m. and after 6 p.m. on Saturdays that are not holidays.

Certain construction activities, such as emergency work (water main break), utilities work, or work activities performed at night to avoid other impacts (such as traffic) require extended work hours and may be exempted from these constraints after coordinating with the Cities.

For comparative purposes, because the area to be disturbed by cut-and-cover excavation for the Single-Bore Option would be much smaller than for the Twin-Bore Option, the noise and vibration effects would be less for the Single-Bore Option than with the Twin-Bore Option.

The study area is composed of predominantly environmental justice populations, although there are non-environmental justice populations distributed within 0.5 mile of the alignment. Noise and vibration effects would occur throughout the study area within areas that are considered to be environmental justice populations and within areas that are not considered to be environmental justice populations. Implementation of noise and vibration mitigation measures (Mitigation Measures NV-CNST-A through NV-CNST-O) would reduce effects so that no adverse effects would occur except for construction noise impacts at the Downtown San Jose and Diridon Stations. Because of the magnitude and duration of the construction activities at the Downtown San Jose and Diridon Stations, including cut-and-cover construction for both the Twin-Bore and Single-Bore Options, noise impacts would be considered adverse. However, the effects would not be appreciably more severe or greater in magnitude than the adverse effect on non-environmental justice populations. Therefore, noise and vibration effects from construction would be *not disproportionately high and adverse* on environmental justice populations for both the Twin-Bore and Single-Bore Options.

## Transportation

Construction of the BART Extension would result in disruptions to vehicle, transit, bicycle, and pedestrian accessibility within the study area during construction. Roadway and sidewalk closures would be disruptive from bus re-routing, bus stop relocation, loss of parking, and limited vehicular accessibility. Compared to the Twin-Bore Option, the Single-Bore Option would involve less cut-and-cover excavation at the three underground stations and would, therefore, result in less disruptions at the street level than the Twin-Bore Option.

The study area is composed of predominantly environmental justice populations, although there are non-environmental justice populations distributed within 0.5 mile of the alignment. Implementation of mitigation measures (Mitigation Measures TRA-CNST-A through TRA-CNST-D) would reduce impacts on vehicle, transit, bicycle, and pedestrian traffic. However, construction would still have an adverse effect on vehicular traffic and bicycle/pedestrian traffic for both the Twin-Bore and Single-Bore Options for the Alum Rock/28<sup>th</sup> Street, Downtown San Jose, and Diridon Stations. Construction of the Newhall Maintenance Facility, West Portal, and Santa Clara Station would have an adverse effect on vehicular traffic for both the Twin-Bore and Single-Bore Options.

Such effects would be experienced throughout the study area within areas that are considered to be environmental justice populations and within areas that are not considered to be environmental justice populations. Additionally, such effects would be experienced by environmental justice populations and non-environmental justice populations that visit or are employed by business establishments and offices within the study area. While the effect is *adverse*, it would not be primarily borne by environmental justice populations. Therefore, the transportation effects from construction would be *not disproportionately high and adverse* on environmental justice populations for both the Twin-Bore and Single-Bore Options.

## Water Resources, Water Quality, and Floodplains

Construction of the BART Extension would potentially result in short-term surface and groundwater quality effects. Surface water impacts could result from sediment transport to drainage facilities and stormwater flooding. Groundwater impacts could result from excavations into the groundwater table necessitating dewatering.

For comparative purposes, because the area to be disturbed by cut-and-cover excavation for the Single-Bore Option would be much smaller than for the Twin-Bore Option, the water resources, water quality, and floodplains effects would be less for the Single-Bore Option than with the Twin-Bore Option.

The study area is composed of predominantly environmental justice populations, although there are non-environmental justice populations distributed within 0.5 mile of the alignment. Potential water quality effects would occur throughout the study area within areas that are considered to be environmental justice populations and within areas that are not considered to be environmental justice populations. Implementation of mitigation measures would reduce effects so no that adverse effects would occur and effects would not be appreciably

more severe or greater in magnitude than the adverse effect on non-environmental justice populations. Therefore, water quality effects from construction would be *not disproportionately high and adverse* on environmental justice populations for both the Twin-Bore and Single-Bore Options.

## Visual Quality

Construction of the BART Extension would result in visual changes as a result of construction. Construction visual impacts would result from equipment operations and storage, stockpiling, and removal of trees among other impacts.

For comparative purposes, because the area to be disturbed by cut-and-cover excavation for the Single-Bore Option would be much smaller than for the Twin-Bore Option, the visual quality effects would be less for the Single-Bore Option than with the Twin-Bore Option.

The study area is composed of predominantly environmental justice populations, although there are non-environmental justice populations distributed within 0.5 mile of the alignment. Potential visual effects would occur throughout the study area within areas that are considered to be environmental justice communities and within areas that are not considered to be environmental justice populations. Implementation of Mitigation Measure AES-CNST-A would reduce effects so that no adverse effects would occur, and effects would not be appreciably more severe or greater in magnitude than the adverse effect on non-environmental justice populations. Therefore, visual effects from construction would be *not disproportionately high and adverse* on environmental justice populations for both the Twin-Bore and Single-Bore Options.

## 4.2.2 Operation

### 4.2.2.1 Resource Areas with No Adverse Effects

The resource topics below would have no disproportionately high and adverse effect on environmental justice populations.

#### Air Quality

Once operational, the BART Extension would reduce the amount of air quality emissions generated in the region. This benefit is directly related to the BART Extension encouraging a transportation modal shift from single-occupancy vehicles toward transit. No operational adverse effects were identified for air quality; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

### **Electromagnetic Fields**

No operational adverse effects were identified for electromagnetic field generation; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

### **Hazardous Materials**

No operational adverse effects were identified for hazardous materials; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

### **Socioeconomics**

No operational adverse effects were identified for socioeconomics; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

### **Transportation**

No operational adverse effects were identified for transit, bicycle/pedestrian facilities, and vehicles; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

### **Visual Quality**

No operational adverse effects were identified for visual quality; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

### **Water Resources, Water Quality, and Floodplains**

No operational adverse effects were identified for water resources, water quality, and floodplains; therefore, *no disproportionately high and adverse effects* would occur on environmental justice populations, and this topic is not discussed further.

#### **4.2.2.2 Resource Areas with Potential Adverse Effects**

The resource topics below would have potential to have a disproportionately high and adverse effect on environmental justice populations; however, mitigation would reduce the potential effect so it would not be appreciably more severe or greater in magnitude than the adverse effect on non-environmental justice populations.

### **Noise and Vibration**

The BART Extension has the potential to cause adverse effects resulting from operational airborne noise and operational groundborne noise as discussed below. No potential adverse effects are anticipated from operational vibration.

Airborne noise impacts from train operations can occur where trains are running on track aboveground, at ventilation facilities where train noise is transmitted to the surface from the tunnel below, and from storage yard tracks and maintenance facility activities. Aboveground BART operations on at-grade track north of I-880 would result in a Moderate Noise Impact at one ground-floor receiver and two second-story receivers near the Santa Clara Station. However, the increases are 2 dBA or less, which is not a readily perceived amount. Therefore, no mitigation is proposed.

Operation of emergency ventilation fans, piston relief shafts, traction power substations, and emergency backup generators could result in exceedances of Cities of San Jose and Santa Clara noise criteria at nearby residences, which would be considered an adverse effect due to airborne noise. However, with implementation of Mitigation Measure NV-A this impact would have no adverse effect.

Train operations in the tunnel are predicted to result in exceedance of FTA groundborne noise criteria at many receptor locations, which would be considered an adverse effect. However, with implementation of Mitigation Measures NV-B and NV-C, this impact would have no adverse effect.

