

# **APPENDIX F**

Station Access Profile - 28th Street



# VTA's BART Silicon Valley Phase II Extension Project Transit Oriented Communities Strategy Study

## Alum Rock/28th Street Station Profile





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## Alum Rock/28th Street Station Profile

The Santa Clara Valley Transportation Authority's (VTA) BART Silicon Valley Extension project includes a 16-mile, six-station extension of the existing San Francisco Bay Area Rapid Transit District (BART) system into Silicon Valley. The extension is being constructed in two phases. Phase I (Berryessa Extension) is the first 10 miles which includes two stations and is currently planned to open in 2019. Phase II is a 6-mile extension, which includes four stations: Alum Rock/28th Street, Downtown San José, Diridon, and Santa Clara.

As part of VTA's BART Silicon Valley Phase II Extension Project (Phase II), VTA and its partner agencies initiated the *Transit Oriented Communities Strategy Study (TOCs Strategy Study)* to plan and subsequently implement access improvements in the Station Areas to enhance multimodal access to the stations.

The station access planning effort includes four phases: **1) background conditions assessment, 2) identification of opportunities and gaps within the transportation network, 3) recommendation of access improvement projects and on-site station requirements, and 4) implementation and next steps.** The station access effort is being undertaken in conjunction and close coordination with a Transit Oriented Development (TOD) element of the study that is funded by the Federal Transit Administration (FTA) to identify opportunities and policies to promote transit-oriented development in the Station Areas and along the project corridor. These efforts will also inform subsequent development of station access designs. This station profile document will be expanded through each of the phases of project development. This version of the station profile document reflects completion of the final phase of the station access planning and background conditions assessment.

## Summary of Existing and Planned Transportation Network

The Alum Rock/28th Street Station Area has undergone extensive community planning centered around several Urban Villages within proximity of the station. The Station Area is characterized by an auto-oriented transportation network. US-101 acts as a major barrier to pedestrian and bicyclist travel to/from the east. Santa Clara Street and Julian Street are arterials with limited pedestrian and bicycle enhancements. The Five Wounds Trail is a planned multi-use trail that will extend from the Station Area to the surrounding trail network. Primary opportunities for improvement include enhancing the bicycle/pedestrian connections across US-101, closing bicycle gaps and improving connections across major roadways, and providing a strong pedestrian connection between the Santa Clara/Alum Rock Bus Rapid Transit (BRT) and the station.



# I. Background Information

## A. Station Description and Location

The Alum Rock/28th Street Station is located between McKee Road and E. Santa Clara Street and west of US-101 in San José, California. The Alum Rock/28th Street Station will be the third station on the BART Silicon Valley Extension and the first of Phase II. The Station is located approximately 1.3 miles south of the Berryessa Station as shown in **Figure 1**. The Alum Rock/28th Street Station is planned to include the BART station, vehicular pick-up/drop-off facilities, vehicular parking, bus facilities, bike access facilities, bike parking, pedestrian pathways, and station access roads. **Figure 2** shows the area in the vicinity of the station. **Figure 3** shows the preliminary station plan from the *Final Subsequent Environmental Impact Report* (SEIR, 2018).

The station will be below ground with street-level entrance portals with elevators, escalators, and stairs providing vertical circulation to the platform. The station is planned to have two entrances, per the SEIR. The station entrances will be finalized during further design.

A parking structure of up to seven levels will accommodate BART park-and-ride (PNR) demand with up to 1,200 parking spaces. Areas for automobiles, shuttles, and buses to drop off passengers will be provided within the Station Area.



Figure 1: BART Silicon Valley Phase II Extension



### Legend

-  Potential Station Entrance Location
-  Existing VTA BRT Stop
-  Existing VTA Bus Stop
-  VTA's BART Phase II Extension Alignment

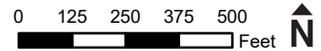


Figure 2: Station Area

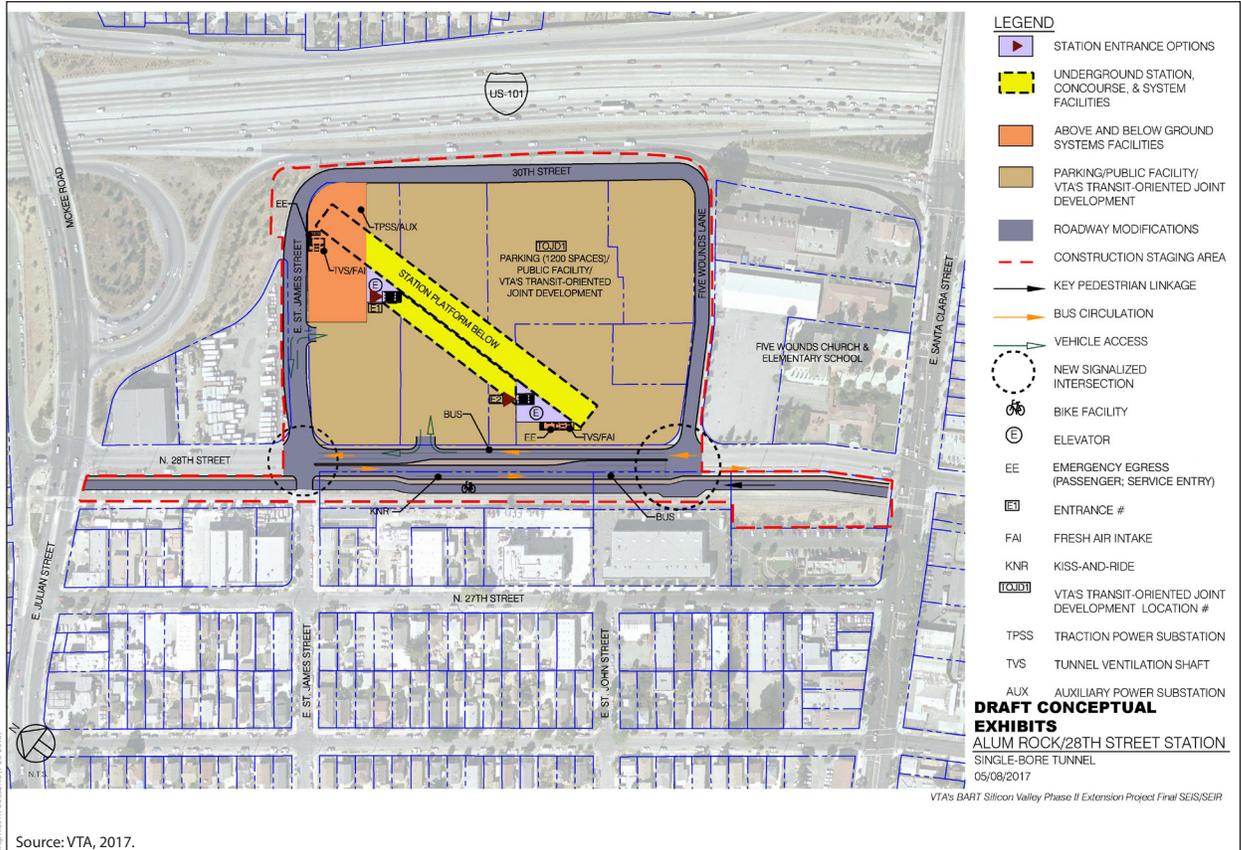


Figure 3: Alum Rock/28th Street Station Plan from SEIR



## B. Background Conditions

### 1. Previous Planning Efforts

Numerous planning efforts have been completed within the Alum Rock/28th Street Station Area. The documents summarized below were reviewed and incorporated into the station access planning effort where applicable.

#### *BART Station Access Planning Final Report (City of San José, 2016)*

The *San José BART Station Access Planning Final Report* discusses Station Area planning and transportation connectivity improvements for the Downtown San José and Alum Rock/28th Street BART stations. The report details existing conditions at both station locations, including land use, circulation, traffic, parking, pedestrian and bicycle access, and transit access. It also provides recommendations for station entrance locations, transit-priority routes, and bicycle, pedestrian, parking, and wayfinding improvements. The report recommends multiple improvements within the Alum Rock/28th Street Station Area such as locating a BRT station at N. 28th Street and E. Santa Clara Street, developing the Five Wounds Trail, and investigating a potential pedestrian/bike bridge over US-101.

#### *Bike Plan 2020 (City of San José, 2009)*

The *San José Bike Plan 2020* recommends policies, programs, and action items that defines a network of on- and off-street bikeways in San José with a goal of making bicycling in San José more safe, convenient, and common. The plan states that, by 2020, it aims to complete 500 miles of bikeways, achieve a mode share of 5% for all trips taken by bike, reduce the bicycle collision rate by 50%, add 5,000 bike parking spaces, and achieve Gold-level Bicycle Friendly Community status. *Bike Plan 2020* identifies a 500-mile bikeway network, bike parking, support facilities, and rideshare program to implement, and provides recommendations on ways to combine travel via bike and transit as well as best practices and education and enforcement strategies. The plan identifies action items that should be taken to expand and connect the existing network, eliminate barriers and gaps for bicyclists, provide bicycle-friendly signals and pavement markings, and maintain bicycle facilities. The plan provides a comprehensive list of proposed bikeway projects, organized by implementation priority as well as a map of existing and proposed bicycle facilities. The City is currently in the process of updating this document. Within the Alum Rock/28th Street Station Area the Bike Plan recommends a Class II facility on McKee Street, the Five Wounds Trail, and a connection across Coyote Creek on Saint John Street.

#### *Better Bikeways (City of San José, Ongoing)*

The City of San José is rapidly implementing better bikeways throughout the city through this plan. The City is using protected bike lanes and calm streets to create a better bikeways network by the end of 2019. Within the Alum Rock/28th Street Station Area, the Better Bikeways project recommends better connections on E. Santa Clara Street and E. San Antonio Street across US-101.

#### *Envision 2040 General Plan (City of San José, 2018)*

The City's General Plan, which is currently being updated, includes transportation network designations and transportation policies. One of its major strategies is designing streetscapes for people, which includes turning seven streets into "Grand Boulevards" to connect neighborhoods and contribute to the City's identity through their design. The seven boulevards are N. First Street/Monterey Highway, Capitol Avenue/Capitol Expressway, Alum Rock Avenue/Santa Clara Street/The Alameda, San Carlos Street/Stevens Creek Boulevard, Meridian Avenue, Winchester Boulevard, and Saratoga Avenue. Transit service will be a primary mode on



Grand Boulevards. Transportation policies outlined in the General Plan include working toward a balanced transportation system, increasing the focus on walking and bicycling, maximizing public transit usage, improving vehicular circulation, and improving parking and intelligent transportation systems (ITS).

### *Pedestrian Master Plan (City of San José, 2008)*

The *San José Pedestrian Master Plan* is a companion document to the ADA Transition Plan Update for Sidewalks. The Plan compiles and recommends additions/changes to the City's pedestrian standards, policies, procedures and practices. Key recommendations as they relate to the Access Planning Study for the Downtown and Alum Rock/28th Street BART Station Areas are summarized below:

- Continue traffic calming program
- Continue the City's Safe Street Initiative
- Develop methodology for prioritizing pedestrian infrastructure improvements
- Incorporate pedestrian needs into the City's development review process
- Provide walking maps of San José's neighborhoods
- Install wayfinding signage in areas with high pedestrian activity

The document largely outlines policies and procedures, rather than providing specific pedestrian and access-related project recommendations.

### *Complete Streets Design Standards & Guidelines (City of San José, 2018)*

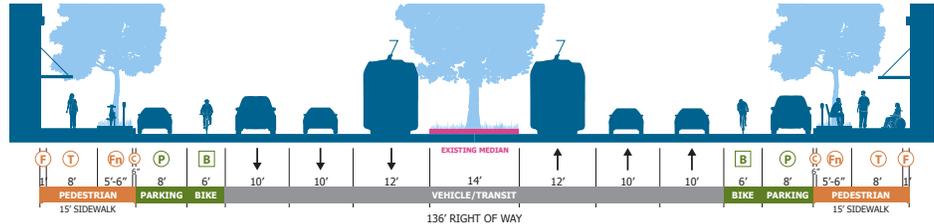
The *San José Complete Streets Design Standards & Guidelines* have been developed as a guide for the design of San José streets to be safe, efficient, and convenient for users of all modes of travel and all abilities and were adopted as part of the city's transportation planning and policies in 2018. San José complete streets have a goal of being people-oriented, connected, and resilient. As shown in **Figure 4**, the document provides example cross-sections based on street type and details the street design process from identifying and designing for target speed, design hour, year, vehicle, and prioritizing modes by street type. **Figure 4** also depicts the cross-section of a typical Grand Boulevard, which is the designated classification of Santa Clara Street. This document details specific design elements of mixed flow travel lanes, various bicycle facilities, sidewalks, transit facilities, on-street parking facilities, traffic calming measures, stormwater facilities, and green infrastructure elements. Intersection design principles, sidewalk and walking design principles, and bikeway design principles are also detailed in this document. The *Complete Streets Design Standards & Guidelines* should be referenced for specific dimensions of multimodal complete streets within San José.



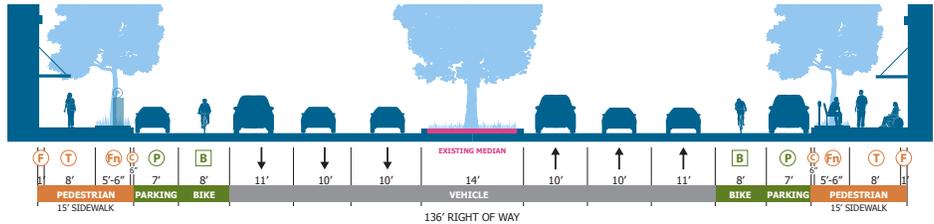
SAN JOSÉ COMPLETE STREETS GUIDELINES

Example Grand Boulevard Cross Sections

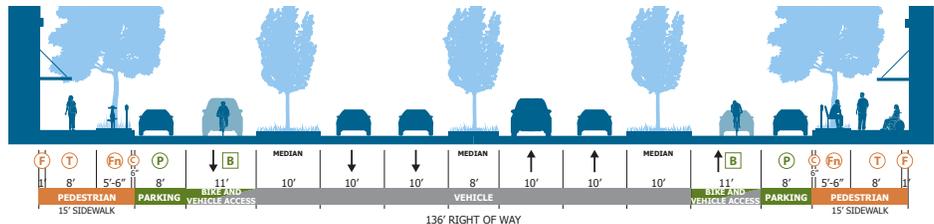
Grand Boulevard (6 Lane)  
with Dedicated Transit Lane



Grand Boulevard (6 Lane)  
without Dedicated Transit Lane



Grand Boulevard (Multiway 4 Lane)  
without Dedicated Transit Lane



Grand Boulevard (4 Lane)  
with Dedicated Transit Lane  
(Additional width required at transit stops)

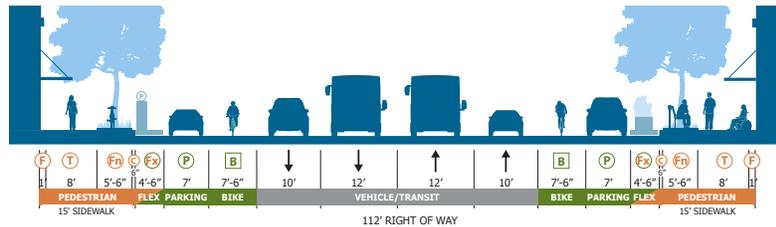


Figure 4: Example Cross-section from Complete Streets Guidelines

Countywide Bicycle Plan (VTA, 2018)

The purpose of the VTA Countywide Bicycle Plan is to create a countywide bicycle network that is safe, convenient, and connected – enabling people of all ages and abilities to easily bike to work, school, shopping, transit, and elsewhere. The plan updates the 2008 Countywide Bicycle Plan and expands the network of Cross County Bicycle Corridors (CCBCs) to include low-stress bikeways, describes a vision of ten connected bicycle superhighways, updates the list of Across Barrier Connections (ABCs), and prioritizes CCBCs and ABCs using criteria approved by the VTA Board of Directors. The CCBCs identified in the study area are: McKee Street, San Fernando Street, Five Wounds Trail, McLaughlin Avenue, Lower Silver Creek, King Road, and Coyote Creek. In addition, the plan emphasizes network connections to access the Berryessa BART Station and East San José.



### Pedestrian Access to Transit Plan (VTA, 2017)

VTA's *Pedestrian Access to Transit Plan* aims to "improve the safety, comfort, and convenience of the walking environment for VTA's customers." The plan integrates recommendations and guidelines from local plans and aims to address the gaps in planning efforts to connect pedestrians to transit. The plan identifies 12 focus areas, as can be seen in **Figure 5**, of which the following are related to the *TOCs Strategy Study*:

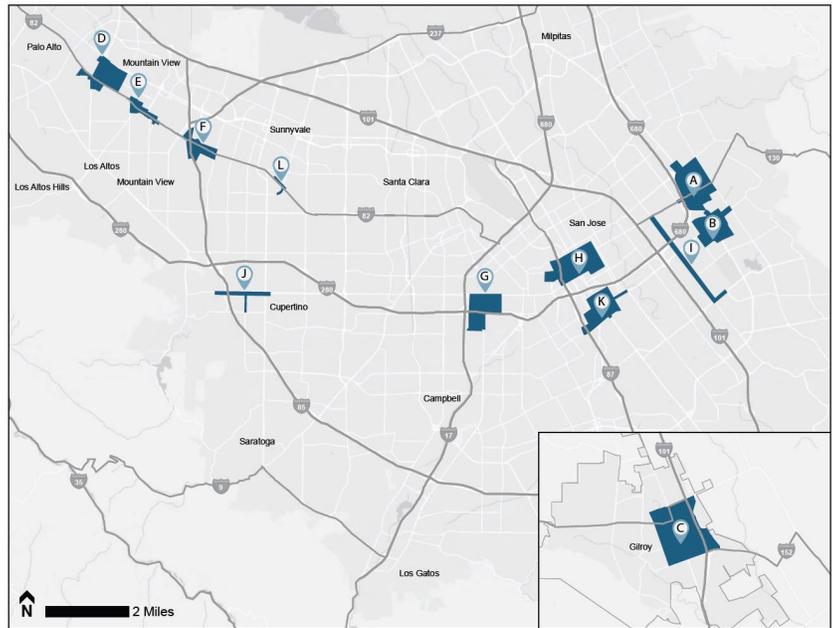
- Focus Area A: Alum Rock
- Focus Area B: East San José
- Focus Area H: Downtown San José
- Focus Area I: King Road Corridor (Tully Road to Alum Rock Avenue)

The following project recommendation was identified as being within one of the access routes to Alum Rock/28th Street Station (described in Chapter IV below).

- Narrow right turn radii of all curbs at King Road/Alum Rock Avenue intersection to reduce pedestrian crossing distance, evaluate signal timing to reduce pedestrian crossing time, add leading pedestrian interval (LPI), and expand bus shelters

**Table 1: Focus Area Locations**

ID	Focus Area Name/ Location	Jurisdiction(s)
A	Alum Rock	San Jose, County
B	East San Jose	San Jose, County
C	Central Gilroy	Gilroy
D	San Antonio/ San Antonio Rd @ El Camino Real	Mountain View, Los Altos, Caltrans
E	Mountain View El Camino Real Corridor	Mountain View, Caltrans
F	El Camino Real at State Route 85	Mountain View, Caltrans
G	Bascom Corridor	San Jose, County
H	Downtown San Jose (Including Diridon Station)	San Jose
I	King Road Corridor-Tully Rd to Alum Rock Ave	San Jose
J	Stevens Creek Blvd and Stelling Rd	Cupertino
K	Central San Jose	San Jose



**Figure 5: Pedestrian Access to Transit Plan Focus Areas**



### 2019 New Transit Service Plan (VTA, 2019)

VTA has engaged in a years-long process to improve its transit network and effectively connect with Phase I of the BART Silicon Valley Extension. The 2019 New Transit Service Plan (known earlier as Next Network) is expected to be implemented when Phase I begins operation. The Transit Service Plan:

- Increases service levels in high-ridership areas and decreases service levels in low-ridership areas
- Increases frequencies on many routes
- Expands the number of Rapid Routes
- Increases the number of residents and jobs with access to frequent service by 150,000 and 160,000, respectively
- Extends service later in the evening on many routes and adds more service on weekends

### VTA Corridor Studies (VTA, 2015/2017/2018)

VTA has completed corridor studies of several of the freeways near the station area, including SR-87, I-280, and I-680. These plans include recommended improvements for surface street interchanges, most of which include "squaring-up" freeway access ramps and striping bicycle lanes through the interchange. Within the station area, the corridor studies recommend improving the I-280 and McLaughlin Avenue interchange.

### Valley Transportation Plan 2040 (VTA, 2014)

The *Valley Transportation Plan 2040* (VTP) is the long-range transportation plan for Santa Clara County. The objectives of the VTP are: (1) to facilitate the creation and support of an integrated multimodal transportation system that serves all socio-economic groups efficiently and sustainably; (2) to pursue, develop, and implement advances in technology, management practices, and policies; and (3) to be the region's foremost advocate for transportation projects, programs, and funding. The VTP identifies 21 transit capital projects for implementation.

Multimodal Transportation Investments (MTI) are also included in the *Valley Transportation Plan 2040*. MTI includes projects from Transportation Systems Operations and Management (TSOM), Bicycle Expenditure Program (BEP), streetscape components, pedestrian improvements, and Community Design & Transportation (CDT) Program. The BEP includes over 120 projects, of which the following are relevant to the *TOCs Strategy Study*:

- Enhanced on-street cross-town bikeways along Park Avenue/San Fernando Street/San Antonio corridor (Project B32)
- Coyote Creek Trail (Watson Park to Williams St. Park) (Project B102)

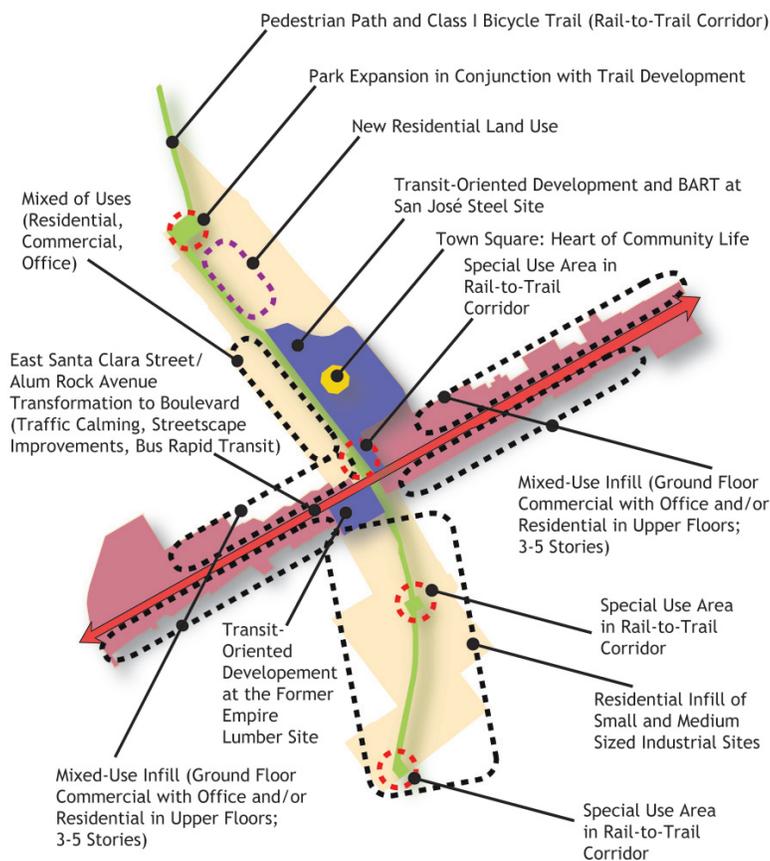


### Five Wounds BART Station Area Community Concept Plan (CommUniverCity San José, City of San José, and Five Wound/Brookwood Terrace Neighborhood Action Coalition, 2010)

The *Five Wounds BART Station Area Community Concept Plan* details the vision and corresponding action items for the Alum Rock/28th Street BART Station. Community members envision a vibrant community life centered at a new public plaza (known as the Town Square) located at the planned Alum Rock/28th Street BART Station. The Town Square will be framed by a mixed-use, transit-oriented development (TOD) that includes housing, locally-run shops, restaurants, entertainment, and a neighborhood center.

The plan also calls to include street modifications, traffic calming features, and streetscape improvements in the final designs for the BRT project along the E. Santa Clara/Alum Rock corridor. Overall, the plan provides a guide for future development and circulation improvements within the study area. Community outreach for the plan consisted of four community-wide workshops, two youth workshops, and one Spanish-speaking-only workshop that took place during 2007 and 2008.