As described, the study area is composed of predominantly environmental justice populations interspersed among non-environmental justice populations. The BART Extension is predicted to cause potential airborne noise effects from aboveground BART Extension elements and potential groundborne noise effects from underground train operations within or immediately adjacent to environmental justice populations and non-environmental justice populations. However, mitigation would reduce potential airborne and groundborne noise effects; therefore, these impacts would have no adverse effect. The BART Extension operations do not result in any vibration impacts. Consequently, following mitigation, *no disproportionately high and adverse effects* on environmental justice populations would occur.

#### **4.2.2.3 Community Outreach Efforts**

VTA has taken measures to ensure the public is aware and has been engaged during the design period of the BART Extension. VTA displayed advertisements in the local newspapers, mailed individuals located within the vicinity of the alignment, emailed VTA's web recipients, posted on social media, and issued press releases to announce the BART Extension and held public meetings during the scoping period. The mailers were sent to 58,000 recipients within a 0.25-mile radius of the alignment and within a 1-mile radius of stations. The mailers were translated into five languages (Spanish, Vietnamese, Korean, Chinese, and Portuguese). All of these outreach efforts included a method to contact VTA with concerns or comments. These efforts are further outlined in *VTA's BART Silicon Valley—Phase II Extension Project Scoping Report* (2015).

VTA conducted three scoping meetings to gather input from the community which provided information to the community and initiated public involvement in the environmental review

process. The community offered suggestions and concerns at several public forums, including scoping meetings. During the scoping process, VTA invited the community to provide input on the BART Extension. The community offered suggestions and voiced concerns related to several BART Extension components. Such community input has helped to guide the development, particularly for aboveground station areas, to minimize adverse community effects of the BART Extension. The main concerns of the community were regarding parking constraints, traffic congestion, entry points of the stations, pedestrian safety, gentrification, displacement, and potential impacts on Five Wounds Church and Cristo Rey San Jose Jesuit High School. The community was also concerned about construction effects of the BART Extension regarding dust, air quality, and noise. The community also requested understanding of how all of these potential concerns would affect environmental justice populations.

VTA took this community feedback into consideration while determining the most feasible alignment. The BART Extension would expand BART service to the greater San Jose and Santa Clara community, thereby increasing connectivity in the regional San Francisco Bay Area, which would be a direct benefit of this same community. Implementation would facilitate residential and employment growth and infill development planned for the regional area.

VTA conducted three scoping meetings to gather input from the community which provided information to the community and initiated public involvement in the environmental review process. Over 200 individuals attended the meetings:

- Environmental Scoping Meeting #1  
Thursday, February 12, 2015, 5:30 – 7:30 p.m.  
Santa Clara Council Chambers  
1500 Warburton Avenue, Santa Clara, CA 95050
- Environmental Scoping Meeting #2  
Tuesday, February 17, 2015, 5:30 – 7:30 p.m.  
VTA Customer Service Center  
55 West Santa Clara Street, San Jose, CA 95113
- Environmental Scoping Meeting #3  
Thursday, February 19, 2015, 5:30 – 7:30 p.m.  
Mexican Heritage Plaza  
1700 Alum Rock Avenue, San Jose, CA 95116

### **4.2.3 Summary of Environmental Justice Findings**

Construction of the BART Extension would have direct and indirect effects on populations within the vicinity of the alignment. The BART Extension would have construction-period environmental effects related to air quality, socioeconomics, hazards and hazardous materials, noise and vibration, water quality, and visual quality. Environmental effects would

be mitigated, where feasible, ensuring that effects on low-income and minority communities would be reduced. However, both environmental justice populations and non-environmental justice populations would experience adverse construction-related effects for air quality, noise, and transportation because such effects would continue to be adverse with mitigation.

While construction would last for up to 8 years, the magnitude of construction activities would vary substantially as the activity moves from one location to another. Although construction would be phased so that adverse construction-related effects would not be experienced at the same time, and although VTA will implement a comprehensive Construction Education and Outreach Plan, the community and businesses would experience intermittent adverse construction-related air quality, noise, and transportation effects depending on the phase of construction.

However, implementation of the BART Extension would have a long-term beneficial effect on the community by increasing public transit service and capacity, enhancing regional connectivity, improving mobility options, and improving regional air quality by reducing auto emissions. Both environmental justice populations and non-environmental just populations would experience these long-term benefits.

A finding on Environmental Justice requires that mitigation and benefits be considered along with the adverse effects. In conclusion, adverse effects caused by construction would affect both environmental justice populations and non-environmental justice populations, implementation of mitigation measures would reduce construction-period impacts for all populations, and there will be economic benefits created during construction for firms meeting disadvantage business criteria. As a result, construction of the BART Extension would not result in a *disproportionately high and adverse effect* on environmental justice populations in the study area.

As described above, operation of the BART Extension would not result in adverse effects regarding air quality; electromagnetic fields; hazardous materials, socioeconomics, transportation; visual quality; and water resources, water quality, and floodplains.

Operation of the BART Extension would result in potential adverse effects regarding noise and vibration. As described, VTA will implement mitigation that would reduce potential effects to a level such that *no adverse effects* would occur. The BART Extension would expand BART service to the greater San Jose and Santa Clara community, thereby increasing connectivity in the regional San Francisco Bay Area. The BART Extension would create direct and indirect jobs associated with operations that would provide new employment opportunities for all populations including environmental justice populations. Implementation of the BART Extension would facilitate residential and employment growth and infill development planned for the area. Once in operation, the BART Extension would increase regional mass transit access and reduce air pollutant emissions by shifting more users to public transit. Such effects would benefit environmental justice and non-environmental justice populations. Furthermore, VTA has taken measures to ensure the public is aware of the BART Extension and engaged in the implementation process. With the



community outreach efforts that have occurred to-date and with implementation of mitigation, the BART Extension would not result in adverse effects. Accordingly, *no disproportionately high and adverse effects* from operation of the BART Extension would result for environmental justice populations.

## **5.1 Assessment of Cumulative Effects**

### **5.1.1 Socioeconomics**

The geographic context for the cumulative analysis of socioeconomics includes future development within the communities that surround the alignment. As discussed, demographics within 0.5 mile of the alignment are considered in addition to the area within the study limits. Future land use development is anticipated to increase to accommodate anticipated growth in the area. The areas surrounding the alignment are mostly built-out, and the majority of future development generally involves redevelopment of existing areas, infill development, or development of vacant lots.

#### **5.1.1.1 Construction**

Construction of the BART Extension has the potential to adversely affect traffic and transit, which would impede access to public facilities, businesses, and residences. Residents, businesses, and visitors along the alignment would also be subject to noise, dust, vibration, and emissions from construction equipment during construction activities. These impacts could discourage or restrict pedestrian activity along the blocks under construction and reduce foot traffic, which could affect local business revenues. These effects, in combination with effects from other proposed development projects in the area, would contribute to a cumulative effect. VTA will ensure vehicle, bicycle, and pedestrian traffic would be maintained. Additionally, VTA will work with property and business owners to minimize disruption and maintain access throughout construction. However, residents, businesses, and visitors along the alignment would experience adverse construction-related effects for transportation because such effects would continue to be adverse after mitigation. Therefore, this would also result in cumulatively adverse effects on socioeconomics under NEPA during construction.

#### **5.1.1.2 Operation**

Operation of the BART Extension would displace industrial and commercial types of businesses. These relocations, in combination with relocations from other proposed development projects in the area, would contribute to a cumulative effect. Compared to the No Build Alternative, the BART Extension would result in greater displacement and relocation of businesses. Accordingly, VTA will work closely with any displaced businesses, per federal and state relocation laws and policies in accordance with Public Law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. With adherence to these policies through the implementation of a Relocation

Assistance Program, the BART Extension would not result in cumulatively adverse effects on socioeconomics under NEPA during operation.

## **5.1.2 Environmental Justice**

The geographic context for the cumulative analysis of environmental justice includes populations that surround the alignment. The areas surrounding the alignment are mostly built-out, and the majority of future development generally involves redevelopment of existing areas, infill development, or development of vacant lots. Future land use development is anticipated to increase to accommodate anticipated growth in the area.

### **5.1.2.1 Construction**

Construction of the BART Extension would have environmental effects during construction related to socioeconomics, hazards and hazardous materials, noise and vibration, water quality, and visual quality. Environmental effects would be mitigated, where feasible, reducing the effects on low-income and minority communities. However, environmental justice populations would continue to experience adverse construction-related effects for air quality, noise, and transportation after mitigation. However, these adverse effects would be experienced by both environmental justice populations and non-environmental justice populations. Therefore, construction of the BART Extension would not result in a disproportionately high and adverse effect to environmental justice populations. These effects in combination with effects from other proposed development projects in the area, would not contribute to a cumulative effect.

### **5.1.2.2 Operation**

Operation of the BART Extension would not result in long-term adverse effects. Compared to the No Build Alternative, operation of the BART Extension would increase transit opportunities equally for environmental justice and non-environmental justice populations. In general, environmental justice populations rely more heavily on transit due to low car ownership. Operation of the BART Extension would provide benefits of an expanded transit service and regional connectedness for environmental justice populations. Additionally, other transit projects planned in the region would similarly benefit these populations.

## Design Commitments and Mitigation Measures

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### 6.1 Avoidance, Minimization, and Mitigation Measures

#### **Mitigation Measure TRA-CNST-A: Develop and Implement a Construction Education and Outreach Plan**

A Construction Education and Outreach Plan (CEOP) will be developed by VTA to foster communication between VTA, various municipalities, and the public during the construction phase. The plan will be implemented to coordinate construction activities with existing business operations and other development projects and to establish a process that will adequately address the concerns of businesses and their customers, property owners, residents, and commuters. Critical components of this plan will include but are not limited to the following public outreach strategies using a variety of media opportunities.

- Frequent updates to stakeholder groups, business organizations, and municipalities.
- Public workshops and meetings with community members.
- Distribution of project information and advanced construction notification via flyers, emails, mailers and face-to-face visits.
- Develop promotional and marketing materials to encourage customers to shop at businesses during construction.
- Continuous sharing of project information and contacts posted to the website.
- Media relations, i.e., news releases, news articles and interviews.
- Onsite outreach coordinator/personnel and 24-hour hotline.
- Work with property owners and business owners in the station areas to maintain access to businesses during construction including enhanced signage.

Throughout development and implementation, the education and outreach activities will be comprehensive, seeking widespread involvement; proactive, with efforts geared toward obtaining input, as well as disseminating information; responsive to various needs, including multiple languages and alternative formats; and timely, accurate, and results-oriented.

### **Mitigation Measure TRA-CNST-B: Develop and Implement a Construction Transportation Management Plan**

A Transportation Management Plan will be developed by VTA to coordinate vehicle, bike, pedestrian, and public transportation circulation during construction. Critical components of the plan are as follows.

- VTA will coordinate with transit providers as necessary to ensure that appropriate measures are taken to re-route bus routes and to relocate bus stops during construction.
- Bus bridge service will be provided during the temporary closure of light rail service (Downtown San Jose Station West Option only).
- Pedestrians and bicyclists will be provided with safe travel corridors within and through construction areas, or detour routes will be set up with wayfinding signage.
- For vehicular traffic, as part of the CEOP, VTA will inform the Cities of San Jose and Santa Clara staff, media, and public about upcoming construction activities, schedules, roadway closures, and detours within the station areas and system facility locations. In addition, VTA will work with the cities to modify green times at key intersections during construction; set up event timers at key intersections for time of day when closures are planned; modify timing to allow longer gap and maximum times for detour movements at key intersections; provide flag control or temporary signalization at un-signalized intersections; and provide early signage of potential construction delays for motorists to choose alternate routes.
- VTA will work with agency staff and the SAP Center to develop an access and circulation plan during construction to minimize impacts on pedestrians and bicyclists traveling through Diridon Station and/or accessing SAP Center (Diridon Station only).
- VTA will work with the California Department of Transportation (Caltrans), the Cities of San Jose and Santa Clara, the Downtown Business Association, business owners, and key stakeholders to develop this Transportation Management Plan to minimize adverse effects from construction. As part of the plan, traffic and pedestrian detours, alternate access, signage, and public outreach will be implemented along with special scheduling to offset the adverse effects of street or lane closure.

### **Mitigation Measure TRA-CNST-C: Develop and Implement a Parking Management Plan**

A Parking Management Plan will be developed by VTA to coordinate parking during construction. Critical components of the plan are as follows.

- VTA will inform the Cities of San Jose and Santa Clara, the Downtown San Jose Business Association, business owners, residents, and key stakeholders (such as the

SAP Center) regarding lane and road closures that would affect parking. VTA will work with the cities to minimize disruptions to parking.

- Construction staging areas will be available for public parking if not required for construction activities.

### **Mitigation Measure TRA-CNST-D: Coordinate with Fire and Police Services during Construction**

As local emergency service routes and response times could be affected by construction activities, VTA will coordinate with local fire and police services to minimize this impact. Critical components of coordination are as follows.

- VTA will inform that the local fire and police departments of the construction schedule, and potential lane and road closures.
- VTA will work with emergency providers to ensure emergency access to residents and businesses.
- VTA will work with the local fire and police departments on the detour routes.

VTA will provide road signage for detours and provide manual traffic control on detour routes as necessary.

### **Mitigation Measure AQ-CNST-A: Implement Dust Control Measures**

VTA will require construction contractors to implement basic construction mitigation measures and additional construction mitigation measures recommended by BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include the following applicable measures or similar performing measures (additional measures may be identified by BAAQMD or the contractor, as appropriate).

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, unpaved access roads) shall be watered two times per day or as needed to control dust. In times of drought, an effective combination of dust controls may be used in lieu of watering, such as soil binders/stabilizers, or watering may be used to form a crust on undisturbed areas.
- All exposed surfaces shall be watered at a frequency that will maintain a minimum soil moisture content of 12 percent. Moisture content can be verified by lab samples or a moisture probe, although such verification is typically visual. No visible dust emissions are permitted to leave the construction area.
- All haul trucks that transport soil, sand, or other loose material offsite shall be covered or moistened such that there are no dust emissions.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day, or more frequently if needed

- to control track-out during active soil hauling operations. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
  - Paving operations on roadways, driveways, and sidewalks shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading, unless seeding or a soil binder is used.
  - A publicly visible sign shall be posted that includes the telephone number and name of the person to contact at VTA regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.
  - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
  - Windbreaks (e.g., fences with screening) shall be installed on the windward side(s) of disturbed construction areas where feasible. Windbreaks should have 50 percent (maximum) air porosity.
  - Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
  - The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities in the same area shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
  - All trucks and equipment, including their tires, shall use designated construction entrances/exits that have been constructed with rock, rumble strips, or other features to remove dirt from tires.
  - Sediment and erosion control devices shall be installed on sites with a slope greater than 1 percent to prevent silt runoff from entering public roadways.