**Figure 6** shows the planning area conceptual plans from the *Five Wounds BART Station Area Community Concept Plan*.



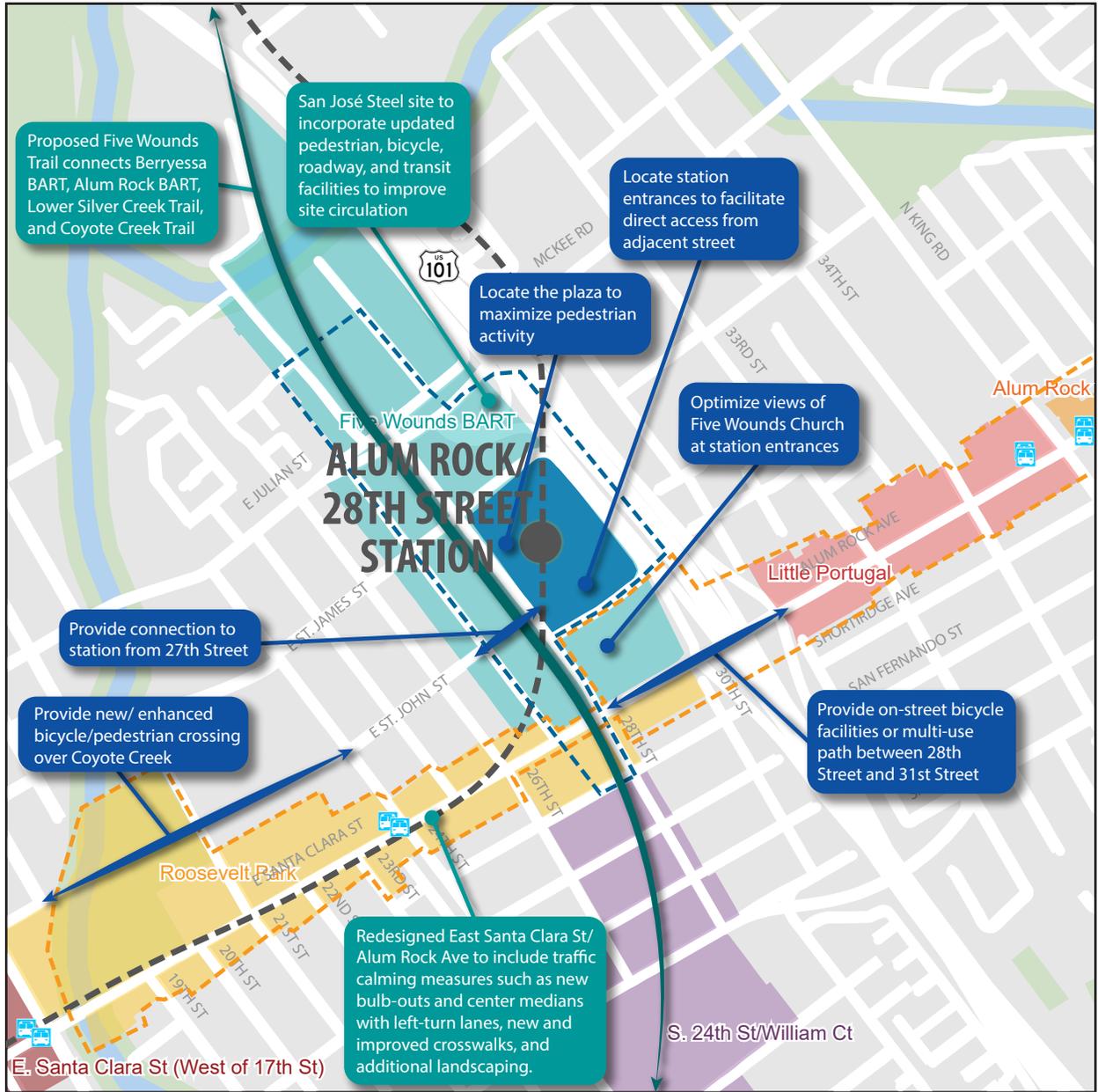
**Figure 6: Planning Area Conceptual Plans – Five Wounds BART Station Area Community Concept Plan**

### Urban Village Plans in the Project Area (City of San José, various)

Six urban village plans have been completed within or near the study area including:

- East Santa Clara Street (2017)
- 24th and William (2013)
- Little Portugal (2013)
- Roosevelt Park (2013)
- Five Wounds BART (2013)
- Alum Rock Avenue (2013)

The Urban Village Plans aim to turn each village into a mixed-use, pedestrian-oriented district that is connected to the planned Five Wounds Trail. **Figure 7** shows the location of the Urban Villages.



**Legend**

- Recommendation from Five Wounds BART Station Area Community Concept Plan
- Recommendation from Station Access Planning Report
- Existing VTA BRT Stops
- VTA's BART Phase II Extension Alignment

**Urban Villages**

- E. Santa Clara St (West of 17th St)
- Roosevelt Park
- Little Portugal
- Alum Rock
- Five Wounds BART
- S. 24th St/William Ct

**Five Wounds BART Station Area Community Concept Plan**

- San José Steel site
- Traffic calming along E Santa Clara St and Alum Rock Ave



**Figure 7: Previous Planning Efforts Summary**

Sources: City of San José, VTA



### *Trail Plans for Coyote Creek, Five Wounds, and Lower Silver Creek Trails*

The City of San José has an extensive urban trail network, with 60 miles developed and open to the public. The network's 35 trail systems provide off-street connections to major employment and residential centers throughout the City. East San José is currently lacking access to this trail network, but the Five Wounds Trail is proposed to be developed and will connect to the Coyote Creek Trail and Silver Creek Trail. The trail will serve as a strong north-south multimodal connection between the Berryessa BART Station, Alum Rock/28th Street BART Station, Lower Silver Creek Trail, and Coyote Creek Trail.

VTA owns the Five Wounds rail corridor from Williams Street to Whitton Avenue and in 2011 VTA agreed that when the Phase II Project is completed, VTA will be open to sell the rail corridor north of Whitton Avenue. VTA is finalizing and will enter into an agreement with City Parks Department, San José Office of Economic Development, Santa Clara Open Space Authority, and County Parks and Recreation on a purchase price and right of first refusal for that portion of the corridor after VTA's BART Phase II Project construction is completed.

### *Caltrans District 4 Bike Plan (Caltrans, 2018)*

Freeways and state highways play a substantial role in the comfort and ease of bicycling, given that they are difficult to either ride on or to cross. With nearly 1,400 miles of state highway facilities in District 4, Caltrans is responsible for ensuring that its facilities do not present significant barriers for those choosing non-auto modes. The Caltrans District 4 Bike Plan analyzes existing conditions and proposes a list of improvements, categorized by priority, that would lead to greater rider comfort and safety while using or crossing state-owned highway facilities.

Within the station area, the Bike Plan recommends replacing free-flow highway on- and off-ramps with stop-controlled ramps and providing Class I or IV protected bike lanes through the following interchanges:

- US-101 and Alum Rock Avenue
- US-280 and McLaughlin Avenue
- US-101 and McKee Road

### *FAST Transit Program (VTA, Ongoing)*

VTA's Fast Transit Program identifies several strategies that will be considered by VTA and by the Cities of San José and Santa Clara to improve transit vehicle speeds and reduce passenger delay. Those that could be enacted by VTA include allowing boarding at all bus doors, converting to a headway-based rather than time-based schedule to reduce delay for passengers on ahead-of-schedule buses, and expanding market penetration of Clipper cards among the system's most active riders.

Strategies that could be undertaken by the cities, or with collaboration between the cities and VTA are: the implementation of transit signal priority; consolidation or elimination of redundant stops, with a minimum stop spacing of 800'; installation of bus boarding islands; and piloting of tactical transit lanes, which are bus lanes used over short segments of road for a pre-determined amount of time.



## 2. Agency Policies

VTA, the City of San José, and BART have developed policies and guidelines that are summarized below which were reviewed and incorporated into the station access planning effort where applicable.

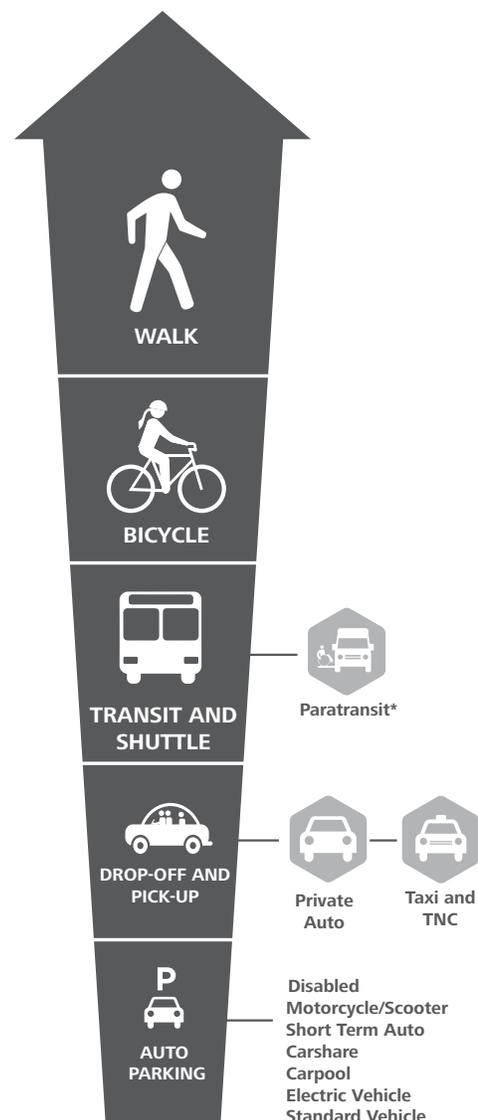
### Station Access Policy (BART, 2016)

The *BART Station Access Policy* is designed to support the broader livability goals of the Bay Area, reinforce sustainable communities, and enable riders to get to and from stations safely, comfortably, affordably, and cost-effectively. Goals of the station access policy are to increase safety, cost efficiency, and public health, and reduce greenhouse gas and pollution emission through improvement of station access, particularly by sustainable modes of transportation. The *Station Access Policy* establishes strategies for systemwide access mode shift to reduce drive alone rates, invest in pedestrian and bicycle assets with a focus on BART property, partner to advance projects off BART property, and plan all BART facilities to be accessible to all users, including users with disabilities. The *TOCs Strategy Study* serves as the framework to achieve these established goals.

### Multimodal Access Design Guidelines (BART, 2017)

The *BART Multimodal Access Design Guidelines* (MADG) aims to provide easy-to-use guidance and recommended standards for pedestrian, bicycle, transit, and vehicle access planning within BART's Station Areas. The goals are to generate more riders, promote healthy communities, increase efficiency and productivity, provide a better passenger experience, provide equitable service, and be an innovation leader. BART station access design hierarchy is shown in **Figure 8**.

The MADG includes design standards for sidewalk zones, accessible paths, bikeways, adjacent network connections, station entrances and exits, bus stops, passenger pick-up and drop-off - parallel curbside, and angled loading zones. The document summarizes the dimensions for pedestrian facilities, bicycle facilities, bus facilities, street facilities, and parking facilities. The Alum Rock/28th Street Station is anticipated to be a balanced intermodal station type, as it will have parking, but investments should be focused on pedestrian and bicycle activity. The BART Station Access Framework is shown in **Figure 9**. The MADG will be an input to guide the design of pedestrian and bicycle facilities within the Station Area.



\*All stations must be paratransit accessible

**Figure 8: BART Access Hierarchy**



STATION TYPE	PRIMARY INVESTMENTS	SECONDARY INVESTMENTS	ACCOMMODATED	NOT ENCOURAGED
URBAN	Walk, Bicycle	Transit and Shuttle	Taxi and TNC, Drop-Off and Pick-Up	Auto Parking*
URBAN WITH PARKING	Walk, Bicycle	Transit and Shuttle	Taxi and TNC, Drop-Off and Pick-Up	Auto Parking*
BALANCED INTERMODAL	Walk, Bicycle	Transit and Shuttle, Drop-Off and Pick-Up	Taxi and TNC, Auto Parking*	
INTERMODAL/AUTO RELIANT	Walk	Bicycle, Drop-Off and Pick-Up, Transit and Shuttle	Taxi and TNC, Auto Parking*	
AUTO DEPENDENT	Walk	Bicycle, Drop-Off and Pick-Up, Auto Parking*, Transit and Shuttle	Taxi and TNC	

**Figure 9: BART Station Access Investment Framework**

**Vision Zero San José (San José, 2015)**

San José’s Vision Zero uses the 4E’s (engineering, enforcement, education, and evaluation) approach to achieving their goal of zero traffic fatalities. The engineering highlights that are most relevant to the Access Planning Study include:

- Install 20 enhanced crosswalks annually on major streets with pedestrian-activated flashing beacons and with center safety islands or curb extensions to decrease street crossing widths
- Construct major “complete street” improvements along McLaughlin Avenue, Jackson Avenue, and St John Street
- Install 70 miles of new and enhanced bikeways to assist in the goal of completing an interconnected 500-mile bikeway network by 2020

The document also identifies the following “safety priority streets” within or near the BART Access Planning study area:

- Alum Rock Avenue from US-101 to Manning Avenue
- McKee Road from US-101 to Toyon Avenue



### VTA Complete Streets Policy (VTA, 2017)

Adopted in 2017, VTA's Complete Streets Policy formalizes the Complete Streets approach in the planning and delivery of VTA's future transportation infrastructure projects. As defined by VTA, a Complete Streets approach requires the following aspects:

1. Serve all users of the roadway, including pedestrians, bicyclists, and transit riders
2. Use context-sensitive design
3. Maintain or enhance network connectivity
4. Incorporate technology to improve operations and enhance safety of all roadway users
5. Are consistent with adopted plans
6. Maintain transportation infrastructure
7. Seek and respond to public input
8. Integrate Complete Streets infrastructure into transportation projects
9. Design using best practice guides and standards

## C. Land Use Context

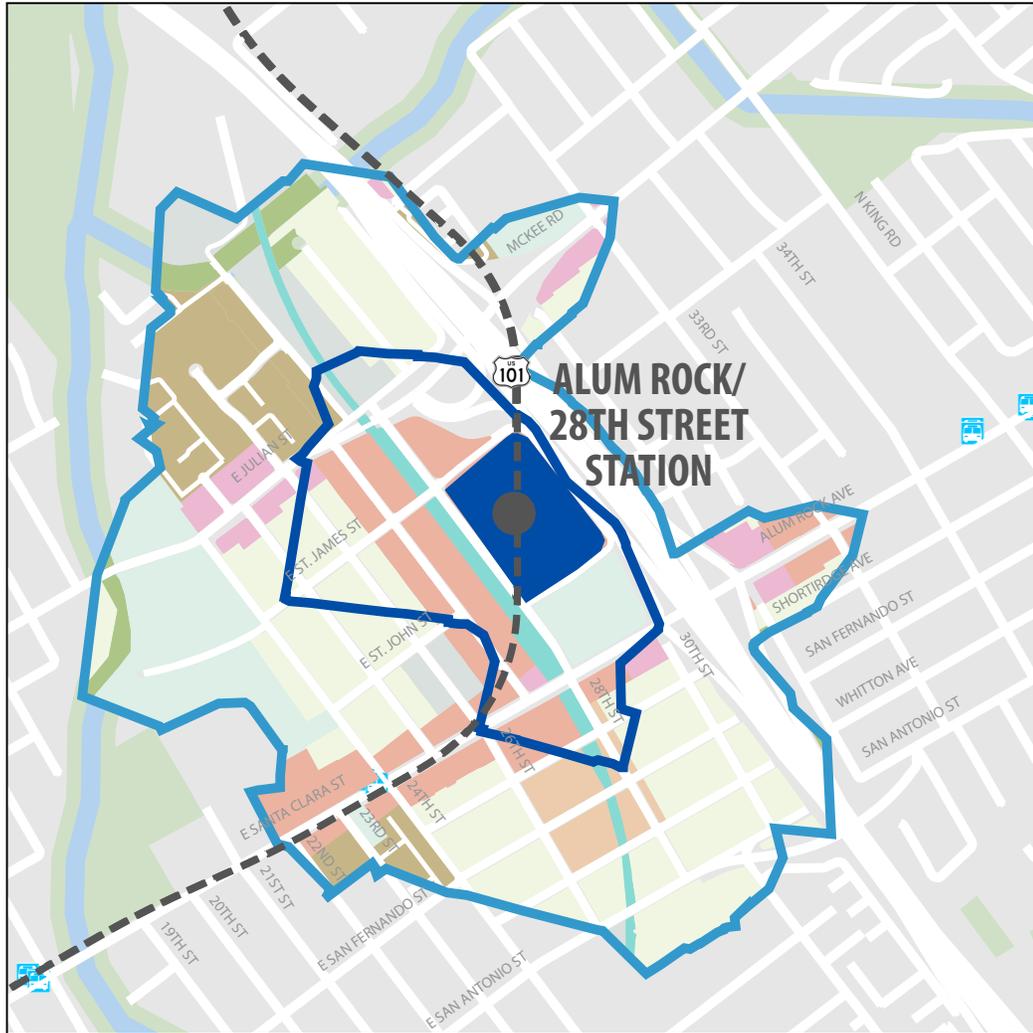
Urban Villages characterize much of the land uses around Alum Rock/28th Street Station. The Urban Village land use designation allows for mixed-use and higher density near transit, and emphasizes employment and housing. Adjacent to the station are mixed residential, commercial and public uses with slightly lower intensities. The surrounding area is Residential Neighborhood and lower intensity industrial uses extend north towards Berryessa Station. **Figure 10** shows the planned land use in the Alum Rock/28th Street Station area.

## D. Alum Rock/28th Street Station Ridership Forecasts

VTA uses a four-step travel demand model, called the C/CAG-VTA Model, that is optimized for the counties of Santa Clara and San Mateo and accounts for transportation impacts from neighboring counties and regional commute shed. The model is based on the BAYCAST-90 travel forecasting system used by the Metropolitan Transportation Commission (MTC).

The travel demand model provides mode of access and egress at each BART Silicon Valley station. The modes of access vary at each BART Silicon Valley station; at the Alum Rock/28th Street Station, riders will primarily arrive by auto and bus. Those arriving by auto may either use the park-and-ride (PNR) or pick-up/drop-off facilities. The model also forecasts transfers between each of the modes of access.

The number of passengers by mode of access is shown in **Table 1** and **Figure 11**. The figure depicts the directional transfers during the morning period. The number of directional transfers for the afternoon period is assumed to be the reverse of the morning period. The Alum Rock/28th Street Station Area is primarily occupied by residential dwelling units, with some low-density employment, retail, and industrial uses. This station serves primarily as an outbound station for residents.



**Legend**

- |   |                              |   |                                   |
|---|------------------------------|---|-----------------------------------|
|  | Light Industrial             |  | Residential Neighborhood          |
|  | Public/Quasi-Public          |  | Mixed Use Commercial              |
|  | Transportation and Utilities |  | Mixed Use Neighborhood            |
|  | Urban Village                |  | Neighborhood/Community Commercial |

0 250 500 750 1,000 Feet

-  1/4 mile shed (5 min walk)
-  1/2 mile shed (10 min walk)
-  VTA's BART Phase II Extension Alignment

Source: City of San José General Plan Envision San José 2040, November 2011

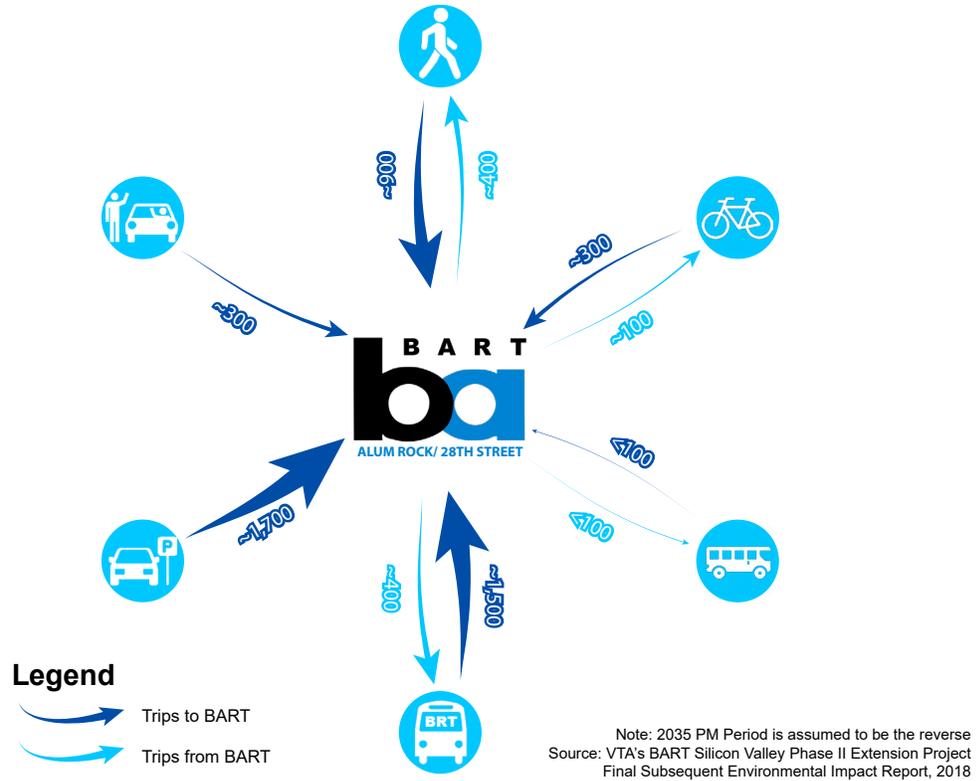
**Figure 10: Planned Station Area Land Use**



**TABLE 1: FORECAST YEAR 2035 DAILY STATION BOARDINGS AND ALIGHTINGS**

	Opening Day	2035
Boardings + Alightings	~7,500	~11,200

Source: VTA's BART Silicon Valley Phase II Extension Project Final Subsequent Environmental Impact Report, 2018



**Figure 11: Forecast Year 2035 AM Period Station Boardings and Alightings**



## II. Existing and Planned Transportation Network

### A. Auto

Vehicles accessing BART park-and-ride (PNR) and pick-up/drop-off facilities will primarily use McKee Road and E. Santa Clara Street via the interchanges with US-101 and I-680. These interchanges have on- and off-ramps in each direction. A parking structure of up to seven levels will accommodate BART PNR demand with up to 1,200 parking spaces. N. 28th Street connects McKee Road and E. Santa Clara Street and will provide direct access to the station. There are signalized intersections at McKee Road and N. 28th Street as well as E. Santa Clara Street and N. 28th Street, which will provide vehicular access to the station. Vehicles may also access the station from McLaughlin Avenue from the south. **Figure 12** shows the existing roadway network.

### B. Transit

#### Existing Transit Network

VTA operates bus routes near the Station Area on E. Santa Clara Street, Julian Street/McKee Street, 24th Street, and King Road. The area surrounding the Alum Rock/28th Street Station is served by existing local bus routes 22, 23, and 64 and Bus Rapid Transit (BRT) route 522. While local buses are anticipated to deviate to access the station, the nearest BRT station will be on E. Santa Clara Street. Transferring BRT users would walk from the BART station to the nearest BRT station. Currently, BRT stations exist ¼-mile to the west of the station at 24th Street and ½-mile to the east at King Road. There is no current BRT station adjacent to the proposed station. The existing BRT stations within the study area are recently completed and have enhanced amenities such as benches, shelters, trash cans, real-time arrival, pedestrian lighting, and route information. The existing local bus route stops have some amenities, but most lack shelters and other amenities. **Figure 13** shows the existing transit network.