#### **Mitigation Measure AQ-CNST-B: Use U.S. Environmental Protection Agency (EPA) Tier 4 or Cleaner Engines**

Construction contracts shall stipulate that all off-road, diesel-powered equipment used during construction will be equipped with EPA Tier 4 or cleaner engines, except for specialized construction equipment for which an EPA Tier 4 engine is not available. This mitigation measure assumes emission reductions compared with emissions from an average fleet-wide Tier 2 engine.

**Mitigation Measure AQ-CNST-C: Maintain Construction Equipment**

All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

**Mitigation Measure AQ-CNST-D: Minimize Idling Times**

Idling times shall be minimized, either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by California Airborne Toxic Control Measures, Title 13, Section 2485 of the California Code of Regulations). Clear signage shall be provided for construction workers at all access points.

**Mitigation Measure AQ-CNST-E: Use Equipment Meeting ARB Certification Standards**

All contractors shall use equipment that meets ARB's most recent certification standard for off-road heavy-duty diesel engines.

**Mitigation Measure AQ-CNST-F: Ensure Heavy-Duty Diesel Trucks Comply with EPA Emissions Standards**

Construction contracts shall stipulate that all on-road, heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater will comply with EPA 2007 on-road emission standards for PM<sub>10</sub> and NO<sub>x</sub> (0.01 and 0.20 gram per brake horsepower hour, respectively). These PM<sub>10</sub> and NO<sub>x</sub> standards were phased in through the 2007 and 2010 model years on a percentage-of-sales basis (50 percent of sales from 2007 to 2009 and 100 percent of sales in 2010). This mitigation measure assumes that all on-road, heavy-duty diesel trucks will be model year 2010 and newer and compliant with EPA 2007 on-road emission standards.

**Mitigation Measure AQ-CNST-G: Use Low-Sulfur Fuel**

Low-sulfur fuel will be used (diesel with 15 parts per million or less) in all construction equipment.

**Mitigation Measure AQ-CNST-H: Locate Construction Areas Away from Sensitive Receptors**

Construction equipment and staging areas will be located away from sensitive receptors and fresh-air intake vents to buildings and air conditioners.



**Mitigation Measure AQ-CNST-I: Use Low-Volatile Organic Compound (VOC) Coatings**

All contractors shall use low-VOC (i.e., ROG) coatings that are beyond BAAQMD requirements (i.e., Regulation 8, Rule 3: Architectural Coatings [VOC content is limited to 100 grams per liter for flat coating and 150 grams per liter for non-flat coating]).

**Mitigation Measure NV-CNST-A: Incorporate FTA Criteria Compliant Construction Noise and Vibration Specifications**

A comprehensive construction noise and vibration specification will be incorporated into all construction bid documents requiring compliance with FTA criteria. The existence and importance of noise and vibration control specifications will be emphasized at pre-bid and preconstruction conferences, if necessary.

**Mitigation Measure NV-CNST-B: Locate Equipment as Far as Feasible from Sensitive Sites**

Stationary equipment, such as generators and compressors, will be located as far as feasible from noise and vibration sensitive sites, and be acoustically treated. Grout batch plants, grout silos, mixers, pumps, diesel pumping equipment, and similar noise and vibration generating equipment will also be located as far as feasible from noise sensitive sites, and be acoustically treated if necessary.

**Mitigation Measure NV-CNST-C: Construct Temporary Noise Barriers**

Temporary noise barriers or noise control blankets will be constructed in areas between noisy activities and noise-sensitive receptors, where practical and effective. Temporary noise barriers can reduce construction noise by 5 to 15 dB, depending on the height of the barrier and the placement of the barrier. To be most effective, the barrier will be placed as close as possible to the noise source or the sensitive receptor. Temporary barriers tend to be particularly effective because they can be easily moved as work progresses to optimize performance. If temporary noise barriers and site layout do not result in compliance with the noise limit, retrofitting existing windows and doors with new acoustically rated units may be considered for the residential structures.

**Mitigation Measure NV-CNST-D: Operate Equipment to Minimize Annoying Noises**

Contractors will be required to implement the following measures:

- Use electric instead of diesel-powered equipment, hydraulic tools instead of pneumatic impact tools, and electric instead of air- or gasoline-driven saws, where feasible.
- Use an augering drill-rig for setting piles in lieu of impact pile drivers, where feasible.

- Operate equipment so as to minimize banging, clattering, buzzing, and other annoying types of noises, especially near residential areas during nighttime hours.
- Turn off idling equipment, whenever possible.
- Line haul truck beds with rubber or sand to reduce noise, if needed and requested by the Resident Engineer. Line or cover hoppers, conveyor transfer points, storage bins, and chutes with sound-deadening material.
- During nighttime and weekends, use strobe warning lights and/or back-up observers during any back-up operations, where permitted by the local jurisdiction.

### **Mitigation Measure NV-CNST-E. Route Construction Trucks along Truck Routes Least Disturbing to Residents**

Construction-related truck traffic will be routed along truck routes and roadways that would cause the least disturbance to residents. Loading and unloading zones will be laid out to minimize truck idling near sensitive receptors and to minimize truck reversing so back-up alarms are minimized near residences.

### **Mitigation Measure NV-CNST-F: Secure Steel and Concrete Plates over Excavated Holes and Trenches**

Steel and/or concrete plates over excavated holes and trenches will be secured to reduce rattling when vehicles pass over. If complaints are received, contractors will use thicker plates, stiffer beams beneath the plates, and/or rubber gaskets between the beams and plates to further reduce rattling noise.

### **Mitigation Measure NV-CNST-G: Use Best Available Practices to Reduce Excess Noise and Vibration**

The contractor will be required to use the best available practices to reduce the potential for exceedances of noise and vibration criteria due to construction activities. This may require the use of equipment with special exhaust silencers, construction of temporary enclosures or noise barriers around activities, and tracks for the tracked vehicles to be in good condition.

### **Mitigation Measure NV-CNST-H: Adhere to Local Jurisdiction Construction Time Periods, to the Extent Feasible**

Local jurisdiction construction time periods will be adhered to, to the extent feasible, recognizing that nighttime and weekend construction may be necessary and/or preferred by VTA and local jurisdictions to reduce other related environmental effects such as traffic. VTA will coordinate with the cities of San Jose and Santa Clara on construction operations during nighttime and weekends, and where feasible adhere to local ordinances. San Jose Ordinance 26248, 26594 restricts construction to between 7 a.m. and 7 p.m. Santa Clara Ordinance 1549 § 1, 7-15-86; Ord. 1556 § 1, 9-16-86. Formerly § 18-32.3

restricts construction to between 7 a.m. and 6 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturday.

### **Mitigation Measure NV-CNST-I: Perform Preconstruction Ambient Noise Measurements at East and West Portal CSAs**

Require the contractor to perform preconstruction ambient noise measurements at the East and West Portal construction staging areas, at the station and ventilation shaft areas, and at the gap breaker areas. This will serve to document the noise environment just prior to start of construction at representative locations along the alignment. These measurements will be performed continuously over a minimum of 10 days (240 hours) at the staging areas, and at the station and ventilation shaft areas. At the gap breaker sites, 4 days (96 hours) of continuous noise measurements will be taken.

### **Mitigation Measure NV-CNST-J: Submit a Noise Control Plan and a Noise Monitoring Plan**

Require the contractor to submit to the Resident Engineer a Noise Control Plan and a Noise Monitoring Plan, prepared by a qualified Acoustical Engineer. The qualifications and activities of the Acoustical Engineer will be subject to approval of the Resident Engineer. The Noise Control Plan will be updated every 3 months and include all the pertinent information about the equipment and the construction site layout, the projected noise levels, and the noise mitigation measures that may be required to comply with the noise limits for each sensitive receptor. The Noise Monitoring Plan will outline the equipment and procedures used by the contractor to perform noise measurements and to identify noise-sensitive structures in the immediate vicinity of construction operations, including details regarding the noise measurement locations. The results of noise monitoring will be documented and submitted to the Resident Engineer weekly. In the event that levels exceed allowable limits, the Resident Engineer will ensure that contractually required corrective measures consistent with the Noise Control Plan are implemented.