**Existing BRT stop at 24th Street and E. Santa Clara Street**

#### Planned Transit Network

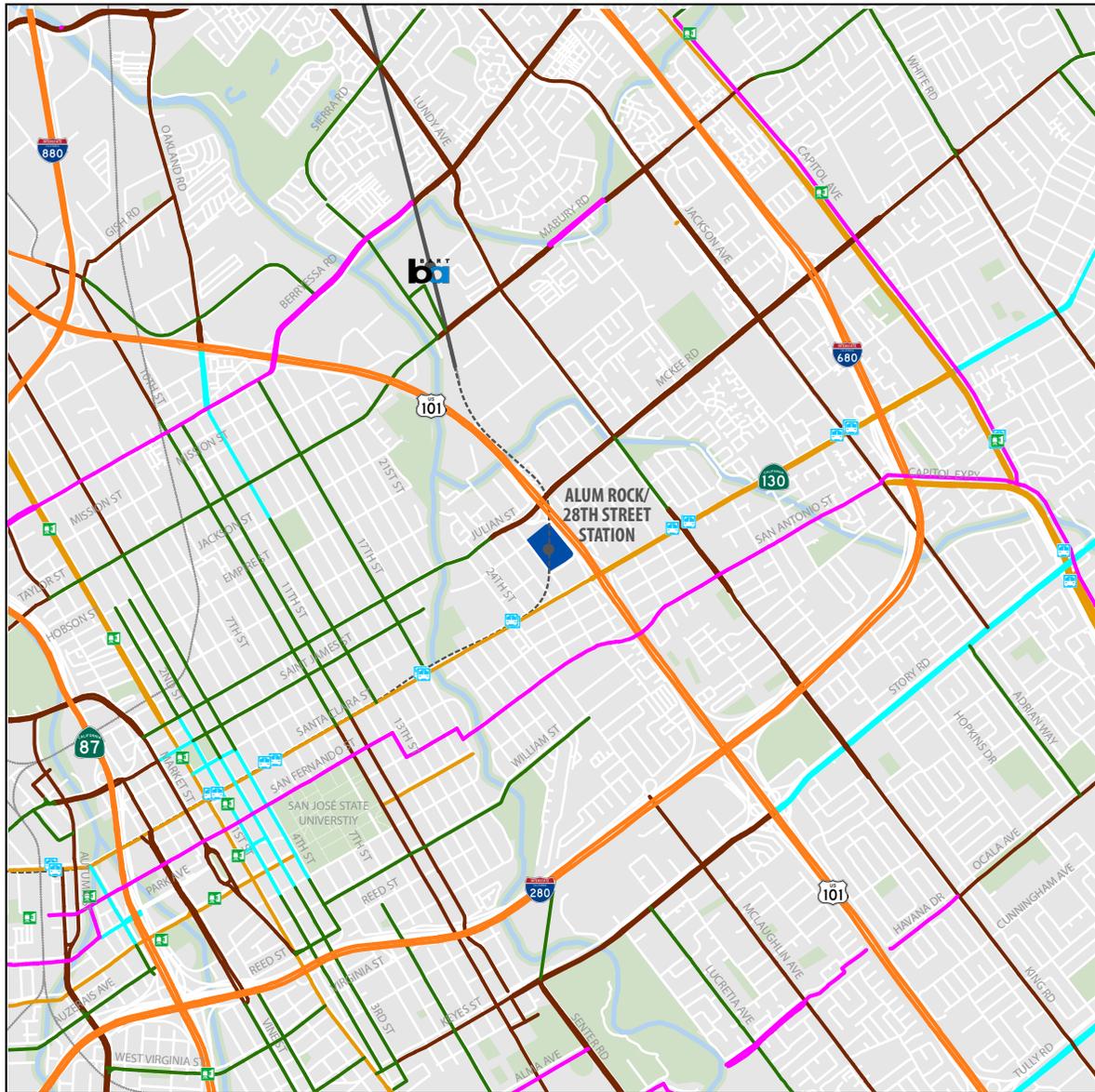
The 2019 New Transit Service Plan plan will increase service levels in high-ridership areas, decrease service levels in low-ridership areas, and increase frequencies on many routes. The plan, which will be implemented in conjunction with BART Silicon Valley Extension Phase I, will also extend service later in the evening on many routes and add more service on weekends. It is anticipated that additional system restructuring will occur in conjunction with BART Silicon Valley Phase II Extension at the time of the project opening. **Table 2** summarizes the 2019 New Transit Service Plan changes affecting routes that serve the Alum Rock/28th Street Station. **Figure 14** shows the planned transit network.



**TABLE 2: PLANNED SERVICE CHANGES**

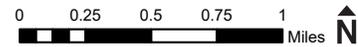
Route	Current Frequency	Planned Frequency	Planned Change (current service vs. final plan)
23	12 mins	15 mins	Decrease weekday frequency; modify route to serve Stevens Creek Blvd instead of Forest Ave.
64	15 mins	15 mins	Merge with Route 63 to create Route 64a and Route 64b. Routes would share alignment east of Diridon Station at 15-minute frequency. South of Diridon Route 64a would serve Almaden, Oakridge, and Ohlone/Chynoweth stations. Route 64b would replace Route 63.
523	N/A	15 mins	Create new Route 523 which connects Lockheed Martin Transit Center, Downtown Sunnyvale (Caltrain), De Anza College, Vallco, Valley Fair, Santana Row, Downtown San José, Mexican Heritage Plaza and Berryessa BART Station.

Source: VTA's 2019 New Transit Service Plan



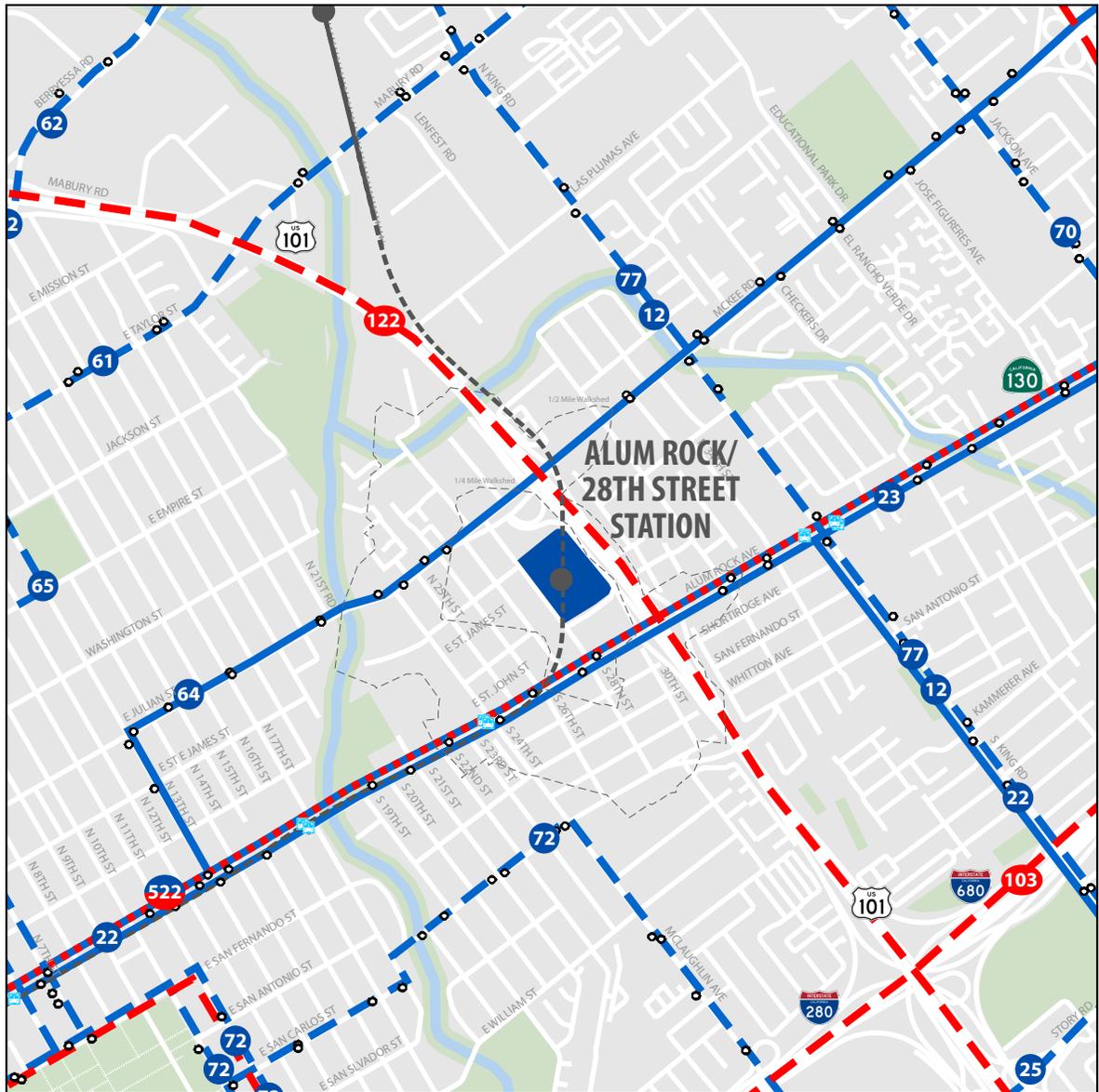
**Legend**

- Freeway
- Local Connector Street
- City Connector
- Main Street
- Grand Boulevard
- On-Street Primary Bicycle Facility
- Existing VTA BRT Stops
- Existing VTA LRT Stops
- VTA's BART Phase I Extension Alignment
- VTA's BART Phase II Extension Alignment



**Figure 12: Existing Roadway Network**

Source: City of San José



**Legend**

- VTA BRT
- VTA Local, Core, Community Bus direct service to station
- - VTA Local, Core, Community Bus requires transfer to access station
- - VTA and Other Express Bus requires transfer to access station
- Existing Local Bus Stops
- Existing VTA BRT Stops
- VTA's BART Phase I Extension Alignment
- ● - VTA's BART Phase II Extension Alignment



Sources: VTA BRT/Local Bus/Core/Community Bus/Express/LRT Data

**Figure 13: Existing Transit Network**





## C. Bicycle

### Existing and Planned Bicycle Network

The existing bicycle network was analyzed within a 1.5-mile access area (bikeshed), equivalent to a 10-minute or less bike ride. The City of San José has constructed several Class II and Class III bike facilities within the bikeshed. No Class I or Class IV facilities currently exist within the bikeshed. The primary existing bicycle corridors throughout the study area are E. San Antonio Street, 21st Street, and 24th Street. E. San Antonio Street provides the only existing on-street bicycle facility that crosses US-101.

There are many planned Class I, II, or III facilities, including the Five Wounds Trail which will connect to the Coyote Creek Trail and Lower Silver Creek Trail, as well as provide direct access to the station. There is a planned Class II facility on McKee Street which will provide another bicycle connection across US-101. Both the City of San José and VTA have identified future bike facilities within the study area.



Existing abandoned railroad ROW/ Future Five Wounds Trail

San José has taken the initiative to focus on first mile/last mile solutions through projects such as Better Bikeways for San José. The project is rapidly implementing a network of better bikeways that will transform San José's streets. Within the study area, the Better Bikeways project recommends improvements to the following areas:

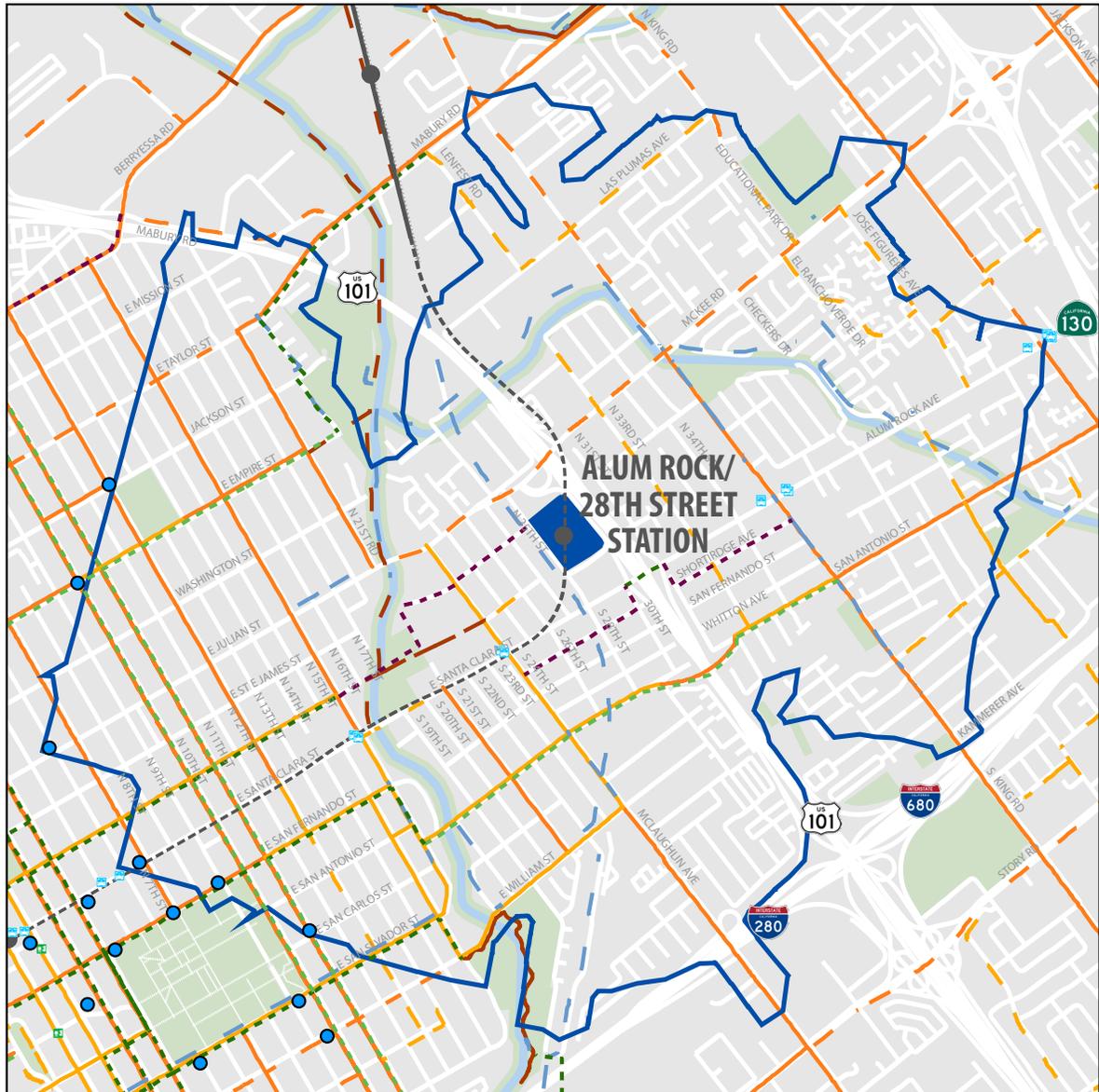
- E. Santa Clara Street across US-101
- E. San Antonio Street across US-101
- St. John over Coyote Creek
- St. James Street west of the Station
- Shortridge Avenue east and west of US-101

Existing and planned bicycle facilities are shown in **Figure 15**.

### Bicycle Level of Traffic Stress

Bicycle level of traffic stress (LTS) is a way to assess the comfort and connectivity of bicycle networks. It analyzes how much stress is experienced by bicyclists throughout a bicycle network. LTS is ranked from 1 to 5, with Level 1 being the least stressful and 5 being the most stressful. An example of an LTS 1 facility is a Class I bikeway that is off-street and an LTS 5 facility is a busy arterial without a bike lane. VTA provided 2015/2016 LTS data for Santa Clara County from 2015 TomTom Streets and 2016 OpenStreetMap data. Some cities, including San José, have significantly upgraded their network since then.

The Alum Rock/28th Street Station is served by LTS 4 and 5 facilities on E. Santa Clara Street, Julian Street, and N. 28th Street. Local residential streets are primarily LTS 3, but still must connect across higher stress level streets. The existing Bicycle Level of Traffic Stress is shown in **Figure 16**.



**Legend**

Planned Bikeways, San José

- - - Class I
- - - Class II
- - - Class III

Planned Bikeways, VTA\*

- - - All Classes

Existing Bikeways

- - - Class II
- - - Class III

Better Bikeways Project

- - - 2018
- - - 2019
- - - Long-term



1 1/2-mile bikeshed (10 min bike ride)

Existing VTA BRT Stops

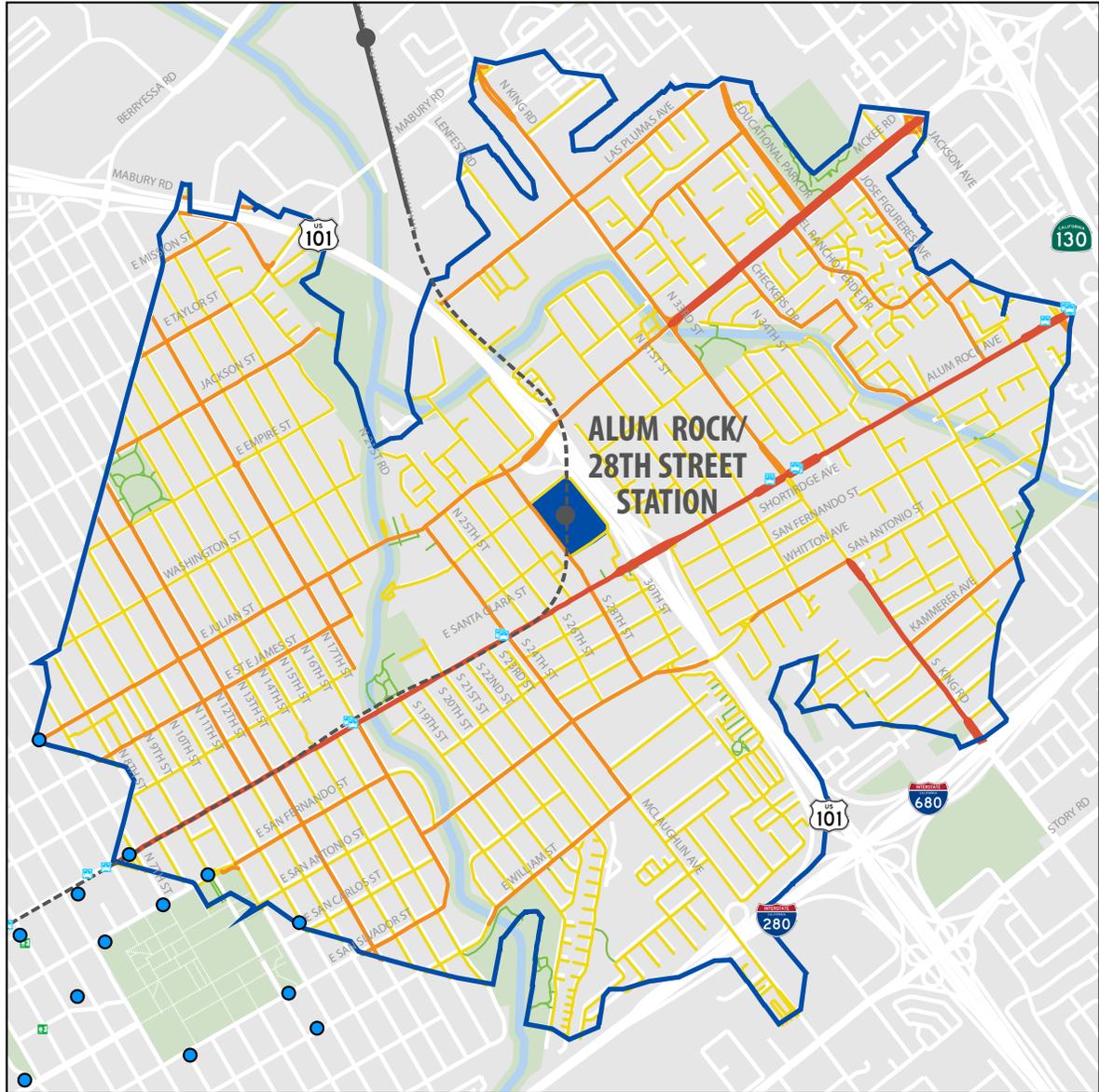
VTA's BART Phase I Extension Alignment

VTA's BART Phase II Extension Alignment

Ford GoBike Stations

Sources: City of San José, Santa Clara County, VTA Countywide Bike Plan 2018, Ford GoBike

**Figure 15: Existing & Planned Bicycle Facilities**



**Legend**

Level of Traffic Stress (LTS)

- LTS 1
- LTS 2
- LTS 3
- LTS 4
- LTS 5

- 1 1/2-mile bikeshed (10 min bike ride)
- 🚇 Existing VTA BRT Stops
- VTA's BART Phase I Extension Alignment
- VTA's BART Phase II Extension Alignment
- Ford GoBike Stations



Source: VTA\*  
\*Note: LTS Based on 2015/2016 Data

**Figure 16: Existing Bicycle Level of Traffic Stress**



## D. Pedestrian

### Existing Pedestrian Network

The existing pedestrian network was analyzed within a ½ mile access area (walkshed), equivalent to a 10-minute or less walk. As shown by the walksheds, US-101 acts a major barrier to pedestrian travel. There are minimal gaps and missing sidewalk connections within the walkshed network. Currently, there is no sidewalk on the east side of Wooster Avenue, north of Julian Street and on the east and west side of N. 28th Street between Julian Street and E. Santa Clara Street.



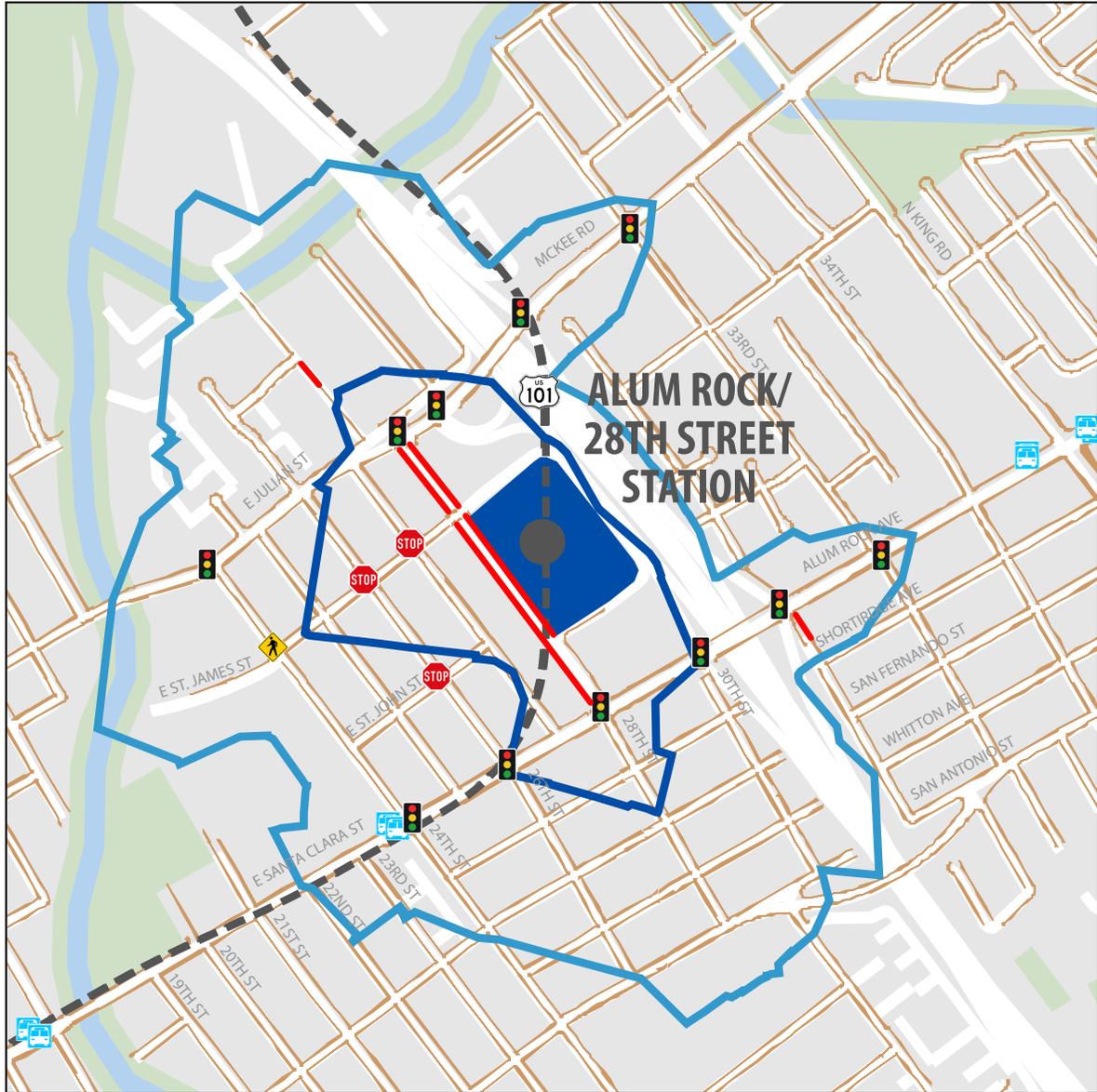
Existing sidewalk gap along N. 28th Street

The existing sidewalks within the study area are adequate in width and in decent condition, but lack additional pedestrian amenities such as buffers from busy arterials and uniform streetscapes. Most intersections have accessible ramps and detectable warnings. The intersection of E. Santa Clara Street and the US-101 southbound off-ramp lacks compliant accessible ramps.

Signalized intersections along E. Santa Clara Street and E. Julian Street provide protected crossings across the major arterials of the study area, but some unprotected and unmarked crossings still exist within the study area. The pedestrian facilities across US-101 along McKee Street and E. Santa Clara Street are limited in width and lack a buffer from the travel lanes. The on- and off-ramps to US-101 are wide and challenging for pedestrians to cross. **Figure 17** shows the existing pedestrian network.

### Bicyclist and Pedestrian-Involved Collisions

**Figure 18** shows fatalities, severe injury, and minor injury bicyclist and pedestrian collisions that occurred within the ½-mile shed from 2013 to 2017. There have been two severe pedestrian-involved collisions and one pedestrian fatality. The two severe pedestrian-involved collisions occurred at Peruka Place and E. Julian Street and along US-101 between McKee Road and E. Santa Clara Street. The pedestrian fatality occurred on US-101 between McKee Road and E. Santa Clara Street.