### **Mitigation Measure NV-CNST-K: Require Minimum Qualifications for the Acoustical Engineer**

The minimum qualifications for the Acoustical Engineer will be a Bachelor of Science or Engineering degree, from a qualified program in engineering or physics offered by an accredited university or college, and 5 years in noise control engineering and construction noise analysis.

**Mitigation Measure NV-CNST-L: Prohibit Operation of Noise-Generating Equipment Prior to Acceptance of Noise Monitoring Plan and Noise Control Plan**

Require that the contractor not operate noise-generating equipment at the construction site prior to acceptance of the Noise Monitoring Plan and the Noise Control Plan.

**Mitigation Measure NV-CNST-M: Install permanent Noise Monitors at the Downtown San Jose and Diridon Station during all Construction Phases**

Require the contractor to install stationary noise monitors at the Downtown San Jose Station and Diridon Station during all the construction phases, sampling noise continuously at two monitoring locations at each station. The monitoring locations may be moved as the construction site progresses. At the Alum Rock/28<sup>th</sup> Street Station and the West Portal staging area, stationary noise monitors will also be initially installed, which may be removed if the noise levels are in compliance with the noise limits when the construction activities are closest to the sensitive receptors. All data gathered by the contractor will be continuously available to the VTA and submitted weekly to the Resident Engineer for approval.

In addition to these stationary noise monitors, 30-minute noise sampling with hand-held monitors will be required weekly at the station sites and at other construction sites, including the ventilation shafts and gap breaker stations, to ensure compliance with the noise criteria. If required, additional noise monitoring site(s) may be added by the Resident Engineer to address any specific situation and concern. Noise data will be submitted to the Resident Engineer for approval on a weekly basis, and will include details on location and type of construction activity and details, photographs, and sketches of noise monitoring locations. A qualified acoustical engineer will determine whether work was within thresholds or not, and indicate any steps taken during monitoring to lower noise levels.

**Mitigation Measure NV-CNST-N: Ensure Equipment is Pre-certified to Meet Noise Limits**

For major equipment to be used at the surface of the construction site for a total duration greater than 5 days, ensure that the equipment is pre-certified by the Acoustical Engineer during field measurements at a test site or guaranteed by the equipment vendor to meet the noise limits developed for construction equipment as shown in Table . The final limits to be applied will be re-examined and developed during final design, and verified by the contractor during initial and active performance of the work when the equipment arrives on site. Construction equipment will be retested at 6-month intervals while in use onsite. Any equipment used during construction may be subject to confirmatory noise level testing while performing the work at the request of the Resident Engineer.

**Table 18: Noise Emission Limits for Construction Equipment**

<b>Equipment Type</b>	<b>Typical L<sub>max</sub> Sound Level at 50 feet dBA</b>
Excavators	82
Dump trucks	81
Front end loaders	81
Dozers	82
Concrete trucks	77
Cranes	81
Backhoes	75
Compactors	77
Concrete pumping trucks	77
Small construction vehicles (pickup trucks)	68
Large and small diameter auger drill rigs	81
Diesel generators	69 <sup>a</sup>
Flat-bed semi-trucks	81
Diesel pumping equipment	77
Compressed-air construction tools	81
Rail welding plant	77
Air compressors	70 <sup>a</sup>
Muck conveyor	70
Grout batch plant	80
Welding equipment	73
Grout silos	70
Grout mixers	71
Grout pumps	77
Source: HNTB Companies 2006.	
<sup>a</sup> Assumed acoustically treated	

### **Mitigation Measure NV-CNST-O: Implement a Complaint Resolution Procedure**

A complaint resolution procedure will be put in place to rapidly address any noise and vibration problems that may develop during construction. After a complaint is received, the complaint will be assigned a case number and the person making the complaint contacted to receive further clarification on the concern. The issue will then be discussed with the construction team to determine the appropriate action to resolve the issue. The person making the complaint will then be contacted to describe how the issue has been resolved.

### **Mitigation Measure NV-CNST-P: Conduct Construction Vibration Monitoring**

The contractor will initially conduct vibration monitoring daily at the nearest affected buildings (within 100 feet of any building) during any construction activities that could induce vibration.

Monitoring will be performed continuously at the closest receptor during all demolition and construction activities to ensure vibration levels will not exceed the FTA construction vibration damage criteria for applicable building type, as follows: 0.12 PPV (inches/second) for historic buildings and those buildings extremely susceptible to vibration damage, 0.2 PPV (inches/second) for non-engineered timber and masonry buildings, 0.3 PPV (inches/second) for engineered concrete and masonry (no plaster) buildings and 0.5 PPV (inches/second) for reinforced-concrete, steel or timber (no plaster) buildings.

Vibration will be measured in the vertical direction on ground surface or building floor and measured continuously to ensure that peak vibration-generating construction is captured. Vibration will be compared against both structural and nuisance thresholds in terms of velocity levels in dB re  $10^{-6}$  inches/second or PPV. If the measured vibration data are in compliance with the vibration limits after work has completed start-up and entered full-production mode (typically within 2 weeks to 30 days), vibration monitoring may be performed once a week instead of daily if approved by VTA. Daily monitoring will be performed during a continuous 8-hour work shift during the closest and most vibration-inducing work.

#### **Mitigation Measure NV-CNST-Q: Perform Vertical Direction Vibration Monitoring**

The contractor will perform continuous vertical direction vibration (root mean square) monitoring on the ground at the nearest representative residential structure during muck extraction and supply train operations in the tunnels. These measurements should be repeated for a minimum of 1 week at approximately 1-mile intervals along the tunnel construction until it is demonstrated that the levels are below the FTA thresholds.

#### **Mitigation Measure NV-CNST-R: Require Monitoring of Vibration for Peak Particle Velocity**

A survey of structures potentially impacted by construction vibration will be conducted prior construction and submitted for the Resident Engineer's approval. Vibration for PPV will then be monitored continuously at the closest structures and where vibration is expected to approach the applicable limit based on the building type and condition.

#### **Mitigation Measure NV-CNST-S: Implement Measures to Reduce Vibration from Muck Extraction and Supply Trains**

The construction contractor will be required to implement measures such that muck extraction and supply train operations do not result in groundborne noise in excess of 72 VdB at nearby residences. Measures that can be implemented include but are not limited to placement of ballast mats underneath tracks on which the muck extraction train rides or use of a conveyor in place of a train.

### **Mitigation Measure HAZ-CNST-A: Prepare Remedial Action Plans**

Prior to construction, new and/or amended RAPs will be prepared for the BART Extension and approved by the Regional Water Quality Control Board. The RAPs will satisfy the key objectives of the CMP (e.g., characterization of soil and ballast quality relative to the maximum acceptable contaminant levels for reuse) and incorporate measures for managing soil, ballast, and groundwater from the CMP (e.g., sampling and analysis, health and safety, stockpiling, offsite disposal, and treatment) to address all known and potential sources of environmental contamination identified in the ISA. Measures to satisfy Regulatory notification requirements and approval measures (e.g., additional sampling and analysis), if necessary, for soil excavation and/or dewatering associated with land-use covenants near the Diridon and Santa Clara Stations and over the tunnel alignments between these stations will be provided. The RAPs will also include an assessment of potential vapor intrusion concerns for indoor residents and workers from groundwater contaminant plumes, such as chlorinated solvents. In coordination with the Regional Water Quality Control Board, selected remedial measures to protect human health may include, but are not limited to, source removal of contaminated materials, in-situ treatment, and implementation of engineering controls (e.g., vapor barriers) and/or institutional controls prior to building occupancy.