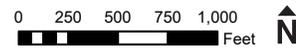


**Legend**

- 1/4 mile shed (5 min walk)
- 1/2 mile shed (10 min walk)
- Existing VTA BRT Stops
- Existing Sidewalk
- VTA's BART Phase II Extension Alignment
- Existing sidewalk gap

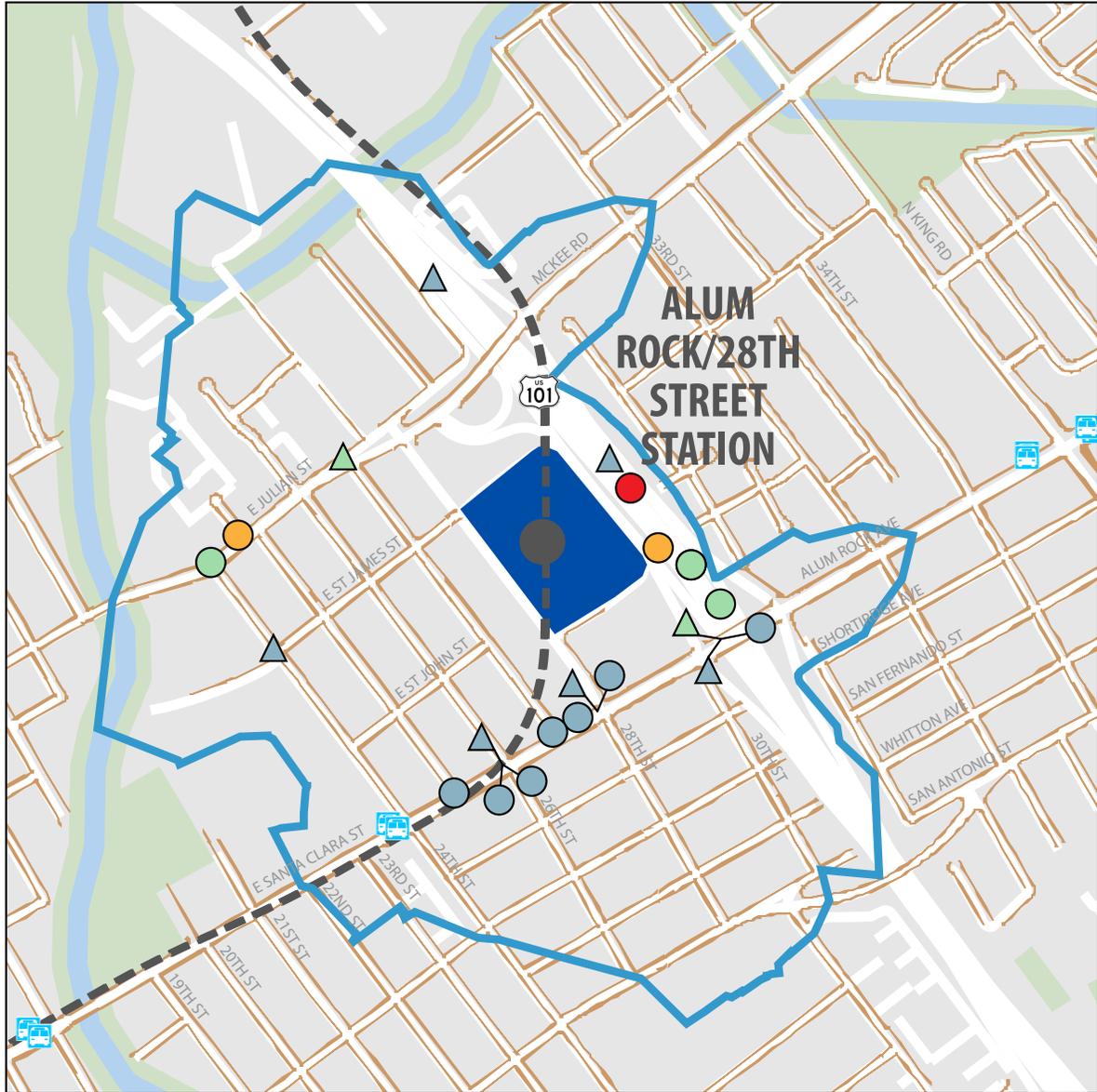
**Intersection Classifications within 10-Minute Walkshed**

- Signalized
  - All-way stop controlled
  - Unprotected crossing
- All unclassified intersections have stop control on minor street or no signal control*



Sources: City of San José, Santa Clara County, VTA

**Figure 17: Existing Pedestrian Network**



**Legend**

**Bicyclist-Involved Collisions**

- ▲ Complaint of Pain
- ▲ Minor Injury
- ▲ Severe Injury
- ▲ Fatal Injury

**Pedestrian-Involved Collisions**

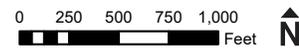
- Complaint of Pain
- Minor Injury
- Severe Injury
- Fatal Injury

1/2 mile shed (10 min walk)

Existing VTA BRT Stops

Existing Sidewalk

VTA's BART Phase II Extension Alignment



Sources: SWITRS Data 2013-2017, City of San José Sidewalk Data

**Figure 18: Bicyclist and Pedestrian-Involved Collisions Map**



## E. Mobility Services

Mobility service includes Transportation Network Companies (TNCs), carshare, bikeshare, scootershare, and private shuttles. Mobility services provide a variety of options that complement transit networks by addressing the first mile/last mile challenge.

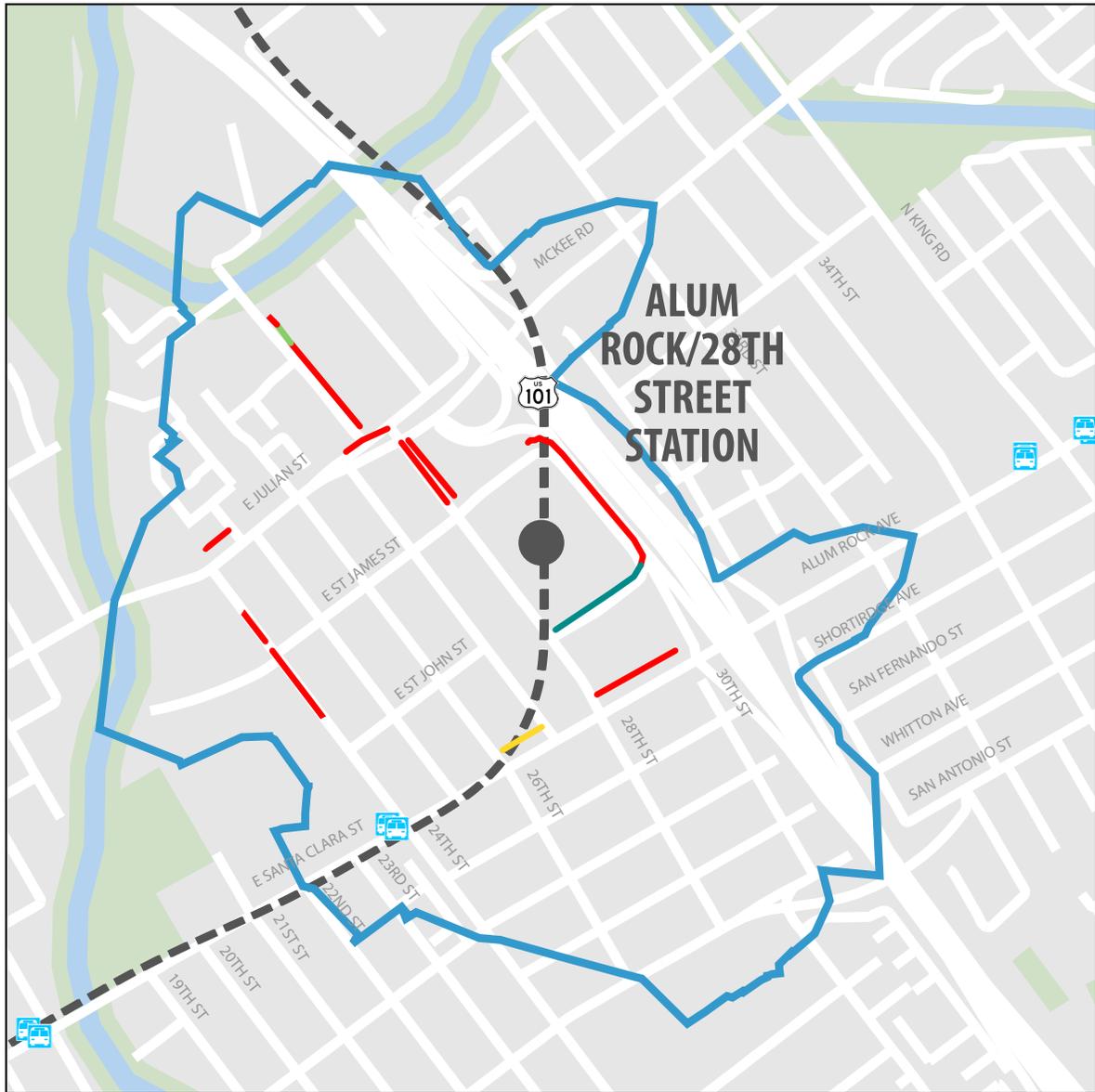
TNCs, including Lyft and Uber, have notably changed the way people travel. Cell phone apps allow users to hail a ride nearly anywhere in urban and suburban environments. Users are charged per ride based on the distance of the trip and the overall demand for rides; as such, rides are more expensive during peak demand periods. With respect to transit stations, TNCs have introduced the need to implement curbside management policies to efficiently and effectively manage passenger pick-up/drop activities while not impacting the flow of traffic in travel lanes.

Carshare is an alternative to car ownership or traditional rental car service. Cell phone apps allow users to locate available cars nearby to rent for a specific amount of time. Several carshare vehicles are available in the access planning area, including those from Zipcar and Getaround. Getaround is a peer-to-peer model which assumes that the person to whom the car belongs has a pre-arranged parking stall. In contrast, Zipcar relies on a public parking space designated for Zipcar parking.

Bikeshare programs in San José include Ford GoBike and LimeBike. Ford GoBike is a bikeshare program based in the Bay Area with stations located in Downtown San José. Ford GoBike stations are located around the Diridon and Tamien Stations. Ford GoBike bikes need to be docked at defined stations and allow users to locate stations via a cell phone app. The Ford GoBike bikes have different pricing and pass options from Single Ride to Annual Membership. LimeBike is a dockless bikesharing model that removes the need for bike station infrastructure in the study area. LimeBikes are priced based on the time the bike is used.

Dockless rental electric scooter sharing programs are being launched in most major cities. The companies that currently operate in San José and the Bay Area are LimeBike, Bird, and Spin. Similar to dockless bikesharing, the scooters are priced based on the time the scooter is used, and station infrastructure is not necessary. As dockless bikeshare and scootershare programs become more prevalent, policy and strategies are necessary to preserve the public right-of-way. **Figure 19** shows the existing curb management regulations of the Station Area.

Private shuttles, operated by major employers or universities such as Google and Stanford, provide door-to-door shuttle services between employment campuses and regional transportation hubs or other destinations. Private shuttles can range in size, from vanpool to coach buses. Accommodating pick-up/drop-off for private shuttles at transit stations is important to manage conflicts with public buses and other motorists.

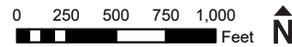


Legend

- 1/2 mile shed (10 min walk)
- Existing VTA BRT Stops
- Existing VTA LRT Stops
- VTA's BART Phase II Extension Alignment

Curb Management within 1/2 Mile Shed

- No parking
- Timed parking
- Freight loading
- Passenger loading



Note: streets with no curb management symbology have no parking restrictions  
Sources: City of San José, Santa Clara County, VTA

Figure 19: Curb Management



## III. Opportunities and Access Routes

### A. Auto

Julian Street/McKee Road and E. Santa Clara Street/Alum Rock Avenue serve as the primary east-west arterials that connect Downtown to East San José, US-101, and I-680. US-101 and I-680 are major access pathways for motorists since there are interchanges at McKee Road and E. Santa Clara Street. On- and off-ramps exist in both directions at the interchanges of McKee Road and E. Santa Clara Street with US-101 and I-680. As noted in the *Final SEIR*, new or modified traffic signals should be provided at the intersections of N. 28th Street and McKee Road and N. 28th Street and E. Santa Clara Street. A new traffic signal or alternative intersection control should also be provided in the Station Area at the intersections of N. 28th Street at Saint James Street and Five Wounds Lane. **Figure 20** shows key auto opportunities and access routes.

### B. Transit

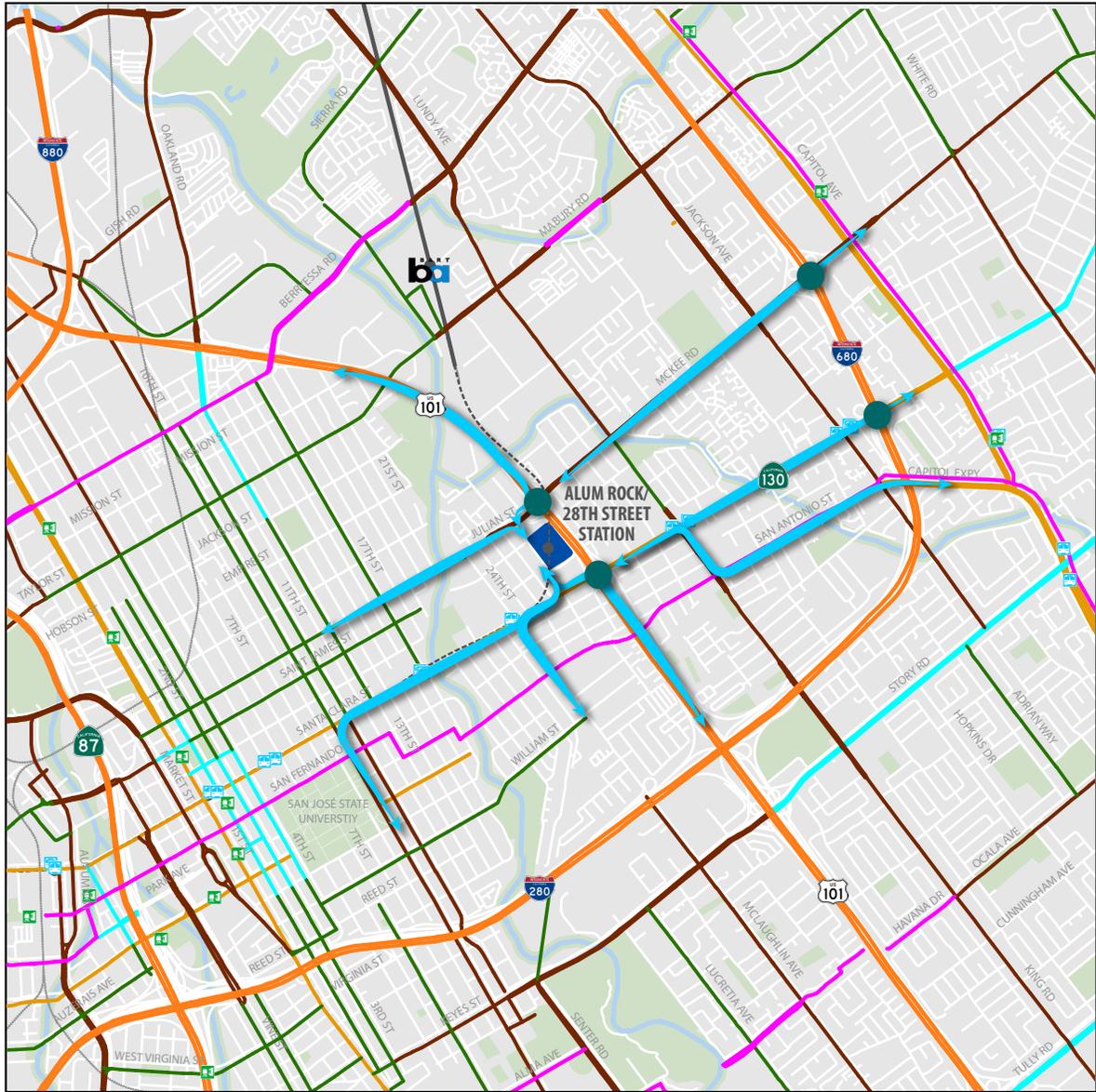
VTA has existing bus and BRT routes within the study area and some will serve the proposed Alum Rock/28th Street Station. The BRT routes along Santa Clara Street will be a primary connection to the BART station. Currently, there is not an existing BRT station that would directly serve the Alum Rock/28th Street Station. Consideration should be given to add or relocate a new BRT station at the intersection of N. 28th Street at E. Santa Clara Street to allow a seamless transfer between the BART station and BRT.

West of US-101, consideration should be given to provide a revised north-south route that would connect to the BRT routes and Alum Rock/28th Street Station. Similar to the current 2019 New Transit Service Plan system redesign that coincides with BART Silicon Valley Phase I's opening, VTA anticipates studying additional transit improvements to better serve the BART Silicon Valley Phase II Project. **Table 3** summarizes the changes that were incorporated into the project's travel demand model. **Figure 21** shows key transit opportunities and access routes.

**TABLE 3: SUMMARY OF CHANGES**

Route	Changes Implemented in 2035 Model
22	Connection created to Alum Rock/28th Street Station; headways increased to 15 mins from 12 mins
23	Connection created to Alum Rock/28th Street Station; headway increased to 30 mins from 12 mins
522	Connection created to Alum Rock/28th Street Station; headway decreased to 10 mins from 15 mins
523	Connection created to Alum Rock/28th Street Station; headway changed to 10 mins

Source: VTA 2035 Equilibrium - SVX

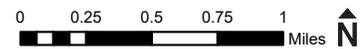


**Legend**

- Freeway
- Local Connector Street
- City Connector
- Main Street
- Grand Boulevard
- On-Street Primary Bicycle Facility

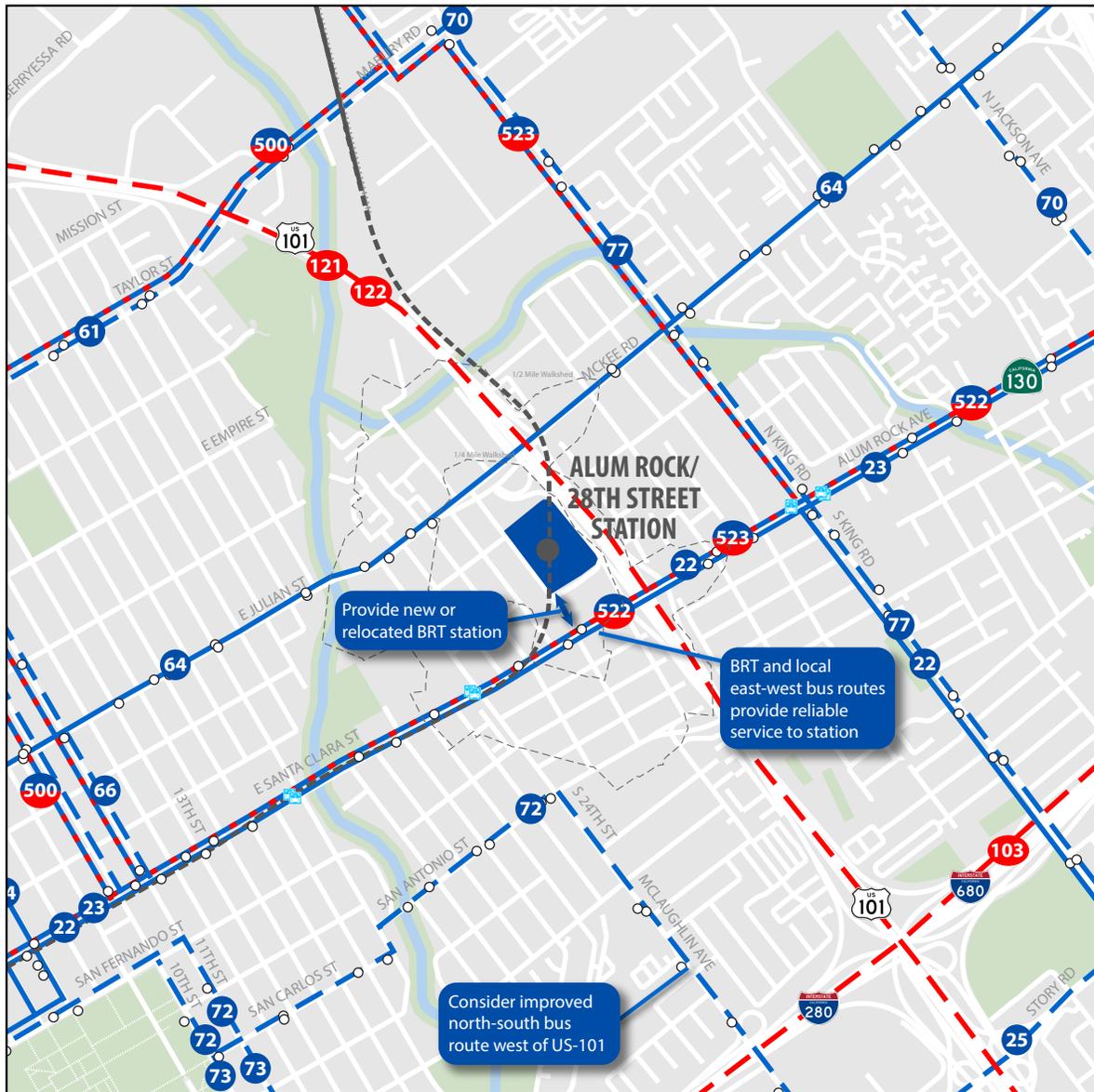
- Existing VTA BRT Stops
- Existing VTA LRT Stops
- VTA's BART Phase I Extension Alignment
- VTA's BART Phase II Extension Alignment

- Access pathway
- Interchange to be used to access station



Source: City of San José

**Figure 20: Auto Opportunities & Access Routes**



**Legend**

- VTA BRT
- VTA Local, Core, Community Bus direct service to station
- - VTA Local, Core, Community Bus requires transfer to access station
- VTA and Other Express Bus direct service to station
- - VTA and Other Express Bus requires transfer to access station
- Existing Local Bus Stops
- Existing VTA BRT Stops
- Existing VTA LRT Stops
- VTA's BART Phase I Extension Alignment
- - VTA's BART Phase II Extension Alignment



Source: VTA 2019 New Transit Service Plan, June 2019

**Figure 21: Transit Opportunities & Access Routes**



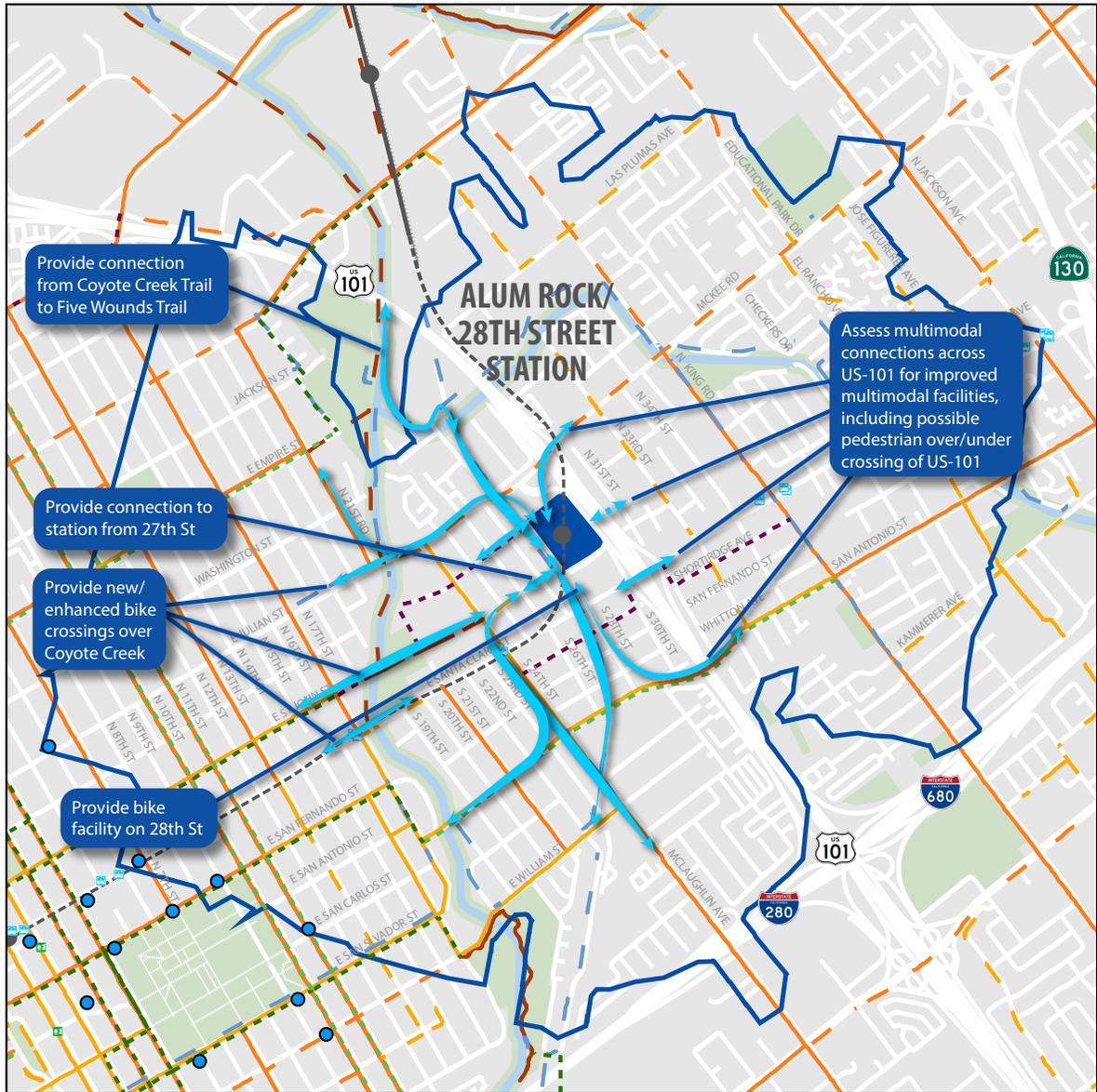
## C. Bicycle

The planned bicycle facilities within the study area will provide needed connections to the trail network, as well as multimodal connections across Coyote Creek and US-101. As discussed in previous planning efforts, E. Saint John Street may be extended across Coyote Creek to provide direct access to the Alum Rock/28th Street Station. Coyote Creek acts a major barrier to bicycle access since the only connections across the creek are prioritized for vehicles or lack existing width to provide adequate bicycle facilities. The E. Saint John Street connection will allow a parallel route to the north of E. Santa Clara Street that could be prioritized for bicycle access. The City of San José has already identified San Antonio Street as a major east-west bicycle connection to the south of E. Santa Clara Street. The Better Bikeways project proposes better connections across US-101 along E. Santa Clara Street and E. San Antonio Street as near-term projects.