### **Mitigation Measure NV-A: Implement noise reduction treatments at ancillary facilities**

Noise reduction treatments will be implemented at ancillary facilities such as tunnel ventilation shafts, pressure relief shafts, traction power substations, and emergency backup generators such that noise levels comply with applicable Cities of San Jose and Santa Clara noise criteria at nearby developed land uses. Treatments that will be implemented, if necessary, include but are not limited to:

- Sound attenuators and acoustical absorptive treatments in ventilation shafts and facilities.
- Sound attenuators for the tunnel emergency ventilation fans.
- perimeter noise walls (nominally an 8 feet high wall) placed around emergency generators.

### **Mitigation Measure NV-B: Reduce groundborne noise levels**

The mitigation strategy for groundborne noise is an Isolated Slab Track (IST). An IST is a form of floating slab track (FST). The IST system is constructed with a continuous elastomeric mat instead of discrete elastomeric pads that are typically used for an FST system. An IST can be designed to provide from 10 to 13 dBA of noise reduction. Mitigation Measure NV-B can also be used under a crossover. The locations for implementing this mitigation are shown in Tables 4.12-21 through 4.12-25. The specific

mitigation strategy will be determined in final design and could include alternative strategies that similarly achieve the FTA groundborne noise criteria.



## Chapter 7

# List of Preparers

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Appendix A  
**VTA Title VI**

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# **Santa Clara Valley Transportation Authority**

## **Title VI**

### **Organizational Commitment**

Santa Clara County, the heart of the Silicon Valley, is home to one of the most innovative, creative and diverse communities in the country. With a population of 1.8 million people, more than half of the County's residents speak a language other than English at home compared to 20% of the United States population in that same demographic.

Because of our multicultural customer base, VTA recognizes its opportunities and obligations by proactively ensuring that our policies, services and programs are delivered by communications tools and processes that are inclusive and effective. By these actions, we can make certain that no person, because of their race, color or national origin is denied meaningful access to our transportation services, programs and information.

VTA supports the goal of Title VI and its Executive Orders on Limited English Proficiency (LEP) and Environmental Justice to provide meaningful access to its services, projects and activities by low-income, minority, and limited English proficient persons.

VTA is strongly committed to meeting its regulatory requirements under Title VI. The organization is structured so that oversight and management of policy development, training, regulatory compliance, reporting and monitoring of all anti-discrimination policies as it relates to Title VI and LEP are centralized in one department; the Office of Civil Rights. Employees from every division within the organization work cooperatively to contribute to the success of our Title VI program.

With respect Title VI, VTA will:

- Ensure that the level and quality of transportation service is provided without regard to race, color, or national origin.
- Identify and address, as appropriate, disproportionately high and adverse human health and environmental effects, including social and economic effects of programs and activities on minority populations and low-income populations.
- Promote full and fair participation of all affected populations in transportation decision-making.
- Prevent the denial, reduction, or delay in benefits related to programs and activities that benefit minority populations or low-income populations.
- Ensure meaningful access to programs and activities by persons with limited English proficiency.

### **Notice to The Public**

The Santa Clara Valley Transportation Authority (VTA) gives public notice of its policy to assure full compliance with Title VI of the Civil Rights Act of 1964 and all related statutes. Title VI requires that no person in the United States of America shall, on the grounds of race, color, or

national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any VTA program or activity.

To request additional information on VTA's Title VI and other anti-discrimination obligations or to inquire about VTA's transportation services, projects and studies, please call the customer service center at (408)321-2300/(408)321-2330 TTY or via email at [customer.service@vta.org](mailto:customer.service@vta.org). Documents can be provided in languages other than English or in formats made accessible for persons with disabilities.

Any person who believes that he or she has been excluded from participation in, been denied the benefits of, or otherwise subjected to discrimination under any VTA service, program or activity, and believes the discrimination is based upon race, color, or national origin may file a formal complaint. This anti-discrimination protection also extends to activities and programs of VTA third party contractors.

Complaints against VTA or its third party contractors may be filed in writing using the Title VI Complaint Form or by calling (408) 321-5605. Completed and signed forms can be mailed to:

**Office of Civil Rights**

Santa Clara Valley Transportation Authority  
3331 North First Street, B-1  
San Jose CA 95134

If you are unable file a complaint in writing, your verbal complaint will be accepted and transcribed by the Title VI Coordinator. To make a verbal complaint, call (408)321-5605. Complaints must be submitted within 180 days of the alleged discriminatory act (or latest occurrence).

Complaints may also be directly filed with the Equal Employment Opportunity Commission (EEOC); Federal Transit Administration (FTA); or Department of Fair Employment and Housing (DFEH). Please review information on the respective agency websites for details on filing Title VI complaints.

**Complaint Process**

The Santa Clara Valley Transportation Authority (VTA) grants all citizens equal access to all its transportation services. It is further the intent of VTA, that all citizens are aware of their rights to such access. This site is designed to serve as an educational tool for citizens so that they may understand one of the civil rights laws that protect their benefit of VTA programs and services, specifically, as it relates to Title VI of the Civil Rights Act of 1964.

**What is Title VI**

Title VI is a section of the Civil Rights Act of 1964 requiring that "No person in the United States shall on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving

federal financial assistance.” Note that Title VI does not address gender discrimination. It only covers race, color and national origin. Other Civil Rights laws prohibit gender discrimination.

### **Who are Limited English Proficient Persons?**

Persons who do not speak English as their primary language and who have limited ability to read, speak, write, or understand English can be limited English proficient, or “LEP.” These individuals may be entitled to language assistance with respect to a particular type of service, benefit, or encounter.

### **How do I file a complaint?**

If you believe that you have received discriminatory treatment by the VTA on the basis of your race, color or national origin, you have the right to file a complaint with the VTA Office of Civil Rights. The complaint must be filed no later than 180 calendar days of the alleged discriminatory incident.

[http://www.vta.org/titlevi/pdf/title\\_vi\\_form.pdf](http://www.vta.org/titlevi/pdf/title_vi_form.pdf)

### **Methods of filing a Complaint**

The preferred method is to file your complaint in writing using the Title VI Complaint Form (see web link above), and sending it to:

Office of Civil Rights  
Santa Clara Valley Transportation Authority  
3331 North First Street, B1  
San Jose, CA 95134

Verbal complaints will be accepted and transcribed by the Office of Civil Rights. To make a verbal complaint, call (408) 321-5605. Complaints may also be filed with external entities such as the Equal Employment Opportunity Commission (EEOC) [www.eeoc.gov](http://www.eeoc.gov); Federal Transit Administration (FTA) [www.fta.dot.gov](http://www.fta.dot.gov); or Department of Fair Employment and Housing (DFEH) [www.dfeh.ca.gov](http://www.dfeh.ca.gov). Please review information on the respective agency websites for details on filing Title VI complaints.

Should a complaint be filed with VTA and an external entity simultaneously, the external complaint shall supersede the VTA complaint and the VTA’s complaint procedures will be suspended pending the external entity’s findings.

### **Investigations**

Within 10 working days of receipt of the formal complaint, the Title VI Coordinator will notify the complainant and begin an investigation (unless the complaint is filed with an external entity first or simultaneously).

The investigations will address complaints against any VTA department(s). The investigation will be conducted in conjunction with and under the advice of the Office of Civil Rights.

The investigation may include discussion(s) of the complaint with all affected parties to determine the problem. The complainant may be represented by an attorney or other representative of his/her own choosing and may bring witnesses and present testimony and evidence in the course of the investigation.

The investigation will be conducted and completed within 60 days of the receipt of the formal complaint.

Based upon all the information received, an investigation report will be written by the Office of Civil Rights for submittal to the Chief Administrative Officer.

The complainant will receive a letter stating that final decision by the end of the 60 day time limit. Most investigations are completed within 30 days.

The complainant shall be notified of his/her right to appeal the decision. Appeals may be made to the Federal Transit Administration, the Equal Employment Opportunity Commission, or the Department of Fair Employment and Housing.

### **Community Outreach and Title VI Contact List**

To comply with Title VI of the Civil Rights Act of 1964, VTA provides all persons non-discriminatory and equitable access to all its transportation services and information. VTA maintains a mailing list, which is used to notify organizations that provide services to disabled, minority, low-income or limited English proficient persons, of proposed programs or changes to transportation services. VTA encourages organizations or individuals to voluntarily enter their contact information on the mailing list. Please complete the form, in English, to be added to the mailing list. If you have any questions, please contact VTA at (408)321-2300, (408)321-2330 TTY or via email at [customer.service@vta.org](mailto:customer.service@vta.org).

Refer to the Santa Clara Valley Transportation Authority Title VI Program documentation available on VTA's website at: <http://www.vta.org/about-us/title-vi/title-vi-notice-to-the-public>.

## Appendix B

# **Acquisitions**

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## SVSX ROW MATRIX (PHASE II)

City	APN	Take	Option	Full or Partial Take
City of San Jose	254-01-024	CSA	Single-Bore & Twin-Bore Options	full
City of San Jose	254-02-044	CSA	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-02-068	CSA	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-02-041	CSA	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-02-014	CSA	Single-Bore & Twin-Bore Options	partial
		FEE	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-01-034	CSA	Single-Bore & Twin-Bore Options	full
City of San Jose	254-02-027	CSA	Single-Bore & Twin-Bore Options	partial
		FEE	Single-Bore & Twin-Bore Options	partial
City of San Jose	249-64-020	FEE	Single-Bore & Twin-Bore Options	full
City of San Jose	254-01-023	CSA	Single-Bore & Twin-Bore Options	partial
		FEE	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-02-029	CSA	Single-Bore & Twin-Bore Options	full
City of San Jose	254-02-057	CSA	Single-Bore & Twin-Bore Options	full
City of San Jose	254-02-081	FEE	Single-Bore & Twin-Bore Options	full
City of San Jose	254-02-040	CSA	Single-Bore & Twin-Bore Options	full
		FEE	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-02-080	CSA	Single-Bore & Twin-Bore Options	partial
		FEE	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-03-007	CSA	Single-Bore & Twin-Bore Options	partial
City of San Jose		TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-03-010	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-03-024	CSA	Single-Bore & Twin-Bore Options	full
City of San Jose	254-03-027	TUN	Single-Bore & Twin-Bore Options	partial
		CSA	Single-Bore & Twin-Bore Options	full
City of San Jose	254-12-006	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-12-010	TUN	Single-Bore & Twin-Bore Options	partial
	254-12-011	TUN	Single-Bore & Twin-Bore Options	partial

City	APN	Take	Option	Full or Partial Take
City of San Jose	254-76-000	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-042	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-043		Single-Bore & Twin-Bore Options	partial
	254-76-044		Single-Bore & Twin-Bore Options	partial
	254-76-045		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-015	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-014		Single-Bore & Twin-Bore Options	partial
	254-76-013		Single-Bore & Twin-Bore Options	partial
	254-76-012		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-020	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-021		Single-Bore & Twin-Bore Options	partial
	254-76-022		Single-Bore & Twin-Bore Options	partial
	254-76-023		Single-Bore & Twin-Bore Options	partial
	254-76-024		Single-Bore & Twin-Bore Options	partial
	254-76-025		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-032	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-033		Single-Bore & Twin-Bore Options	partial
	254-76-034		Single-Bore & Twin-Bore Options	partial
	254-76-035		Single-Bore & Twin-Bore Options	partial
	254-76-036		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-026	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-027		Single-Bore & Twin-Bore Options	partial
	254-76-028		Single-Bore & Twin-Bore Options	partial
	254-76-029		Single-Bore & Twin-Bore Options	partial
	254-76-030		Single-Bore & Twin-Bore Options	partial
	254-76-031		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-064	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-065		Single-Bore & Twin-Bore Options	partial
	254-76-066		Single-Bore & Twin-Bore Options	partial
	254-76-067		Single-Bore & Twin-Bore Options	partial

City	APN	Take	Option	Full or Partial Take
	254-76-068		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-063	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-062		Single-Bore & Twin-Bore Options	partial
	254-76-061		Single-Bore & Twin-Bore Options	partial
	254-76-060		Single-Bore & Twin-Bore Options	partial
	254-76-059		Single-Bore & Twin-Bore Options	partial
City of San Jose	254-76-053	TUN	Single-Bore & Twin-Bore Options	partial
	254-76-054		Single-Bore & Twin-Bore Options	partial
	254-76-055		Single-Bore & Twin-Bore Options	partial
	254-76-056		Single-Bore & Twin-Bore Options	partial
	254-76-057		Single-Bore & Twin-Bore Options	partial
	254-76-058		Single-Bore & Twin-Bore Options	partial
City of San Jose	467-07-052	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	
City of San Jose	467-08-011	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	full
City of San Jose	467-08-004	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	full
City of San Jose	467-08-013	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	full
City of San Jose	467-08-010	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	full
City of San Jose	467-08-012	CSA	Alum Rock Station, Single-Bore & Twin-Bore Options	NEPA - Full
		FEE		CEQA - Full
City of San Jose	467-08-005	CSA	Alum Rock Station, Single & Twin Options	NEPA - Full
		FEE		CEQA - Full
City of San Jose	467-09-076	TUN	Alum Rock Station, Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-067	TUN	Alum Rock Station, Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-060	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-039	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-038	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-063	TUN	Single-Bore & Twin-Bore Options	partial

City	APN	Take	Option	Full or Partial Take
City of San Jose	467-09-042	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-043	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-044	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-09-077	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	full
City of San Jose	467-09-078	FEE	Alum Rock Station, Single-Bore & Twin-Bore Options	full
City of San Jose	467-09-079	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-10-010	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-10-011	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-10-012	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-11-028	TUN	Single-Bore & Twin-Bore Options	partial
City of San Jose	467-11-038	TUN	Twin-Bore Option Only	partial
City of San Jose	467-12-002	TUN	Twin-Bore Option Only	partial
City of San Jose	467-12-005	TUN	Twin-Bore Option Only	partial
City of San Jose	467-12-006	TUN	Twin-Bore Option Only	partial
City of San Jose	467-12-012	TUN	Twin-Bore Option Only	partial
City of San Jose	467-12-013	TUN	Twin-Bore Option Only	partial
City of San Jose	467-12-014	TUN	Twin-Bore Option Only	partial
City of San Jose	467-13-001	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-082	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-006	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-007	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-087	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-088	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-089	TUN	Twin-Bore Option Only	partial
City of San Jose	467-14-086	TUN	Twin-Bore Option Only	partial
City of San Jose	467-15-084	TUN	Twin-Bore Option Only	partial
City of San Jose	467-16-091	FEE	13th Street Vent Structure	full
City of San Jose	467-16-097	FEE	13th Street Vent Structure	full
City of San Jose	467-16-098	FEE	13th Street Vent Structure	full