**Existing E. San Antonio Street bridge across US-101**

The proposed Five Wounds Trail will provide a multimodal connection between the Berryessa Station, the 28th Street/ Alum Rock Station, Lower Silver Creek Trail, and Coyote Creek Trail. It will serve as the primary north-south access route for pedestrian and bicyclists. Enhanced pedestrian and bicycle connections should be provided at the intersections of N. 28th Street and E. Julian Street; N. 28th Street and E. Santa Clara Street; and the Five Wounds Trail and E. San Antonio Street. E. Santa Clara Street is a Grand Boulevard and Julian Street is a Local/ City Connector Street. Providing enhanced connections at these intersections will allow better pedestrian and bicycle travel across the last major barriers before accessing the station. A pedestrian/bicycle/transit gateway will be provided as part of the Phase II Project on the south side of the station at N. 28th Street from E. Santa Clara Street, which will link the station with buses and BRT. Amenities such as street trees, wide sidewalks, bicycle facilities, and pedestrian-scaled lighting will be provided at the gateway. Connecting E. San Antonio Street to the planned Five Wounds Trail will provide a unified bicycle network. **Figure 22** shows the key bicycle opportunities and access routes.



**Legend**

Planned Bikeways, San Jose

- Class I
- Class II
- Class III

Planned Bikeways, VTA\*

- All Classes

Existing Bikeways

- Class II
- Class III

Better Bikeways Project

- 2018
- 2019
- Long-term



1 1/2-mile bikeshed (10 min bike ride)



Existing VTA BRT Stops



VTA's BART Phase I Extension Alignment



VTA's BART Phase II Extension Alignment



Access pathway



Ford GoBike Stations

\*Source: VTA Countywide Bike Plan 2018, Draft Sources: City of San Jose, VTA

**Figure 22: Bicycle Opportunities & Access Routes**



## D. Pedestrian

Pedestrian connections are critical for successful station access. Everyone is a pedestrian at some point in their trip, whether walking directly to the station, riding/parking a bicycle, taking a bus or shuttle, or driving/parking a car. The existing sidewalk gaps should be closed in the Station Area, specifically on the east side of Wooster Avenue, north of Julian Street and on the east and west side of N. 28th Street between Julian Street and E. Santa Clara Street. Enhanced pedestrian connections should be provided at the intersections of N. 28th Street and Julian Street and N. 28th Street and E. Santa Clara Street. Examples of enhanced pedestrian connections include high-visibility crosswalks, median refuges, tightened curb radii, and bulbouts to reduce crossing distances. Controlled and enhanced pedestrian crossings should be provided at E. Saint James Street and N. 28th Street and the future intersection of E. Saint John Street and N. 28th Street.

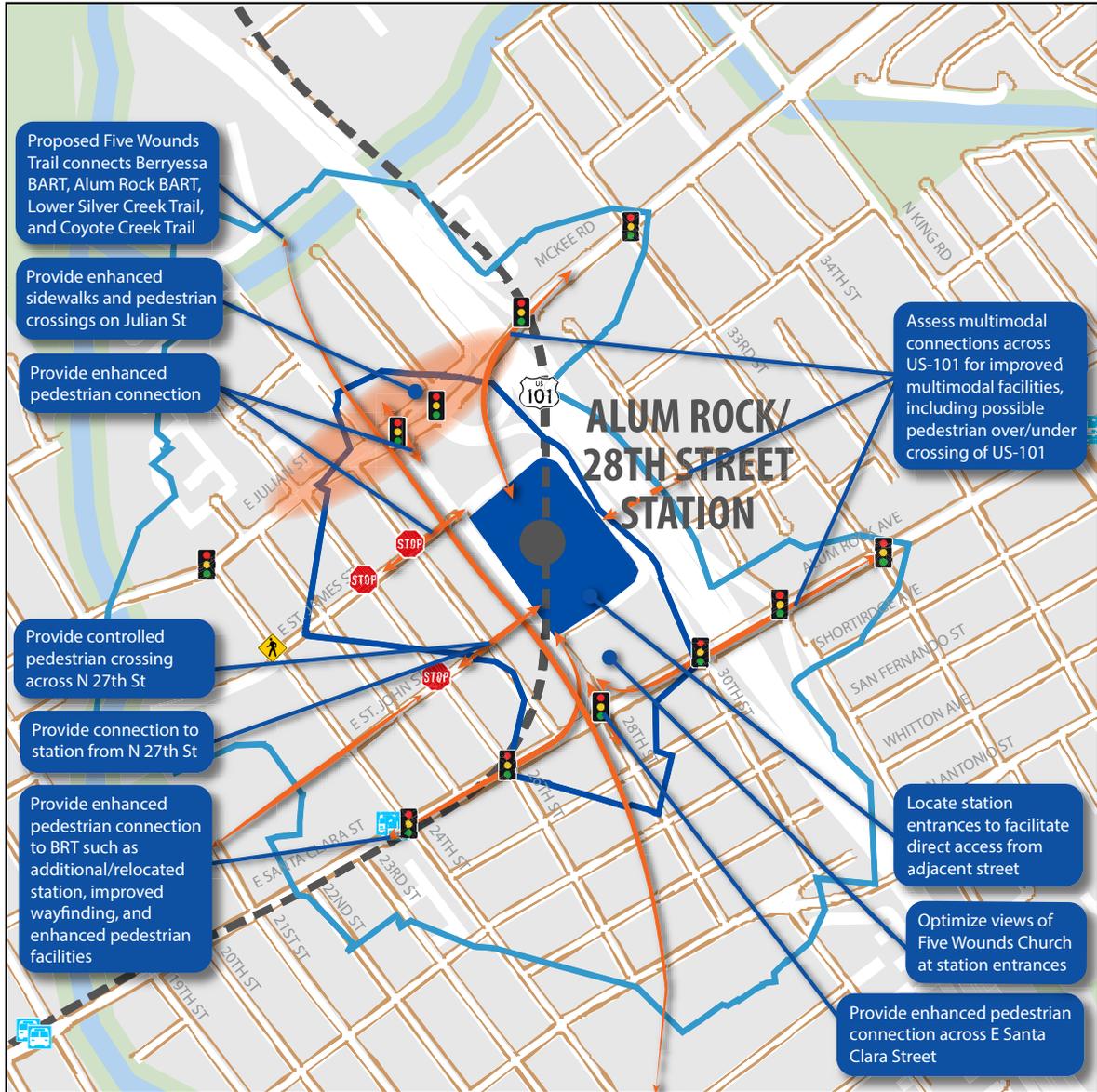


**Uncontrolled pedestrian crossing across E. Santa Clara Street**

The planned Five Wounds Trail will provide a multimodal connection the 28th Street/Alum Rock Station, Lower Silver Creek Trail, and Coyote Creek Trail. It will serve as the primary north-south access route for pedestrian and bicyclists. As mentioned above, enhanced pedestrian and bicycle connections should be provided at the intersections of N. 28th Street and Julian Street and N. 28th Street and E. Santa Clara Street. Providing enhanced connections at these intersections will allow better pedestrian and bicycle travel across the last major barriers before accessing the station. As previously mentioned, a pedestrian/bicycle/transit gateway will be provided on the south side of the station along N. 28th Street, which will link the station with buses and BRT.

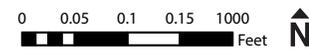
As shown from the walkshed, US-101 acts a major barrier for pedestrian connectivity. Enhanced pedestrian connections across US-101 should be considered to provide easier station access for pedestrians coming from east of US-101. Enhanced pedestrian connections across US-101 should be provided at Julian Street and E. Santa Clara Street and consideration may be given to a new bicycle/pedestrian connection across US-101.

**Figure 23** shows key pedestrian opportunities and access routes.



**Legend**

- 1/4 mile shed (5 min walk)
- 1/2 mile shed (10 min walk)
- Existing VTA BRT Stops
- Existing Sidewalk
- Access Pathways
- Intersection Classifications within 10-Minute Walkshed**
- Signalized
- All-way stop controlled
- Unprotected crossing
- VTA's BART Phase II Extension Alignment



Sources: City of San Jose, VTA

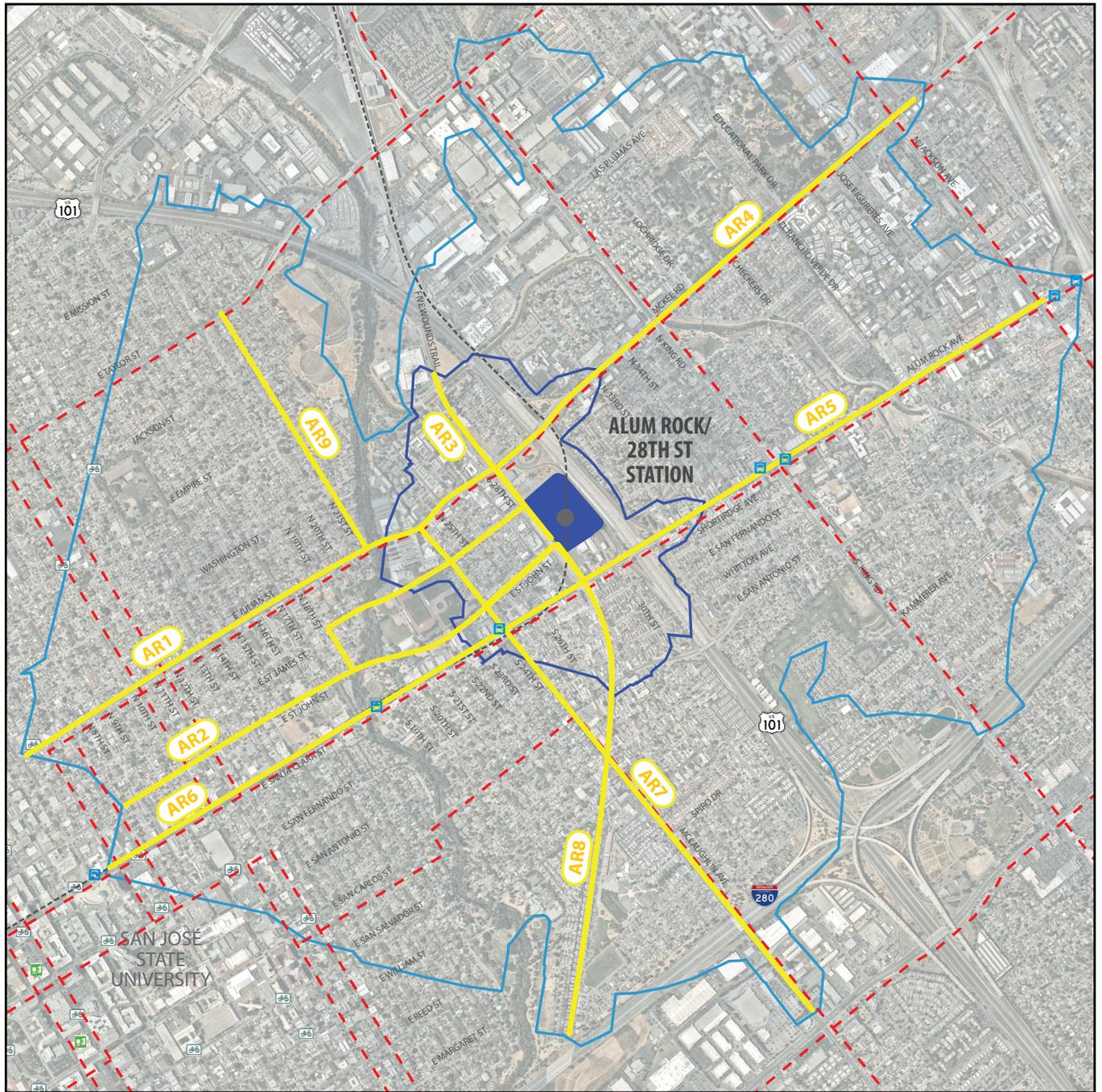
**Figure 23: Pedestrian Opportunities & Access Routes**



## IV. Primary Station Access Routes and Recommended Improvements

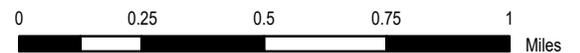
This section of the profile identifies primary, multimodal access routes to the Alum Rock/28th Street Station. These access routes may not be the only pathways that passengers use to arrive at the station, but represent corridors that both serve the majority of the station catchment area and have or are proposed to have the infrastructure to best serve multiple access modes. Access routes are defined for the area within a 10-minute bike ride (1 1/2-mile bikeshed) and 10-minute walk time (1/2-mile walkshed). The report identifies recommended improvements along each access route, referencing both previously planned improvements and new improvements consistent with VTA and local agency goals. Recommendations are intended to close gaps in the transportation network that could inhibit multimodal access and circulation to the station. Wayfinding will direct users to the primary access routes and key destinations along them.

**Figure 24** depicts the primary station access routes identified. **Figures 25** through **27** depict the recommended improvements on each access route.

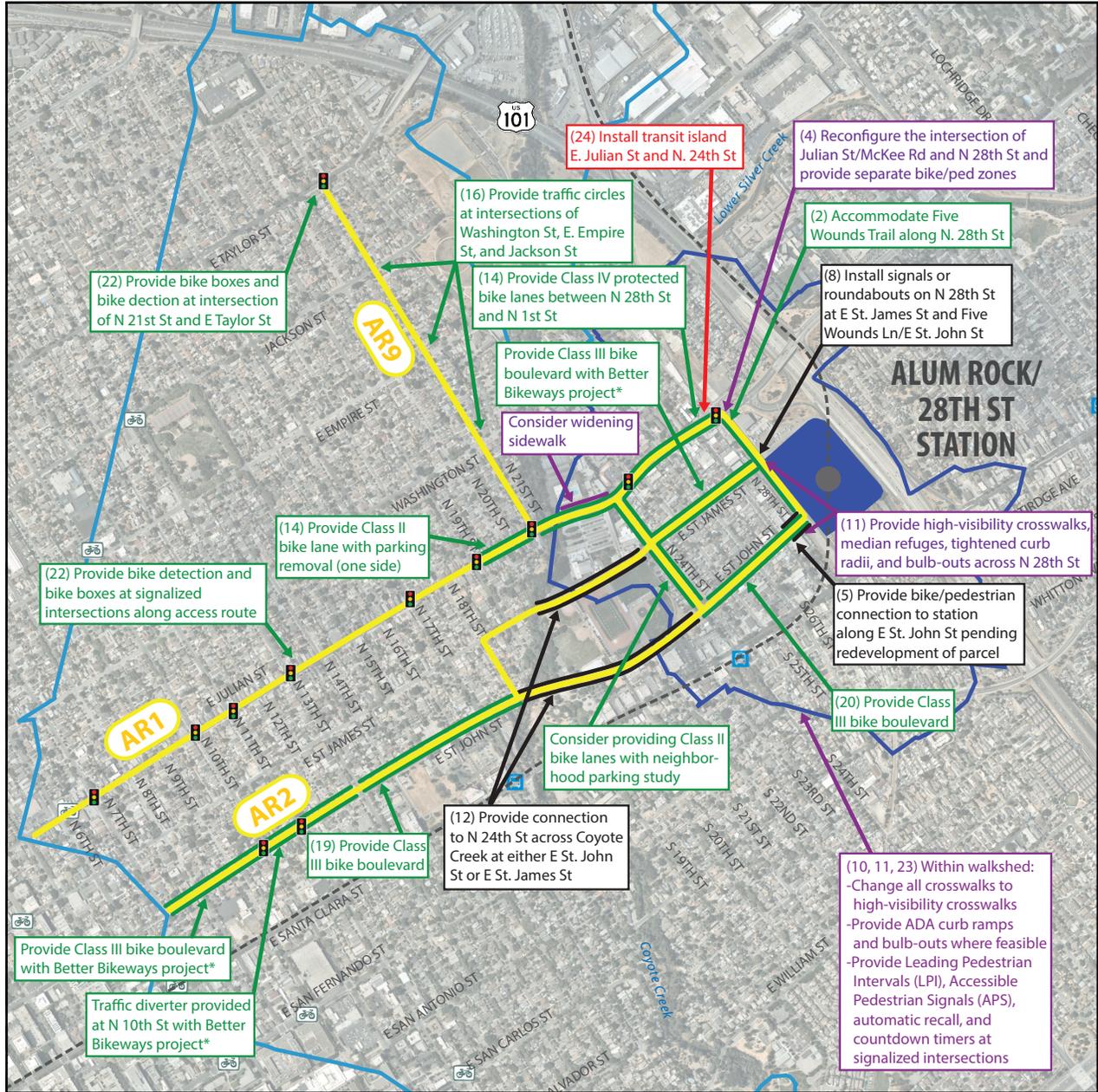


**Legend**

- AR Alum Rock/28th Street Station Access Route
- 1/2-Mile Walkshed (10 min walk)
- 1 1/2-Mile Bikeshed (10 min bike ride)
- VTA's BART Phase II Extension Alignment
- Existing VTA BRT Stops
- Existing VTA LRT Stops
- Existing Ford GoBike Stations
- Existing Local Transit Service



**Figure 24: Alum Rock/28th Street Primary Access Routes**

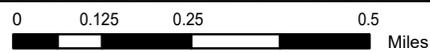


**Legend**

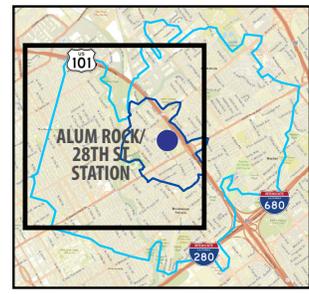
- AR** Alum Rock/28th Street Station Access Route
- 1/2-Mile Walkshed (10 min walk)
- 1 1/2-Mile Bikeshed (10 min bike ride)
- VTA's BART Phase II Extension Alignment
- Existing Signalized Intersection
- Existing VTA BRT Stops
- Existing Ford GoBike Stations

- (#)** Recommendation Number
- Pedestrian recommendation
- Bicycle recommendation
- Transit recommendation
- Connection or structure recommendation

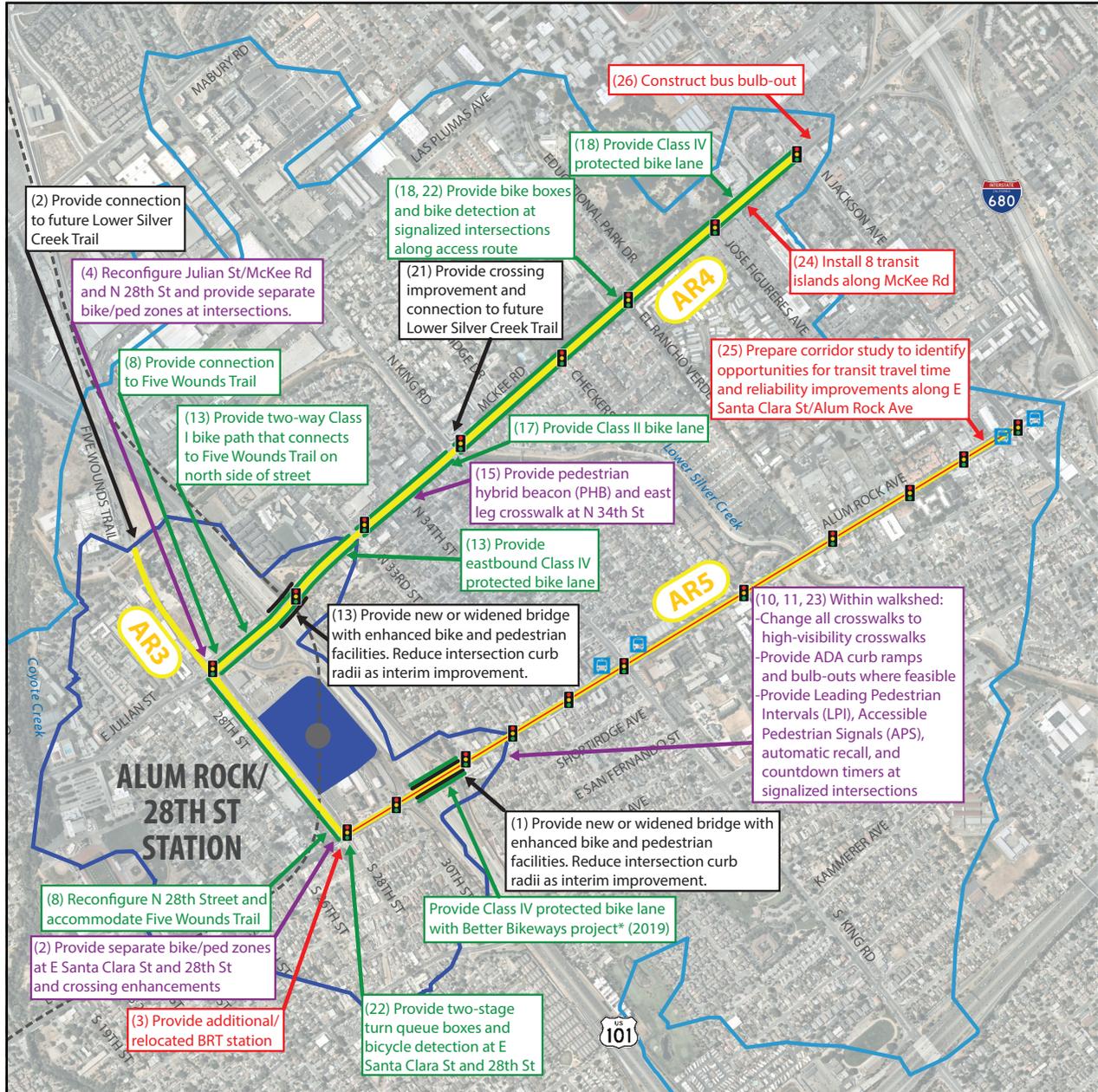
\*Project to be implemented by City of San José



Key Map



**Figure 25: Recommended Improvements (1 of 3)**

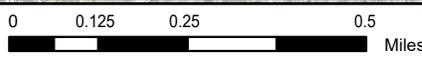


**Legend**

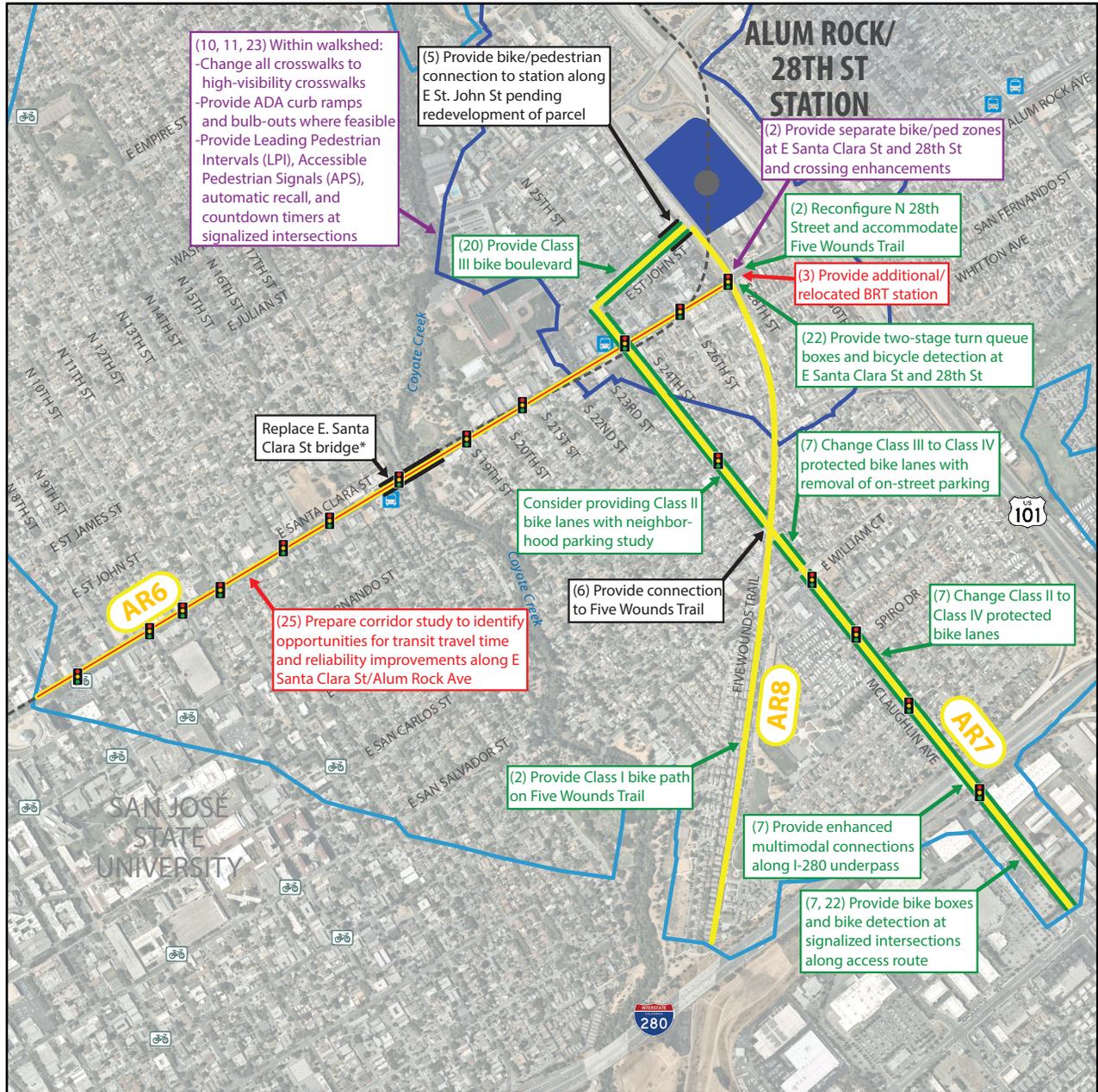
- AR** Alum Rock/28th Street Station Access Route
- 1/2-Mile Walkshed (10 min walk)
- 1 1/2-Mile Bikeshed (10 min bike ride)
- VTA's BART Phase II Extension Alignment
- Existing Signalized Intersection
- Existing VTA BRT Stops
- Existing Ford GoBike Stations

- (#) Recommendation Number**
- Pedestrian recommendation
  - Bicycle recommendation
  - Transit recommendation
  - Connection or structure recommendation

\*Project to be implemented by City of San José



**Figure 26: Recommended Improvements (2 of 3)**

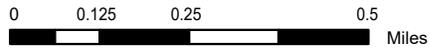


**Legend**

- AR** Alum Rock/28th Street Station Access Route
- 1/2-Mile Walkshed (10 min walk)
- 1 1/2-Mile Bikeshed (10 min bike ride)
- VTA's BART Phase II Extension Alignment
- Existing Signalized Intersection
- Existing VTA BRT Stops
- Existing Ford GoBike Stations

- (#) Recommendation Number
- Pedestrian recommendation
  - Bicycle recommendation
  - Transit recommendation
  - Connection or structure recommendation

\*Project to be implemented by City of San José



Key Map



**Figure 27: Recommended Improvements (3 of 3)**



### Access Route AR1 - E. Julian Street West of Alum Rock/28th Street Station Across Coyote Creek (see Figure 25)

Access Route AR1 connects the area west of Alum Rock/28th Street Station via N. 28th Street and E. Julian Street across Coyote Creek. Key destinations along the access route include San José High School and Sunrise Middle School. Only a few roadway connections exist across Coyote Creek, which acts as a barrier to transportation. E. Julian Street is one of the four streets within the study area that currently crosses the creek, increasing the importance of providing enhanced multimodal connections across Coyote Creek.

E. Julian Street is classified in the San José General Plan as a Local Connector Street, which prioritizes all modes equally. E. Julian Street is designated a Priority Cross County Bicycle Corridor between N. 28th Street and N. 17th Street by the *Santa Clara Countywide Bicycle Plan*.

Class II bike lanes are recommended for E. Julian Street from N. 19th Street to N. 21st Street, and Class IV protected bike lanes are recommended from N. 21st Street to N. 28th Street. E. Julian Street provides access to multiple schools and commercial uses along the corridor and will connect to the planned Five Wounds Trail.

The intersection of E. Julian Street/McKee Road and N. 28th Street is recommended to be reconfigured to improve access and safety. The intersection is a major signalized intersection immediately north of the Alum Rock/28th Street Station. The reconfiguration will need to consider and include the intersection of the planned Five Wounds Trail and the recommended two-way Class I bike path on the north side of McKee Road crossing US-101 (see AR 4).

It is recommended that bike boxes and bike detection be installed at all signalized intersections along the access route. Note that bike detection may not be needed for intersections operating pre-timed signal plans all-day. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 1/2-mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 1/2-mile walkshed, but exact locations should be further studied.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*, 9' within Residential Neighborhood contexts and 10' elsewhere. Sidewalks are recommended to be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 1/2-mile walkshed.

The VTA Local 64 currently serves E. Julian Street/McKee Road north of the future Alum Rock/28th Street Station. It is recommended that the routing be changed to serve Alum Rock/28th Street Station.

Potential locations for boarding islands are recommended on access routes with transit service. For stops where buses already stop in-lane (i.e. where buses would not be required to re-join the flow of traffic), no improvements are recommended. For stops where a Class IV bike facility is proposed (a combined width of at least 24'), a full bus boarding island is recommended. A bus boarding island is recommended for the stop at E. Julian Street and N. 24th Street.



Per VTA's adopted Transit Speed Policy, it is recommended that the highest level of Transit Signal Priority (TSP) be provided along all VTA frequent network routes. Leading bus signal phases should be implemented in the most congested areas, such as station entrances and exits, to minimize delay from route deviations into stations. TSP will make service faster and more reliable for passengers, and more cost-effective for VTA, by reducing delay and minimizing the variability in travel speed.

**Table 4** summarizes the existing, planned, and recommended improvements for Access Route AR1.

**TABLE 4: IMPROVEMENTS FOR ACCESS ROUTE AR1**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations	
E. Julian Street	N. 6 <sup>th</sup> Street to N. 28 <sup>th</sup> Street	Coyote Creek	Bike	CSJ Bike Plan	None	Class II	Provide Class IV protected bike lane between N. 28 <sup>th</sup> Street and N. 21 <sup>st</sup> Street	
								Provide bike boxes and bike detection at signalized intersections
								Provide Class II bike lane between N. 19 <sup>th</sup> Street and N. 21 <sup>st</sup> Street
			Pedestrian	CSJ CSG	5' Sidewalk	10' Sidewalk	Provide 8' Minimum Sidewalk with 2' Buffer	
								Consider widening sidewalk on N side of street between Coyote Creek and N. 24 <sup>th</sup> Street
								Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at E. Julian Street / McKee Road and N. 28 <sup>th</sup> Street
			Transit	2019 New Transit Service Plan	Bus 64 (15 min)	Bus 64 (15 min)	Change routing to serve Alum Rock/28 <sup>th</sup> Street Station	
			Auto	CSJ GP	Local Connector Street/ City Connector Street	Local Connector Street/ City Connector Street	Remove parking between N. 19 <sup>th</sup> Street and N. 21 <sup>st</sup> Street (one side)	
N. 28 <sup>th</sup> Street	McKee Road / E. Julian Street to Station Entrance	None	Bike	VTA Countywide Bicycle Plan	None	Five Wounds Trail	Provide enhanced crossings across N. 28 <sup>th</sup> Street	
			Pedestrian	BART MADG, CSJ CSG	None	10' Sidewalk	15' Sidewalk	
			Transit	2019 New Transit Service Plan	None	Bus 64 (15 min)	Provide effective curb management strategies	
			Auto	CSJ GP	2-Lane undivided with turn lanes	2-Lane divided with turn lanes	Provide 2-lane divided section with 11' travel lanes and 10' turn-lanes	



### ***Access Route AR2 - E. St. John/E. St. James Street West of Alum Rock/28th Street Station Across Coyote Creek (see Figure 25)***

Access Route AR2 connects the area west of Alum Rock/28th Street Station via E. St. John and E. St. James Street across Coyote Creek. E. St. John is a Class III Bike Boulevard and serves as a designated east-west bike route that runs parallel to E. Santa Clara Street. The Better Bikeways San José project has provided a traffic circle at the intersection of E. St. John Street at N. 5th Street and a traffic diverter at E. St. John Street at N. 10th Street.

Key destinations along the access route include Valley Health Center, San José High School, Horace Mann Elementary School, and Roosevelt Park. E. St. John Street and E. St. James Street end at N. 18th Street and N. 19th Street, respectively, with no connection across Coyote Creek. This limits the connection to the station from the west to the more auto-oriented streets of E. Julian Street or E. Santa Clara Street. East of Coyote Creek, E. St. John Street does not connect between N. 27th Street and N. 28th Street, with an existing building on a private parcel at the east end of E. St. John Street. If the parcel redevelops, right-of-way should be allocated to provide a bicycle and pedestrian connection on E. St. John Street between N. 27th Street and N. 28th Street.

It is recommended that additional Bike Boulevard improvements, such as vertical or horizontal deflection to reduce auto speeds, be provided on E. St. John Street between N. 13th Street and E. 17th Street.

To connect the east and west sides of Coyote Creek, a bike/pedestrian bridge is recommended over Coyote Creek at either E. St. John Street or E. St. James Street. On the east side of Coyote Creek, this connection would require access across Roosevelt Park and San José High School to connect to E. St. James Street or E. St. John Street east of N. 24th Street. Further coordination with the school and/or San José Department of Parks, Recreation, and Neighborhood Services would be required to assess the viability of this connection.

The Coyote Creek connection is preferred to be at E. St. John Street, since it is an east-west bicycle boulevard. In the existing condition, E. St. John Street does not connect between N. 27th Street and N. 28th Street, the planned location of the Alum Rock/28th Street station entrance, due to an existing development. If a connection at E. St. John Street is deemed infeasible through further design development, consideration should be given to either provide the connection over Coyote Creek at E. St. James Street or to provide the connection via E. St. John Street over Coyote Creek, turn north along the east bank of Coyote Creek, and join Bulldog Boulevard and E. St. James Street to provide direct station access. In the interim, to cross Coyote Creek from E. St. John Street, users or bicyclists should use the crossing on E. Julian Street via N. 18th Street, E. St. James Street, and N. 19th Street.

It is recommended that bike boxes and bike detection be installed at all signalized intersections along the access route. Note that bike detection may not be needed for intersections operating pre-timed signal plans all-day. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 1/2-mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 1/2-mile walkshed, but exact locations should be further studied.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks.



The only high-visibility crosswalk along this access route exists at the intersection of E. St. James at N. 24th Street. New crosswalks should be installed at the minor street approach of unsignalized two-way stop-controlled intersections and all-way stop controlled intersections where crosswalks do not exist. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*, 9' within Residential Neighborhood contexts and 10' elsewhere. Sidewalks are recommended to be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 1/2-mile walkshed.

**Table 5** summarizes the existing, planned, and recommended improvements for Access Route AR2.

**TABLE 5: IMPROVEMENTS FOR ACCESS ROUTE AR2**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
E. St. James Street	N. 18 <sup>th</sup> Street to Station Entrance	Coyote Creek	Bike	CSJ Bike Plan	None	None	Provide minimum 12' with 2' soft shoulders for Class I bike facility across Coyote Creek (if facility at E. St. John is not feasible)
			Pedestrian	CSJ CSG	5'-10' Sidewalk	10' Sidewalk	Provide Bike Boulevard east of N. 24 <sup>th</sup> Street with vertical and/or horizontal traffic calming elements
			Transit	2019 New Transit Service Plan	None	None	None
			Auto	CSJ GP	Local Connector Street	Local Connector Street	Traffic calming measures such as tabled intersections, chicanes, and traffic diverters
E. St. John Street	N. 7 <sup>th</sup> Street to Station Entrance	Coyote Creek, Missing Connection to N. 28 <sup>th</sup> Street	Bike	CSJ Bike Plan	None	Class I over Coyote Creek. Class III east of N. 24 <sup>th</sup> Street	Provide minimum 12' for Class I bike facility across Coyote Creek
						Bike Boulevard between N. 7 <sup>th</sup> Street and N. 13 <sup>th</sup> Street	Provide Bike Boulevard between N. 13 <sup>th</sup> Street and N. 18 <sup>th</sup> Street with vertical and/or horizontal traffic calming elements
						New bike/pedestrian bridge over Coyote Creek	Provide connection to station from E. St. John Street pending redevelopment of parcel on N. 28 <sup>th</sup> Street
			Pedestrian	CSJ CSG	5'-10' Sidewalk	10' Sidewalk	Provide high-visibility crosswalks and median refuges at future intersection of E. St. John Street and N. 28 <sup>th</sup> Street
			Auto	CSJ GP	2-Lane Undivided w/ On-Street Parallel Parking	Existing	None



### Access Route AR3 - Five Wounds Trail North of Alum Rock/28th Street Station (see Figure 26)

Access Route AR3 connects the area north of Alum Rock/28th Street Station via the Five Wounds Trail, a planned multi-use path in a former Union Pacific Railroad right-of-way currently owned by VTA.

Key connections from the Five Wounds Trail include the planned Coyote Creek Trail and planned Lower Silver Creek Trail. The Five Wounds Trail will also require high-quality connections across several existing barriers, including E. Julian Street/McKee Road and E. Santa Clara Street. The connection of the Five Wounds Trail to the greater trail network from north of E. Julian Street is currently under study by the City of San José.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

The intersection of Julian Street/McKee Road and N. 28th Street is recommended to be reconfigured to improve access and safety. The intersection is a major signalized intersection immediately north of the Alum Rock/28th Street Station. The reconfiguration will need to consider and include the intersection of the planned Five Wounds Trail and the recommended two-way Class I bike path on the north side of McKee Road crossing US-101 (see AR 4). Bike ramps should be provided as part of enhanced trail connections across E. Julian Street/McKee Road and E. Santa Clara Street.

**Table 6** summarizes the existing, planned, and recommended improvements for Access Route AR3.

**TABLE 6: IMPROVEMENTS FOR ACCESS ROUTE AR3**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
Five Wounds Trail	Lower Silver Creek to Station Entrance	Intersection with E. Julian Road / McKee Street	Bike	VTA Countywide Bicycle Plan	None	Class I	Provide minimum 12' with 2' soft shoulders for Class I bike facility
							Provide bike boxes and bicycle detection at E. Julian Street / McKee Road and N. 28 <sup>th</sup> Street
							Provide connection to future Lower Silver Creek Trail
			Pedestrian	BART MADG, CSJ CSG	None	Multi-Use Trail	Provide 8' minimum sidewalk
							Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at E. Julian Street / McKee Road and N. 28 <sup>th</sup> Street
			Transit	2019 New Transit Service Plan	None	None	None
Auto	CSJ GP	None	None	None			



### Access Route AR4 - E. Julian Street/McKee Road East of Alum Rock/28th Street Station Across US-101 (see Figure 26)

Access Route AR4 connects the area east of Alum Rock/28th Street Station via E. Julian Street/McKee Road over US-101 to N. 28th Street and the station. Key destinations include several schools, the San José Regional Medical Center, the Chinese Cultural Gardens, Plata Arroyo Park, and the future Lower Silver Creek Trail. The McKee Road bridge over US-101 lacks dedicated bike facilities and has narrow sidewalks, making it a barrier to non-auto trips. While there are no free turning movements to/from the freeway ramps, there are large curb radii, encouraging higher auto speeds.

E. Julian Street/McKee Street is a 6-lane divided section classified as a City Connector Street in the San José General Plan, which does not give priority to a single mode. E. Julian Street/McKee Street is designated as a Cross County Bicycle Corridor by the *Santa Clara Countywide Bicycle Plan*. The corridor serves as an important access route to the planned station entrance because of the limited crossings of US-101.

Class IV protected bike lanes are recommended for McKee Road between N. King Street and N. Jackson Avenue. Class II bike lanes are recommended on McKee Road between N. King Street and US-101. The right-of-way is narrower than the segment farther east and a Class IV facility cannot be provided within the existing right-of-way without reducing the number of travel lanes or widening the roadway.

It is recommended that a two-way Class I bike path and pedestrian bridge be constructed on the north side of the McKee Road over US-101. This would avoid conflicts between the facility and existing freeway ramps. Further investigation would be needed to assess the viability of cantilevering such a facility on the existing bridge structure or replacing the bridge. West of the bridge, the bike route would intersect with the planned Five Wounds Trail at the reconfigured N. 28th Street intersection. East of the bridge, the two-way bike facility would transition to directional bike lanes at the signalized intersection of McKee Road at N. 33rd Street. Additionally, an eastbound Class IV protected bike lane is recommended between N. 28th Street and N. 33rd Street to accommodate commuter or recreational bicyclists who may not divert to use the two-way Class I facility.

Separate bicycle and pedestrian queuing zones should be provided where the proposed two-way Class I bike path and pedestrian path meet the planned Five Wounds Trail. A bicycle roundabout may be an appropriate solution at this location. Intersection treatments, such as separate bicycle phasing, bicycle jughandle, or a two-stage turn box should be considered where the Class I facility transitions to on-street facilities. Bike ramps should be provided at all intersections where Class I facilities intersect the on-street roadway network.

As an interim improvement to benefit pedestrian circulation, it is recommended to reduce the intersection curb radii at the freeway ramp intersections with McKee Road. Truck turning paths will need to be verified to ensure consistency with Caltrans standards. This would reduce the pedestrian crossing distance and auto speeds through the intersections.

It is recommended that bike boxes and bike detection be installed at all signalized intersections along the access route. Note that bike detection may not be needed for intersections operating pre-timed signal plans all-day. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 1/2-mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 1/2-mile walkshed, but exact locations should be further studied.



Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks. High-visibility crosswalks currently exist at the intersections of McKee Road at N. King Road and N. 34th Street. Improved crosswalk striping is recommended at the intersection of McKee Road and N. King Street to facilitate a connection to the future Lower Silver Creek Trail. A Pedestrian Hybrid Beacon (PHB) is recommended at the intersection of McKee Road and N. 34th Street. New crosswalks should be installed at the minor street approach of unsignalized two-way stop-controlled intersections where crosswalks do not exist. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*, a minimum of 10'. Sidewalks are recommended to be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 1/2-mile walkshed.

The VTA Local 64 currently serves E. Julian Street/McKee Road north of the future Alum Rock/28th Street Station. It is recommended that the routing be changed to serve Alum Rock/28th Street Station.

Potential locations for boarding islands are recommended on access routes with transit service. For stops where buses already stop in-lane (i.e. where buses would not be required to re-join the flow of traffic), no improvements are recommended. For stops where a Class IV bike facility is proposed (a combined width of at least 24'), a full bus boarding island is recommended. For stops where the bus partially pulls out of the traffic lane (16'-19'), a bus bulbout is recommended. A bus bulbout is recommended at the intersection of McKee Road and N. Jackson Avenue and eight bus boarding islands are recommended for stops along McKee Road.

Per VTA's adopted Transit Speed Policy, it is recommended that the highest level of Transit Signal Priority (TSP) be provided along all VTA frequent network routes. Leading bus signal phases should be implemented in the most congested areas, such as station entrances and exits, to minimize delay from route deviations into stations. TSP will make service faster and more reliable for passengers, and more cost-effective for VTA, by reducing delay and minimizing the variability in travel speed.

**Table 7** summarizes the existing, planned, and recommended improvements for Access Route AR4.



TABLE 7: IMPROVEMENTS FOR ACCESS ROUTE AR4

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
E. Julian Street / McKee Road	Jackson Avenue to N. 28 <sup>th</sup> Street	US-101	Bike	CSJ Bike Plan	None	Class II	Provide Class IV protected bike lane between N. Jackson Avenue and N. King Street
							Provide Class II bike lane between N. King Street and N. 33 <sup>rd</sup> Street
							Provide two-way Class I bike path between N. 33 <sup>rd</sup> Street and N. 28 <sup>th</sup> Street
							Provide eastbound Class IV protected bike lane between N. 28 <sup>th</sup> Street and N. 33 <sup>rd</sup> Street
			Pedestrian	CSJ CSG	5' Sidewalk	10' Sidewalk	Provide bike boxes and bicycle detection at E. Julian Street / McKee Road and N. 28 <sup>th</sup> Street
							Provide PHB at intersection of McKee Road and N. 34 <sup>th</sup> Street.
							Provide improved bike/ped connection over US-101 with new or widened bridge.
Transit	2019 New Transit Service Plan	Bus 64 (15 min)	Bus 64 (15 min)	Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at E. Julian Street / McKee Road and N. 28 <sup>th</sup> Street			
Auto	CSJ GP	City Connector Street	City Connector Street	Provide crossing improvement at N. King Road to connect to future Lower Silver Creek Trail			
N. 28 <sup>th</sup> Street	E. Julian Street / McKee Road to Station Entrance	None	Bike	VTA Countywide Bicycle Plan	None	Five Wounds Trail	Change routing to serve Alum Rock/28 <sup>th</sup> Street Station
			Pedestrian	BART MADG, CSJ CSG	None	10' Sidewalk	Reduce travel lanes to 11'
			Transit	2019 New Transit Service Plan	None	Bus 64 (15 min)	Provide enhanced crossings across N. 28 <sup>th</sup> Street
			Auto	CSJ GP, VTA's BART Phase II SEIR	2-Lane undivided with turn lanes	2-Lane divided with turn lanes	15' Sidewalk
							Provide effective curb management strategies
							Provide 2-lane divided section with 11' travel lanes and 10' turn-lanes



### **Access Route AR5 - Alum Rock Avenue/E. Santa Clara Street East of Alum Rock/28th Street Station Across US-101 (see Figure 26)**

Access Route AR5 connects the area east of Alum Rock/28th Street Station via E. Santa Clara Street/Alum Rock Avenue across US-101 to N. 28th Street and the station. Key destinations include the Five Wounds Portuguese National Parish, Mexican Heritage Plaza, several schools, and the future Lower Silver Creek Trail.

E. Santa Clara Street/Alum Rock Avenue is classified as a Grand Boulevard that runs east/west through San José, which gives priority to transit.

This access route crosses US-101 immediately to the east of 28th Street. The interchange is currently a typical diamond configuration, without any high-speed ramps. However, curb radii are large, encouraging higher auto speeds. The Better Bikeway project has proposed Class IV protected bike lanes across the E. Santa Clara Street/Alum Rock Avenue bridge over US-101, intended to link the communities on either side. The proposed Class IV protected bike lanes will provide a necessary bicycle connection across US-101, but the existing sidewalks are narrow and lack separation from the existing roadway. A new or widened bridge is recommended for E. Santa Clara Street/Alum Rock Avenue over US-101 to provide enhanced pedestrian facilities. Off-street bicycle facilities should be considered with the bridge reconstruction. As an interim improvement to benefit pedestrian circulation, it is recommended to reduce the intersection curb radii at the freeway ramp intersections with E. Santa Clara Street. Truck turning paths will need to be verified to ensure consistency with Caltrans standards. This would reduce the pedestrian crossing distance and auto speeds through the intersection. With bridge reconstruction or widening, consideration should be given to extending the dedicated BRT lanes to the west across US-101.

A BRT station should be provided or relocated at the intersection of E. Santa Clara Street and N. 28th Street to serve Alum Rock/28th Street Station. It is recommended that a study be conducted to evaluate the impact of changing the alignment of VTA Routes 22 and 23 to serve Alum Rock/28th Street Station. It is recommended that a corridor study be prepared to identify opportunities for transit travel time and reliability enhancements on E. Santa Clara Street/Alum Rock Avenue.

The corridor study proposed on Santa Clara Street/Alum Rock Avenue should consider consolidating closely-spaced stops, relocating bus stops to far-side locations, implementing enhanced transit signal priority, providing bus boarding islands or bus curb extensions, and providing dedicated bus-only lanes in high-congestion and frequent service areas. Further analysis will be required to determine the location, extent, and operation of dedicated transit lanes. In addition, transit stop amenities will be upgraded per guidelines included in the VTA Transit Passenger Environment Plan (TPEP).