City	APN	Take	Option	Full or Partial Take
City of San Jose	467-16-092	FEE	13th Street Vent Structure	full
City of San Jose	467-24-036	FEE	DTSJ Station East Option, Single-Bore & Twin-Bore Options	full
City of San Jose	467-24-020	CSA	DTSJ Station East Option, Single-Bore & Twin-Bore Options	partial
City of San Jose	467-23-076	CSA	DTSJ Station East Option, Single-Bore & Twin-Bore Options	partial
City of San Jose	467-24-117	CSA	DTSJ Station East Option, Single-Bore & Twin-Bore Options	partial
City of San Jose	467-23-075	CSA	DTSJ Station East Option, Single-Bore & Twin-Bore Options	partial
City of San Jose		FEE		partial
City of San Jose	467-23-013	CSA	DTSJ Station East Option, Single-Bore & Twin-Bore Options	partial
City of San Jose		FEE		partial
City of San Jose	467-22-121	CSA	DTSJ Station East Option, Single-Bore & Twin-Bore Options	full
City of San Jose	259-34-016	FEE	DTSJ Station West Option, Single-Bore & Twin-Bore Options	full
City of San Jose	467-24-111	FEE	DTSJ Station East Option, Single-Bore & Twin-Bore Options	full
City of San Jose	467-24-110	FEE	DTSJ Station East Option, Single-Bore & Twin-Bore Options	full
City of San Jose	467-21-004, -005	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-20-079	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-20-072	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore Options	full
City of San Jose	467-21-004	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-21-023	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-33-073	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-33-075	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	467-33-077	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-015	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-40-074	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-018	FEE	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-017	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-026	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-024	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-023	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-022	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-021	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-020	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full

City	APN	Take	Option	Full or Partial Take
City of San Jose	259-34-014	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-011	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-012	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-007	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-008	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-030	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-031	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-025	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-027	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-013	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-34-009	CSA	DTSJ Station East & West Options, Single-Bore & Twin-Bore	full
City of San Jose	259-39-094	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-39-113	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-39-112	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-39-111	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-39-000	TUN	Diridon Station North & South, Twin-Bore and Single-Bore Options	partial
City of San Jose	259-38-132	TE	Diridon Station North, Single-Bore & Twin-Bore Options	partial
City of San Jose	259-38-137	TE	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-38-130	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	259-38-128	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-38-142	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	259-38-110	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	259-38-109	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	259-38-036	TUN	Diridon Station North & South Twin-Bore Option, Diridon Station	partial
City of San Jose	261-34-000	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-006	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-005	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-004	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-023	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-011	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
	261-34-012	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-014	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full

City	APN	Take	Option	Full or Partial Take
	261-34-019	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-013	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-34-020	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	261-35-030	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	259-38-122	FEE	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	259-38-123	FEE	Diridon Station South Single-Bore & Twin-Bore Options	full
City of San Jose	259-38-124	FEE	Diridon Station South Single-Bore & Twin-Bore Options	full
City of San Jose	259-38-121	FEE	Diridon Station South Single-Bore & Twin-Bore Options	full
City of San Jose	259-38-009	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	259-38-029	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	259-38-010	FEE	Diridon Station North & South, Single-Bore & Twin-Bore	full
City of San Jose	259-38-028	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-33-048	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-33-044	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-33-025	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-024	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-014	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-015	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-016	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-017	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-018	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-040	TUN	Diridon Station North Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-039	TUN	Diridon Station North Single-Bore & Twin-Bore Options	partial
City of San Jose	261-33-047	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-33-049	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-33-021	TUN	Diridon Station North Twin-Bore Option Only	partial
City of San Jose	261-33-053	TUN	Diridon Station North Twin-Bore Option Only	partial
City of San Jose	261-32-058	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-32-072	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-01-006	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-007	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-106	TUN	Diridon Station North Single-Bore & Twin-Bore Options	partial

City	APN	Take	Option	Full or Partial Take
City of San Jose	261-01-013	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-080	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-093	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-076	TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of San Jose	261-01-060	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-062	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-064	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-107	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-01-109	TUN	Diridon Station North Twin-Bore Only	partial
City of San Jose	261-01-100	TUN	Diridon Station South Twin-Bore Only	partial
City of San Jose	261-01-111	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-047	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-03-037	TUN	Diridon Station North Single-Bore Option Only	partial
City of San Jose	261-03-056	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-04-004	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-068	TUN	Diridon Station North Twin-Bore, Diridon Station South Single-	partial
City of San Jose	261-01-070	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
	261-01-072	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-01-069	TUN	Diridon Station North Twin-Bore, Diridon Station South Single-	partial
City of San Jose	261-01-073	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-074	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-075	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-02-012	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-02-011	TUN	Diridon Station South Single-Bore & Twin-Bore Options	partial
City of San Jose	261-02-062	TUN	Diridon Station North Twin-Bore, Diridon Station South Single-	partial
City of San Jose	261-03-054	TUN	Diridon Station North Twin-Bore, Diridon Station South Single-	partial
City of San Jose	261-03-057	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-045	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-044	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-042	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-041	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-01-050	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial



City	APN	Take	Option	Full or Partial Take
City of San Jose	261-02-053	TUN	Diridon Station North Twin-Bore, Diridon Station South Single-	partial
City of San Jose	261-01-046	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-04-038	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-04-001	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-04-039	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-04-004	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	261-05-001	TUN	Diridon Station North & South, Single-Bore & Twin-Bore	partial
City of San Jose	259-10-008	FEE	Diridon Station North & South, Single-Bore & Twin-Bore Optio	full
City of San Jose	259-10-012, -013	FEE	Diridon Station North & South, Single-Bore & Twin-Bore Optio	full
City of San Jose	259-10-014	FEE	Diridon Station North & South, Single-Bore & Twin-Bore Optio	full
City of San Jose	259-10-015	FEE	Stockton Vent Structure Options	full
City of San Jose	259-10-011	FEE	Stockton Vent Structure Options	full
City of San Jose	259-10-009	FEE	Stockton Vent Structure Options	full
City of San Jose	259-54-003	FEE	Stockton Vent Structure Options	full
City of San Jose	261-11-003	TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of San Jose	230-41-041	TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of San Jose	230-41-002	TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of San Jose	230-41-003	TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of San Jose	230-22-006	FEE	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
		TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
		CSA	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
		TCE	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of San Jose	230-41-001	TUN	Diridon Station North & South, Single-Bore & Twin-Bore Optio	partial
City of Santa Clara	230-06-042	FEE	Santa Clara Station	full
City of Santa Clara	230-06-042	FEE	Santa Clara Station	full
City of Santa Clara	230-04-013	FEE	Newhall Maintenance Facility	partial
City of Santa Clara	230-41-000	TUN	Single-Bore & Twin-Bore Options	partial
City of Santa Clara	230-41-038		Newhall Maintenance Facility	full
City of Santa Clara	230-22-008		Newhall Maintenance Facility	full
City of Santa Clara	230-22-003		Newhall Maintenance Facility	full
City of Santa Clara	230-14-027	CSA	Newhall Maintenance Facility	partial
City of Santa Clara	230-46-052		Newhall Maintenance Facility	full
City of Santa Clara	230-46-035		Newhall Maintenance Facility	full
City of Santa Clara	230-06-041	CSA	Newhall Maintenance Facility	partial

City	APN	Take	Option	Full or Partial Take
City of Santa Clara	230-06-030		Newhall Maintenance Facility	full
City of Santa Clara	230-06-009		Newhall Maintenance Facility	full
City of Santa Clara	230-06-035	FEE	Newhall Maintenance Facility	partial
City of Santa Clara	230-06-037	CSA	Newhall Maintenance Facility	full
City of Santa Clara	224-01-010	CSA	Newhall Maintenance Facility	full