Per VTA's adopted Transit Speed Policy, it is recommended that the highest level of Transit Signal Priority (TSP) be provided along all VTA frequent network routes. Leading bus signal phases should be implemented in the most congested areas, such as station entrances and exits, to minimize delay from route deviations into stations. TSP will make service faster and more reliable for passengers, and more cost-effective for VTA, by reducing delay and minimizing the variability in travel speed.

VTA's Pedestrian Access to Transit Plan recommends making the following improvements to the intersection of Alum Rock Avenue and King Road: narrowing right turn radii of all curbs to reduce pedestrian crossing distance, evaluating signal timing to reduce pedestrian crossing time, adding leading pedestrian interval (LPI), and expanding bus shelters.



It is recommended that two-stage left-turn boxes and bike detection be installed at the intersection of E. Santa Clara Street and N. 28th Street. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 1/2-mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 1/2-mile walkshed, but exact locations should be further studied.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

It is recommended that an enhanced crossing be provided at the intersection of N. 28th Street and E. Santa Clara Street. The intersection will be a highly utilized signalized intersection to the south of the station with conflicts between numerous modes. Separate bicycle and pedestrian queuing zones should be provided where the planned Five Wounds Trail intersects E. Santa Clara Street. Separate bicycle phasing should be considered for the trail. Bike ramps should be provided at all intersections where Class I facilities intersect the on-street roadway network.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*. The minimum sidewalk width for E. Santa Clara Street/Alum Rock Avenue, classified as a Grand Boulevard, is 15' within an Urban Village context, and 12' elsewhere. The minimum width for N. 28th Street, classified as a Local Street, is 10' within an Urban Village context, but is recommended to be 15' due to its close proximity to the station. Sidewalks are recommended to be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 1/2-mile walkshed.

**Table 8** summarizes the existing, planned, and recommended improvements for Access Route AR5.



**TABLE 8: IMPROVEMENTS FOR ACCESS ROUTE AR5**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
E. Santa Clara Street / Alum Rock Ave	Jackson Avenue to N. 28 <sup>th</sup> Street	US-101	Bike	CSJ Better Bikeways	None	Better Bikeways Project - Class IV protected bike lanes between 30 <sup>th</sup> and 31 <sup>st</sup> Street	Provide two-stage left-turn boxes and bicycle detection at N. 28 <sup>th</sup> Street and E. Santa Clara Street
			Pedestrian	CSJ CSG	6'-12' Sidewalk	15' Sidewalk	Provide new pedestrian/bike bridge over US-101 or widen existing bridge Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at N. 28 <sup>th</sup> Street and E. Santa Clara Street
			Transit	VTA	BRT 522 (15 min)	BRT 522 (12 min)	Provide additional/relocated BRT station at intersection of E. Santa Clara Street and N. 28 <sup>th</sup> Street
					-	BRT 523 (15 min)	Analyze potential for extending BRT lanes across US-101 with reconfigured or widened bridge
					Bus 22 (12 min) Bus 23 (12 min)	Bus 22 (15 min) Bus 23 (15 min)	Consider study to evaluate impact of changing routing of 22 and 23 to serve Alum Rock/28 <sup>th</sup> Street Station
			Auto	CSJ GP	Grand Boulevard	Grand Boulevard	Reduce travel lanes to 11'
			N. 28 <sup>th</sup> Street	E. Santa Clara Street to Station Entrance	None	Bike	VTA Countywide Bicycle Plan
Pedestrian	BART MADG, CSJ CSG	None				10' Sidewalk	15' Sidewalk
Transit	2019 New Transit Service Plan	None				Bus 22 (15 min) Bus 23 (15 min)	Provide effective curb management strategies
						Auto	CSJ GP, VTA's BART Phase II SEIR



### **Access Route AR6 – E. Santa Clara Street from Downtown San José to Alum Rock/28th Street Station (see Figure 27)**

Access Route AR6 connects the area west of Alum Rock/28th Street Station via E. Santa Clara Street across Coyote Creek to N. 28th Street.

Key destinations include Roosevelt Park, San José High School, Valley Health Center, and Downtown San José. E. Santa Clara Street has a narrow bridge across Coyote Creek that lacks width to provide enhanced pedestrian and bicycle facilities. The bridge over Coyote Creek is planned to be replaced by the City of San José.

A BRT station should be provided or relocated at the intersection of E. Santa Clara Street and N. 28th Street to serve Alum Rock/28th Street Station. It is recommended that a study be conducted to evaluate the impact of changing the alignment of VTA Routes 22 and 23 to serve Alum Rock/28th Street Station. It is recommended that a corridor study be prepared to identify opportunities for transit travel time and reliability enhancements on E. Santa Clara Street/Alum Rock Avenue.

The corridor study proposed on Santa Clara Street/Alum Rock Avenue should consider consolidating closely-spaced stops, relocating bus stops to far-side locations, implementing enhanced transit signal priority, providing bus boarding islands or bus curb extensions, and providing dedicated bus-only lanes in high-congestion and frequent service areas. Further analysis will be required to determine the location, extent, and operation of dedicated transit lanes. In addition, transit stop amenities will be upgraded per guidelines included in the VTA Transit Passenger Environment Plan (TPEP).

Per VTA's adopted Transit Speed Policy, it is recommended that the highest level of Transit Signal Priority (TSP) be provided along all VTA frequent network routes. Leading bus signal phases should be implemented in the most congested areas, such as station entrances and exits, to minimize delay from route deviations into stations. TSP will make service faster and more reliable for passengers, and more cost-effective for VTA, by reducing delay and minimizing the variability in travel speed.

It is recommended that two-stage left-turn boxes and bike detection be installed at the intersection of E. Santa Clara Street and N. 28th Street. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 1/2-mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 1/2-mile walkshed, but exact locations should be further studied.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

It is recommended that an enhanced crossing be provided at the intersection of N. 28th Street and E. Santa Clara Street. The intersection will be a highly utilized signalized intersection to the south of the station with conflicts between numerous modes. Separate bicycle and pedestrian queuing zones should be provided where the planned Five Wounds Trail intersects E. Santa Clara Street. Separate bicycle phasing should be considered for the trail. Bike ramps should be provided at all intersections where Class I facilities intersect the on-street roadway network.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*. The minimum sidewalk width for E. Santa Clara



Street, classified as a Grand Boulevard, is 15' within an Urban Village context, and 12' elsewhere. The minimum width for N. 28th Street, classified as a Local Street, is 10' within an Urban Village context, but is recommended to be 15' due to its close proximity to the station. It is recommended that sidewalks be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 1/2-mile walkshed.

**Table 9** below summarizes the existing, planned, and recommended improvements for Access Route AR6.

**TABLE 9: IMPROVEMENTS FOR ACCESS ROUTE AR6**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
E. Santa Clara Street	N. 6 <sup>th</sup> Street to N. 28 <sup>th</sup> Street	Coyote Creek	Bike	CSJ Bike Plan	None	None	Provide two-stage left-turn boxes and bicycle detection at intersection of N. 28 <sup>th</sup> Street and E. Santa Clara Street
			Pedestrian	CSJ CSG	6'-12' Sidewalk	15' Sidewalk	Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at intersection of N. 28 <sup>th</sup> Street and E. Santa Clara Street
			Transit	2019 New Transit Service Plan	BRT 522 (15 min)	BRT 522 (12 min)	Provide additional/relocated BRT station at intersection of E. Santa Clara Street and N. 28 <sup>th</sup> Street
					-	BRT 523 (15 min)	
					Bus 22 (12 min)	Bus 22 (15 min)	Consider study to evaluate impact of changing routing of 22 and 23 to serve Alum Rock/28 <sup>th</sup> Street Station
Bus 23 (12 min)	Bus 23 (15 min)						
Auto	CSJ GP	Grand Boulevard	Grand Boulevard	Reduce travel lanes to 11'			
N. 28 <sup>th</sup> Street	E. Santa Clara Street to Station Entrance	None	Bike	VTA Countywide Bicycle Plan	None	Five Wounds Trail	Provide enhanced crossings across N. 28 <sup>th</sup> Street
			Pedestrian	BART MADG, CSJ CSG	None	10' Sidewalk	15' Sidewalk
			Transit	2019 New Transit Service Plan	None	Bus 22 (15 min)	Provide effective curb management strategies
						Bus 23 (15 min)	
Auto	CSJ GP, VTA's BART Phase II SEIR	2-Lane undivided with turn lanes	2-Lane divided with turn lanes	Provide 2-lane divided section with 11' travel lanes and 10' turn-lanes			



### Access Route AR7 – 24th Street/McLaughlin Avenue from I-280 to Alum Rock/28th Street Station (see Figure 28)

Access Route AR7 connects the area south of Alum Rock/28th Street Station to I-280 via 24th Street/McLaughlin Avenue. 24th Street is a 2-lane road that is a Class III bike route. South of E. Williams Street, McLaughlin Avenue changes from a 2-lane undivided roadway to a 3-lane roadway with a two-way left-turn lane and Class II bike lanes.

Key destinations include San José High School, Roosevelt Park, the Five Wounds Trail, and the Grand Century Shopping Mall.

The existing Class II bike lanes between Story Road and E. Williams Street are recommended to be upgraded to Class IV protected bike lanes. Between E. Williams Street and Peach Court, the location of the future Five Wounds Trail, the Class III bike boulevard is recommended to be upgraded to Class IV protected bike lanes, requiring removal of several on-street parking spaces. Between Peach Court and E. St. John Street it is recommended that a neighborhood parking study be conducted to examine the feasibility of upgrading the existing Class III bike route to Class II bike lanes, which would require removal of on-street parking.

The Class IV protected bicycle facility is recommended because there are limited connections from the neighborhoods south of I-280 and east of Coyote Creek across I-280/I-680. McLaughlin Avenue provides an important connection across I-280 to the planned Five Wounds Trail and the station. The interchange of I-280 and McLaughlin Avenue is recommended for striping improvements and consideration of modification of the free turning movement ramps to SB I-280 from McLaughlin Avenue.

It is recommended that bike boxes and bike detection be installed at all signalized intersections along the access route. Note that bike detection may not be needed for intersections operating pre-timed signal plans all-day. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 1/2-mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 1/2-mile walkshed, but exact locations should be further studied.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*, 9' within Residential Neighborhood contexts and 10' elsewhere. Sidewalks are recommended to be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 1/2-mile walkshed.

Route 72 is not currently planned to serve Alum Rock/28th Street Station in the 2019 New Transit Service Plan but is recommended to be rerouted to serve the station. The route currently originates at Monterey/Branham, travels north on McLaughlin Avenue and turns west onto E. San Antonio Street, serving San José State University via E. San Carlos Street, and terminates in Downtown San José. The route would be modified to continue north on McLaughlin Avenue to E. Santa Clara Street and terminate at Alum Rock/28th Street Station. This would provide a more direct connection to BART for potential users south of the station. Current passengers bound for downtown would be able to transfer to BRT 522 or could ride BART to Downtown San José Station. Users of Route 72 whose ultimate destination is east of downtown would benefit from a faster



trip. Further study should be conducted to determine bus ridership on Route 72 between E. San Antonio Street and Downtown San José to provide those users an alternate bus route.

Per VTA's adopted Transit Speed Policy, it is recommended that the highest level of Transit Signal Priority (TSP) be provided along all VTA frequent network routes. Leading bus signal phases should be implemented in the most congested areas, such as station entrances and exits, to minimize delay from route deviations into stations. TSP will make service faster and more reliable for passengers, and more cost-effective for VTA, by reducing delay and minimizing the variability in travel speed.

**Table 10** below summarizes the existing, planned, and recommended improvements for Access Route AR7.

**TABLE 10: IMPROVEMENTS FOR ACCESS ROUTE AR7**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
S. 24 <sup>th</sup> Street / McLaughlin Avenue	Story Road to E. St. John Street	E. Santa Clara Street, I-280	Bike	CSJ Bike Plan	Class II/III	Existing	Provide Class IV protected bike lane between Story Road and Peach Court
							Consider providing Class II bike lane between Peach Court and E. St. John Street with neighborhood parking study
							Provide enhanced multimodal connections along I-280 underpass
							Provide bike boxes and bicycle detection at N. 24 <sup>th</sup> Street and E. Santa Clara Street
			Pedestrian	CSJ CSG	4'-8' Sidewalk	10-15' Sidewalk	Provide high-visibility crosswalks and enhanced pedestrian connections at N. 24 <sup>th</sup> Street and E. Santa Clara Street
			Transit	2019 New Transit Service Plan	Bus 72 (15 min)	Bus 72 (15 min)	Change routing to serve Alum Rock/28 <sup>th</sup> Street Station
			Auto	CSJ GP	3-Lane Undivided with Center TWLTL / 2-Lane Undivided w/ On-Street Parallel Parking	Existing	Consider removing on-street parking between E. Williams Street and E. St. John Street
E. St John Street	S. 24 <sup>th</sup> Street to Station Entrance	Missing connection to N. 28 <sup>th</sup> Street	Bike	CSJ Bike Plan	None	Class II	Provide connection to station from N. 27 <sup>th</sup> Street
							Provide Bike Boulevard
			Pedestrian	CSJ CSG	5'-10' Sidewalk	10' Sidewalk	None
			Transit	2019 New Transit Service Plan	None	None	None
			Auto	CSJ GP	2-Lane Undivided w/ On-Street Parallel Parking	Existing	Reduce travel lanes to 10'



### Access Route AR8 – Five Wounds Trail south of Alum Rock/28th Street Station across E. Santa Clara Street (see Figure 28)

Access Route AR8 connects the area south of Alum Rock 28th Street Station via the planned Five Wounds Trail across E. Santa Clara Street. The Five Wounds Trail is a planned multi-use path in a former Union Pacific Railroad right-of-way now owned by VTA.

Key destinations include the Five Wounds Portuguese National Church, Martin Park and Selma Olinder Park. The Five Wounds Trail will connect to the Coyote Creek Trail at I-280, providing a safe and comfortable connection across I-280 and to the numerous attractions and recreations in the Happy Hollow area.

It is recommended that an enhanced trail crossing be provided at the intersection of N. 28th Street and E. Santa Clara Street. The intersection will be a busy signalized intersection south of the station with conflicts between numerous modes. Separate bicycle and pedestrian queuing zones should be provided where the planned Five Wounds Trail intersects E. Santa Clara Street. Separate bicycle phasing should be considered for the trail. Bike ramps should be provided at all intersections where Class I facilities intersect the on-street roadway network. Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other key access routes and should be consistent with agency wayfinding guidelines.

A number of crossing improvements are needed to extend the Five Wounds Trail from the station to its connection to the Coyote Creek Trail. These include potential traffic calming measures at the trail's crossing of Shortridge Avenue, E. San Fernando Street, Whitton Avenue, and E. Santa Clara Street. A traffic signal and traffic calming measures are planned for the intersection of S. 24th Street and Peach Court to ensure safe crossings for users of the Five Wounds Trail. The City of San José and VTA are currently coordinating on transfer of the right-of-way needed for the trail and future construction of the trail facility.

**Table 11** below summarizes the existing, planned, and recommended improvements for Access Route AR8.

**TABLE 11: IMPROVEMENTS FOR ACCESS ROUTE AR8**

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
Five Wounds Trail	I-280 to Station Entrance	Intersections with E. Santa Clara Street; E. San Antonio Street; Peach Court; & E. William Street	Bike	VTA Countywide Bicycle Plan	None	Class I	Provide minimum 12' with 2' soft shoulders for Class I bike path Provide connection to Class IV protected bike lane on S. 24 <sup>th</sup> Street Provide bike boxes and bicycle detection at E. Santa Clara Street and N. 28 <sup>th</sup> Street
			Pedestrian	BART MADG, CSJ CSG	None	Multi-Use Trail	Provide 8' minimum sidewalk Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at E. Santa Clara Street and N. 28 <sup>th</sup> Street
			Transit	2019 New Transit Service Plan	None	None	None
			Auto	CSJ GP	None	None	None



### Access Route AR9 – N. 21st Street north of Alum Rock/28th Street Station from US-101 (see Figure 25)

Access Route AR9 connects the area north of Alum Rock 28th Street Station via N. 21st Street and E. Julian Street across Coyote Creek. Key destinations include the Empire Gardens Elementary School, Watson Park, the US Navy Operational Support Center, and San José High School

The San José General Plan classifies N. 21st Street as a Local Residential Street and E. Julian Street as a Local Connector Street. Both street types prioritize bicycles and automobiles equally. E. Julian Street is designated a Priority Cross County Bicycle Corridor between N. 28th Street and N. 17th Street by the *Santa Clara Countywide Bicycle Plan*.

There are existing Class II bike lanes on N. 21st Street between E. Taylor Street and E. Julian Street. Neighborhood traffic circles are recommended at the intersections of N. 21st Street and Washington Street, E. Empire Street, and Jackson Street

The intersection of E. Julian Street/McKee Road and N. 28th Street is recommended to be reconfigured to improve access and safety. The intersection is a major signalized intersection immediately north of the Alum Rock/28th Street Station. The reconfiguration will need to consider and include the intersection of the planned Five Wounds Trail and the recommended two-way Class I bike path on the north side of McKee Road crossing US-101 (see AR 4).

It is recommended that bike boxes and bike detection be installed at all signalized intersections along the access route. Note that bike detection may not be needed for intersections operating pre-timed signal plans all-day. Countdown pedestrian heads and accessible pedestrian signals (APS) are recommended at signalized intersections within the 0.5 mile walkshed. Automatic pedestrian recall and leading pedestrian intervals (LPI) are also recommended at signalized intersections within the 0.5 mile walkshed, but exact locations should be further studied.

Wayfinding signage should be provided to any schools, museums, cultural institutions, recreational facilities, and other community landmarks, and should be consistent with agency wayfinding guidelines. Wayfinding should be provided along the access route to direct users to the station.

Along the access route, high-visibility crosswalks are recommended to be installed at all existing crosswalks. Sidewalks exist along the access route, but there are multiple locations that are not as wide as recommended within the *Complete Streets Design Standards & Guidelines*, 9' within Residential Neighborhood contexts and 10' elsewhere. Sidewalks are recommended to be widened to the existing ROW, where available. Curb ramps are recommended to be installed or updated to comply with ADA standards within the 0.5 mile walkshed.

The VTA Local 64 currently serves E. Julian Street/McKee Road north of the future Alum Rock/28th Street Station. It is recommended that the routing be changed to serve Alum Rock/28th Street Station.

**Table 12** below summarizes the existing, planned, and recommended improvements for Access Route AR9.



TABLE 12: IMPROVEMENTS FOR ACCESS ROUTE AR9

Street(s)	Limits	Significant Barriers	Mode	Source	Existing (Frequency)	Planned (Frequency)	Further Recommendations
N. 21 <sup>st</sup> Street	E. Taylor Street to E. Julian Street	None	Bike	CSJ Bike Plan	Class II	Existing	Provide bike boxes at intersection of E. Taylor Street and N. 20 <sup>th</sup> Street Provide traffic circles at intersections of Washington Street, E. Empire Street, and Jackson Street
			Pedestrian	CSJ CSG	5'-10' Sidewalk	10' Sidewalk	None
			Transit	2019 New Transit Service Plan	None	None	None
			Auto	CSJ GP	2-Lane Undivided w/ On-Street Parallel Parking	Existing	Narrow travel lanes to 10' and parking lanes to 7'
E. Julian Street	N. 21 <sup>st</sup> Street to N. 28 <sup>th</sup> Street	Coyote Creek	Bike	CSJ Bike Plan	None	Class II	Provide Class IV protected bike lane Provide bike boxes and bike detection at signalized intersections
			Pedestrian	CSJ CSG	5' Sidewalk	10' Sidewalk	Provide 8' Minimum Sidewalk with 2' Buffer Widen sidewalk to existing ROW on N side of street between Coyote Creek and N. 24 <sup>th</sup> Street Provide separate bike/ped zones, high-visibility crosswalks, and enhanced pedestrian connections at E. Julian Street / McKee Road and N. 28 <sup>th</sup> Street
			Transit	2019 New Transit Service Plan	Bus 64 (15 min)	Bus 64 (15 min)	Change routing to serve Alum Rock/28 <sup>th</sup> Street Station
			Auto	CSJ GP	Local Connector Street/ City Connector Street	Local Connector Street/ City Connector Street	None
N. 28 <sup>th</sup> Street	McKee Road / E. Julian Street to Station Entrance	None	Bike	VTA Countywide Bicycle Plan	None	Five Wounds Trail	Provide enhanced crossings across N. 28 <sup>th</sup> Street
			Pedestrian	BART MADG, CSJ CSG	None	10' Sidewalk	15' Sidewalk
			Transit	2019 New Transit Service Plan	None	Bus 64 (15 min)	Provide effective curb management strategies
			Auto	CSJ GP	2-Lane undivided with turn lanes	2-Lane divided with turn lanes	Provide 2-lane divided section with 11' travel lanes and 10' turn-lanes



## V. On-Site Station Requirements

Station access facilities are the foundation of a successful, multimodal facility. Providing adequate facilities with flexibility to adapt to future transportation needs maximizes the value of the transit investment. The BART Silicon Valley Phase II Extension stations are planned to be multimodal stations that encourage a wide variety of access means from a broad cross-section of the surrounding community. This document will lay the groundwork for station access concepts by identifying the facilities to be provided in the vicinity of the BART station entrances. It does not include requirements associated within the BART station itself, but rather identifies facilities to support multimodal access to the BART station.

In order to validate many of the on-site station requirements, access characteristics at comparable existing BART stations were analyzed through station observations. For the Alum Rock/28th Street Station, Fruitvale and North Berkeley were used as comparable stations in part due to their "Balanced Intermodal" station classification according to the BART Station Access Design Hierarchy (*BART Station Access Policy*). The *BART Station Access Typology* defines a balanced intermodal station as well-served by transit though parking is also provided. These stations typically have both walking and drive alone rates of approximately 25%-40% each. 2015 weekday mode of access data provided by BART was referenced for the comparable stations. The data was used to forecast pickup/drop-off characteristics at the station.

### *Automobile/Park-and-Ride Parking*

At the Alum Rock/28th Street Station, a parking structure of up to seven levels with 1,200 spaces is proposed to accommodate BART park-and-ride demand. The *Final Subsequent Environmental Impact Report* (SEIR, 2018) also cleared an additional 950 spaces for an on-site Transit Oriented Joint Development (TOJD) for a total of 2,150 parking spaces.

### *Bicycle Parking*

According to the *BART Facilities Standards (BFS) Architecture – Passenger Station Sites*, both Class I and Class II bike parking shall be provided at the station and should be located outside the pedestrian paths of travel. Class I bicycle parking includes bicycle lockers, secured rooms or cages, and attended bicycle parking or bike stations. Bike lockers should be provided at all stations where space for installation exists, such as street level or in an external plaza. Class I lockers can accommodate up to two bicycles each according to the *BART Multimodal Access Design Guidelines (MADG)*.

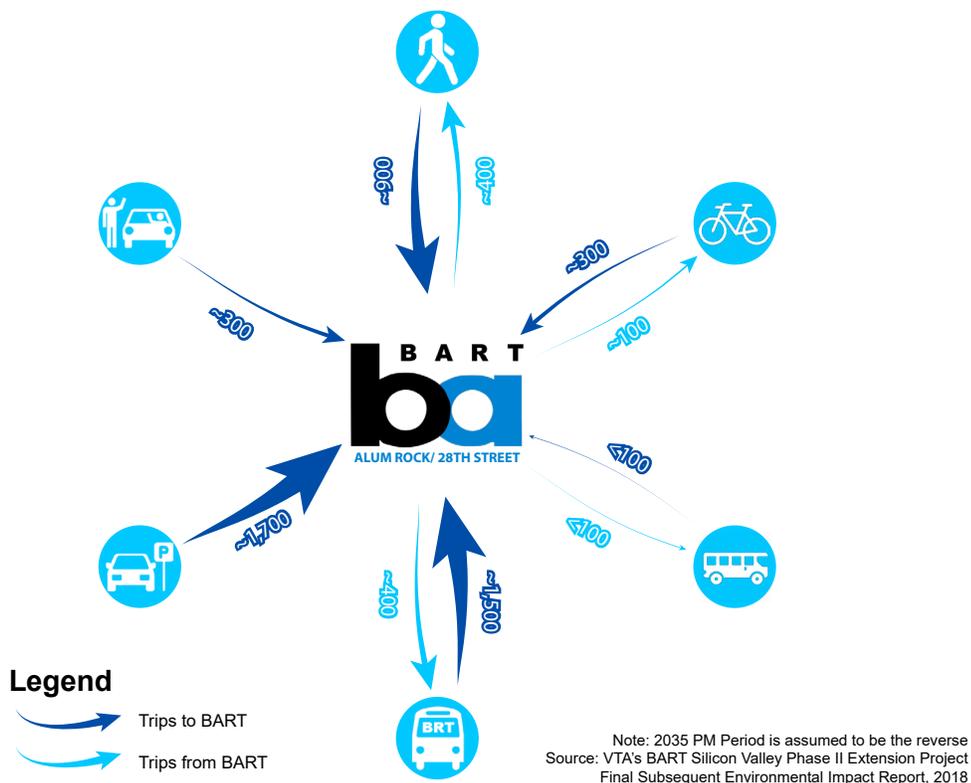
In addition to a secure group parking facility with an attendant, Class II bicycle parking (bicycle racks) may be provided. It should be prioritized inside the paid area or in the free area of the concourse in sight of the station agent and clustered as much as possible for convenience and theft protection (*BFS Architecture – Passenger Station Sites*). For outdoor parking, Class II bicycle racks should be covered with a roof or located under a structural overhang to provide protection from the elements.

Two methodologies were used to compute the required amount of Class I and II bicycle parking. The first method, from the *VTA Bicycle Technical Guidelines*, states that for transit centers, the required number of bike parking spaces is 2% of daily home-based boardings. The second method used the *BART Bicycle Plan's* systemwide goal of an 8% rideshare of BART passengers to access stations by bicycles by 2022.

No specific guidance exists in the *BFS* for the amount of bicycle parking required except that the required number of lockers should be obtained from the Bicycle Program Manager.



The first method to compute required bicycle parking uses the VTA *Bicycle Technical Guidelines* criteria that there should be enough bicycle spaces for 2% of daily home-based boardings with 75% of those as Class I and 25% as Class II. For this calculation, the daily home-based boardings were assumed to be all trips entering the station during the 2035 AM Period. According to the travel demand forecast, shown in **Figure 28**, there are projected to be ~4,700 daily station boardings entering the Alum Rock/28th Street station during the 2035 AM period (SEIR). The total bicycle parking required would be 2% of the daily home-based boardings, resulting in a minimum of 94 required parking spaces. The minimum facilities that should be provided according to VTA *Bicycle Technical Guidelines*, are 71 Class I bike parking spaces and 23 Class II bike parking spaces.



**Figure 28: Forecast Year 2035 AM Period Station Boardings and Alightings**

The second methodology uses the *BART Bicycle Plan's* systemwide goal of 8% rideshare of BART passengers to access stations by bike by 2022. The travel demand forecast was used to determine the number of daily station boardings (~4,700 boardings) during the 2035 AM period (SEIR). Assuming BART operates at its goal, there would be 377 bicyclists accessing the station in 2035. The *BART Bicycle Plan* assumes that the percentage of users who park their bikes at stations will need to be approximately 60% by 2022. The comparable stations, Fruitvale and North Berkeley, do not currently meet that parking rate (highest observed was 55%). This assumption is based on the fact that although the new BART fleet (going into service in 2018 and complete acceptance of new fleet in 2022) accommodates more bicycles, it is unlikely BART will have space for 11,000 more onboard bicycles, which would be the number required based on the current bicycle parking rate at stations. Using this estimate of 60% users parking their bikes at the station, 226 bicycle parking spaces should be provided.



The two methodologies are summarized in **Table 13** below. It should be noted that the *BART Bicycle Plan* does not have a requirement on minimum Class I, Class II parking, and it only states that world-class bicycle facilities should be provided.

**TABLE 13: MINIMUM PROVIDED BICYCLE PARKING**

Plan	Minimum Class I Parking	Minimum Class II Parking	Minimum Total Bicycle Parking
VTA Bicycle Technical Guidelines	71	23	94
BART Bicycle Plan (60% Goal)	N/A	N/A	226

As shown in the table above, there is a minimum bicycle parking projection of between 94 and 226 spaces at the Alum Rock/28th Street Station. The VTA and BART methodologies result in different amounts of minimum bicycle parking. Assuming compatibility with station design, the larger number is recommended as the minimum amount of bicycle parking in order to facilitate non-auto access mode goals. Due to the amount of parking required, bike lockers may not be an efficient use of space due to their large footprint. A secure group parking facility, with an attendant, such as at BART's Downtown Berkeley Station should be provided. At Downtown Berkeley Station, there are three types of parking provided as part of the bike station program: free valet bike parking during staffed hours (7AM – 9 PM weekdays), 24-hour controlled access parking, and secured Class II bike racks with a total capacity of 334 bikes. Bike repair tools or a bike repair station with an attendant is also encouraged, similar to the one provided at North Berkeley. The *BART Bicycle Plan* recommends multiple payment options, providing enhanced lockers with greater security, and frequently maintaining bicycle facilities.

In planning space for bicycle and scooter parking, minimum areas for covered bike parking, docked bicycle parking, and shared mobility dockless bicycle/scooter parking should be provided, along with flexible space for expanding any one of these areas to meet future needs.

### Shared-Use Mobility Considerations

With the growing use of shared-use mobility services such as Lime, Bird, Jump, and others, consideration and planning of these modes is vital to preserve and organize the public right-of-way. Currently, there is no formal guidance provided by BART, VTA, or the City of San José for shared-use mobility services. The City of San José is planning to adopt a permit program for electric scooters or e-scooters. The cities of Santa Monica, California; Austin, Texas; Denver, Colorado; among others, have passed regulations limiting the areas that dockless mobility units can operate by utilizing geofencing and enforcing rules to ensure that these shared-use mobility services are compliant with applicable laws and the permitting process. In-street or sidewalk corrals, similar to the ones implemented in Austin, Texas, and Santa Monica, California, are recommended to reduce sidewalk clutter near station entrances. The National Association of City Transportation Officials (NACTO) has also provided guidelines for cities to regulate and manage shared transportation. This guidance can be referenced until the City of San José passes its own ordinance.

The 2015 BART mode of access data and the travel demand model does not reflect the growing prevalence of bikeshare and scootershare. These shared-use mobility services have the potential to shift utilization away from private bike utilization. The effect of the growing use of these services should be further studied.

Lime and Bird are currently operating in the area along with the docked bikeshare program Ford GoBike.



Ford GoBike is a bikeshare program based in the Bay Area with stations located throughout San José and the greater Bay Area. Ford GoBike bicycles need to be checked-out and returned at defined stations. Ford GoBike also has a dockless program currently being tested in North San José which should be monitored for future expansion to the station area. There are currently no docking stations in the station vicinity but should be considered in close proximity to station entrances.

Several cities, including Denver and Santa Monica, have begun to install small corrals for shared-use devices within the roadway or on sidewalks, to encourage users to park vehicles in places where they will not impede pedestrian travel or accessibility. The corrals vary in size and character based on local context, but are typically 6 feet wide and between 10 to 15 feet in length. To encourage proper storage of these devices, it is recommended that 6 feet by 20 feet vehicle corrals be designated near primary station entrances (enough for between 20-30 units). Due to the uncertain future of shared-use mobility, these parking areas could be constructed with paint and other low-impact solutions to permit flexibility of future use and retain the potential to repurpose them for other uses if shared mobility activity significantly increases or decreases.

### *Pick-up/drop-off Curb Space Requirement*

The curb space required for pick-up and drop-off activity for private automobiles, taxis, and TNCs is estimated based on travel demand projections and observations from the comparable BART stations. AM and PM peak observations were made at the comparable stations for cars using the pick-up and drop-off space to determine the average dwell time. This was used to determine the maximum service rate, defined as the number of vehicles per hour able to use the available curb space. A Peak Hour Factor (PHF) was also calculated using the data from the observed stations. There was a higher pick-up/drop-off volume during the AM period, but the duration for the activity was longer during the PM period. The analysis was performed for both AM and PM periods and the more conservative time was chosen. With a longer dwell time, the PM period had a greater usage requirement. This was used to project station pick-up/drop-off activity from the 2035 forecast model to estimate curb space required at the Alum Rock/28th Street Station. The analysis showed that six curb spaces are required for private automobiles and TNCs in order to provide at least one space available with 90% certainty.

To determine curb space that would be needed to account for growth from current conditions to the opening of the station, the BART mode of access data from 2015 was compared to data from 2008. The percentage of people who were dropped off more than doubled for both comparable stations. With increasing use of TNCs and the advent of autonomous vehicles, pick-up/drop-off activity at stations is likely to continue to increase. To account for this growth, an additional six curb spaces for a total of 12 curb spaces for private automobiles and TNCs is recommended. This equates to approximately 300 feet of linear curb space using a typical value of 25 feet per vehicle. Taxis had 7 designated spaces, approximately 175 feet of linear curb space, at both comparable BART stations separate from the pick-up/drop-off area. An additional 100 feet of linear curb space, based on average vehicle length of 28 feet, should be allocated for pick-up/drop-off activity from private bus shuttles operated by employers or other private companies to manage conflicts with public buses and motorists. The 100 feet of linear curb space at Alum Rock/28th Street Station would be able to accommodate at least two concurrent employer shuttles. Most shuttle buses currently in service are smaller vehicles, and thus a larger number of shuttles may be provided. Linear straight curb is recommended to allow flexible vehicle sizing. Permitting and enforcement policies for these areas is still to be determined. Minimal private bus shuttle activity was observed at the comparable stations. Forty feet of linear curb space should be provided to allow for two paratransit vehicles to be parked back to back. The preferred location of this space is as close to the station elevator as possible.



Private automobile, TNC, private shuttles and taxi pick-up/drop-off areas should have separate designated areas. Where possible, pick-up/drop-off space should be designated in an area close to the faregate entrance, but with circulation separated from public bus transit circulation to minimize delays for transit vehicles (MADG). This space should also be located to allow users to access the station entrance without crossing traffic lanes and designed for one-way traffic (BFS Architecture – Passenger Station Sites).

### Bus Bay Requirements

VTA's 2019 New Transit Service Plan was analyzed to determine which bus routes may serve the station in the near term. The route start and end points, frequency, and whether Alum Rock/28th Street BART Station would serve as a route terminus are shown in **Table 14** below. Routes that terminate at the station may need additional space for layover and driver break facilities/restrooms.

**TABLE 14: ANTICIPATED ROUTES SERVING ALUM ROCK/28TH STREET STATION**

Route	Direction	From	To	Peak Frequency	Route Terminus at Station	Bay Requirements
22	Eastbound/Westbound	Eastridge TC	Palo Alto TC	15 mins	No	0 bays*
23	Eastbound/Westbound	Alum Rock TC	De Anza College	15 mins	No	0 bays*
64	Eastbound/Westbound	Almaden LRT	McKee/White	15 mins	No	1 bay
72	Northbound/Southbound	Monterey/ Branham	Alum Rock/28th St Station	15 mins	Yes	2 bays
BRT 522	Eastbound/Westbound	Alum Rock TC	Palo Alto TC	12 mins	No	0 bays*

\*No bays are required for Route 22, Route 23, or Bus Rapid Transit (BRT) Route 522 as they would not enter the station and stop instead along E. Santa Clara Street.

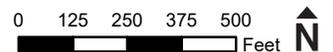
Route 64 may be rerouted to serve the Alum Rock/28th Street Station. With the modification to Route 72, as described below in Transit Considerations, there would be a total of 3 bays required. An additional bay to accommodate any future routes or routes that would be diverted to the station, for a total of 4 bays, is recommended. These bays can be either linear or sawtooth based on bus transit center configuration, but must meet VTA Transit Facility Standards. VTA generally uses standard 40-foot buses and 60-foot articulated buses in its fleet but bays are recommended to be designed to accommodate the larger 60-foot articulated buses. Bus stop amenities, shelters, and facilities consistent with VTA's Transit Passenger Environment Plan should be provided. The current bus routes that stop in the Station Area are shown in **Figure 29** below. The placement of the bus stops is based on the current route configuration and not the configuration from the 2019 New Transit Service Plan.

### Transit Considerations

Route 72 is not currently planned to serve Alum Rock/28th Street Station in the 2019 New Transit Service Plan but is recommended to be rerouted to serve the station. The route currently originates at Monterey/Branham, travels north on McLaughlin Avenue until it turns west onto E. San Antonio Street, and then serves San José State University through E. San Carlos Street, and terminates in Downtown San José. The route would be modified to continue north on McLaughlin Avenue until E. Santa Clara Street and then terminate at Alum Rock/28th Street Station as shown in **Figure 30**.

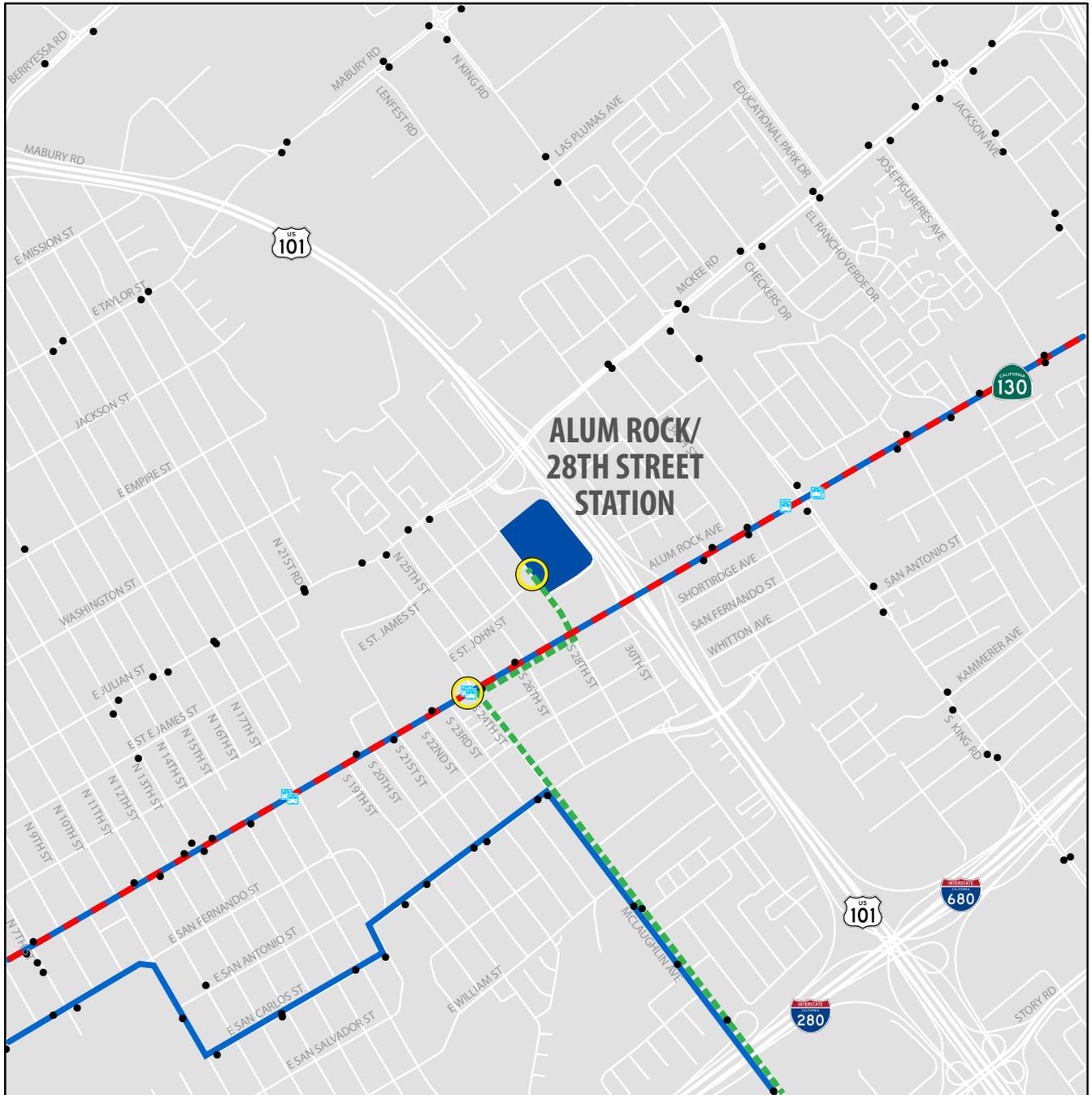


**Legend**



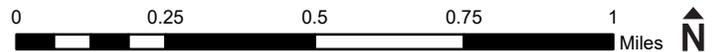
- ▲ Potential Station Entrance Location
- Existing VTA Bus Stop
- Existing VTA BRT Stop
- # Routes Serving Bus Stop (Direction)
- VTA's BART Phase II Extension Alignment
- # Alum Rock/28th Street Station

**Figure 29: Existing Bus Stop Locations (Prior to 2019 New Transit Service Plan)**



**LEGEND**

- VTA BRT
- Current Route 72 Alignment
- Proposed Route 72 Alignment
- Potential transfer point to Downtown San José
- Existing Local Bus Stops
- Existing VTA BRT Stops



**Figure 30: Route 72 Proposed Alignment**



This would provide a more direct connection to BART for potential users south of the station. Current passengers bound for downtown would be able to transfer to BRT 522 or could ride BART to Downtown San José Station. Users of Route 72 whose ultimate destination is east of downtown would benefit from a faster trip with a connection to BART. Further study should be conducted to determine bus ridership on Route 72 between E. San Antonio Street and Downtown San José to provide those users an alternate bus route.

### **Faregate, Ticket Vending Machines, and Staffed Kiosks**

According to the *BFS Architecture – Passenger Stations*, ticket vending machines should be located in the free area, visible to patrons entering the station but placed so as to not impede the flow between entrances and fare gates. Space or conduits for an additional 33% of ticket vending machines shall be provided for future expansion. The minimum queue space that should be provided in front of ticket vending machines is six feet. A minimum of two bill changers should also be provided in the free area along with at least one VTA ticket vending machine.

There should be four types of faregates included at each station: entry consoles, exit consoles, reversible consoles, and accessible consoles. Their orientation and technical specification can be found in the *BFS R3.1.2*. In an array of gates, the right-side gate should be the entry gate, with the right side for the exiting flow being the exit gate. This exiting gate must accommodate users with oversized items and bicycles. The remaining center gates should face the major directional flows and there must be a minimum of six gate aisles per station with one ADA accessible fare gate being provided in each fare gate array per the *BFS Architecture – Passenger Stations*. A minimum queue space of fifteen feet shall be provided in front of the fare gates.

The station agent booth should be located in the line of sight of the gates and centrally located with respect to the gates or the side of the entry gates as circulation dictates. When there are two sets of gates, the station booth should be adjacent to the gate serving the majority of off-peak users (bus and taxi drop off, non-commuter parking). As an additional requirement, the booth should be located adjacent to fare gate arrays and, to the greatest extent possible, be visible from the entire concourse area.

### **Emergency Access/Egress and Fire Access**

Emergency access to stations entrances, pedestrian bridges, facilities, parking structures, and emergency egress locations should be provided from public streets, or an access road with a minimum paved width of 20 feet, and be within 150 feet of an access road in accordance with the *California Fire Code (CFC) Section 503* and the *MADG*. There should also be an unobstructed vertical clearance of 13 feet 6 inches. An access road to the station should be continuous from a public street to a public street, or a 66-foot outside radius turnaround must be provided. Fire lanes should also be provided from a public street to the station, through parking lots, meeting the requirements of the *CFC Section 503* with a minimum radius of 30 feet for the inside path and 50 feet for the outside path.

Access through service gates for maintenance personnel and emergency crews should be provided in the fare gate array for movement between the free and paid areas in accordance with the *California Building Code*. The service gates should be provided along the barrier separating the paid and free area for staff and equipment access, and have a minimum clear opening of 3 feet 6 inches (*BFS*). At least one full size service gate should be located adjacent to the station agent booth for public use; other service gates not adjacent to the station agent booth should have audible visual alarms in close proximity to the gate to prevent unauthorized use.



### Wayfinding and Accessibility

Wayfinding serves to guide the public to the station from the surrounding neighborhoods and along major access routes. It also informs users of transfer connections and station facilities. Wayfinding should be developed as a part of the architecture and site design and should make stations recognizable within the urban fabric. Redundancy should also be used for wayfinding with both words and pictograms, audio messages repeated on visual message boards, and tactile with message repeated in Braille. Specific design guidelines and standards can be found in the *BART Criteria Architecture – Wayfinding and Signage*. Wayfinding should be provided in coordination with VTA, BART, and the City of San José to include destinations in the surrounding neighborhood as well.

Bicycle wayfinding signage should be posted on the closest arterial and on all bikeways as they approach the station. Based on adjacent roadway configuration and location of existing bikeways, a separate bicycle entrance to the station may be preferable and available; these entrances should be identified and clearly marked. Wayfinding to both station entrances and bike parking areas should also be provided.

Wayfinding for users accessing the station with automobiles should also be posted on arterials in the Station Area as well as freeway interchanges that provide access to the station. In the vicinity of the station, access route signage, real-time parking availability signage as well as parking wayfinding signage should be provided.

All pedestrian walkways should be paved and free of tripping hazards and Tactile Ground Surface Indicators (TGSI) shall be provided. A TGSI is a minimum 1-foot wide paving feature strip with a material, pattern, or texture detectable for blind and low-vision patrons to orientate themselves at bus loading and pick-up and drop-off areas and through the station entrances and accessible gates (BFS). When there are direct connections to commercial, retail, or other facilities, or where they will be used to facilitate future direct connections, an accessible route to boarding platforms and other transportation system elements must be provided to be compliant with the Americans with Disabilities Act (ADA).

### Safety and Security

As part of safety for the parking structure, a vertical screen system should be installed at the first level on all sides of the parking structure where the screen is continuous and secure. At vehicle entry and exit points, motorized overhead coiling grilles should be provided; at pedestrian entry and exit points, full height doors with closers, panic hardware, and external access via key in lock cylinder should be provided. Railings should be provided as required by applicable codes to protect the interior slab edges. Pedestrian, bicycle, vehicular access should all be designed to maximize safety of users in accordance with the *BFS Architecture – Passenger Station Sites*.



## VI. Implementation and Next Steps

Access improvement recommendations were prioritized to identify near-term and long-term implementation recommendations. Near-term improvements were those deemed most critical to support rider access with the start of project revenue service based on existing and near-term planned development activity. Long-term improvements were oriented around buildout of the overall TOC vision and improved connections between the new/enhanced transit-oriented communities and the station. Station access improvements and their level of priority were developed in close coordination with the Cities of San José and Santa Clara.

**Table 15** and **Table 16** below summarize the access improvement recommendations, organized by near- or long-term implementation. It is recommended that ongoing planning projects within in the Cities of San José and Santa Clara, such as the East San José Multimodal Transportation Plan (ESJ MTIP), Downtown Transportation Plan (DTP), and El Camino Real Specific Plan, should consider and carry forward the recommendations of this study. Note that projects that already have received full funding and are advancing towards implementation were excluded from the recommendations list. The Transit Oriented Communities Strategy Study includes funding strategies for the implementation of the projects identified here.

Streetscape improvements were also proposed for the station area. These include widened sidewalks to provide a buffer from the roadway, landscaping, lighting, shade, seating, and other amenities, and vary between the different street typologies recommended for the station area. The recommended street typologies are based on the typologies laid out by the City of San José's Complete Streets Design Standards and Guidelines and can be found in the overall Transit Oriented Communities Strategy Study.

Cost estimates for all access and streetscape improvements provided within this station profile and are included in the overall TOCs Strategy Study.

The on-site station requirements included in this report are intended to inform the station design for automobile and bicycle parking, shared-use mobility considerations, pick-up/drop-off curb space, bus bays, faregates, ticket vending machines, staffed kiosks, emergency access, wayfinding and accessibility, as well as safety and security. A Station Access Concepts development process will build off of the facility requirements identified in this Profile and will serve as an input to future design efforts.



**TABLE 15: NEAR-TERM RECOMMENDED IMPROVEMENTS**

#	Description	Quantity	Unit	Category of Improvement	Previous/Ongoing Planning Document
1	Widen E. Santa Clara Street bridge over US-101	12,600	SF	Bicycle/Pedestrian	ESJ MTIP
2	Install Five Wounds Trail from Lower Silver Creek to US-280	1	LS	Bicycle/Pedestrian	Five Wounds BART Station Area Community Concept Plan, BART Station Access Planning Final Report, Project Phase II SEIR/SEIS
3	Install additional BRT station	2	EA	Transit	BART Station Access Planning Final Report, ESJ MTIP
4	Reconfigure N. 28th Street & E. Julian Street/McKee Road intersection	1	LS	Bicycle/Pedestrian	Five Wounds BART Station Area Community Concept Plan, VTA's BART Station Access Concepts Development
5	Construct Class I bike path on E. St. John Street from N. 27th Street to N. 28th Street	1	LS	Bicycle	Five Wounds BART Station Area Community Concept Plan, ESJ MTIP
6	Enhance S. 24th Street/McLaughlin Avenue/Peach Court/Five Wounds Trail intersection	1	LS	Bicycle/Pedestrian	Five Wounds BART Station Area Community Concept Plan, ESJ MTIP
7	Install Class IV protected bike lane on McLaughlin Avenue from Story Road to Peach Court	4,500	LF	Bicycle	ESJ MTIP
8	Install signals or roundabouts on N. 28th Street	2	EA	Bicycle/Pedestrian	Project Phase II SEIR/SEIS, VTA's BART Station Access Concepts Development
9	Install wayfinding signage along access routes within Station Area	9	EA	Bicycle/Pedestrian/Transit	BART Station Access Planning Final Report
10	Upgrade signals within ½ mile walkshed	9	EA	Bicycle/Pedestrian/Transit	Project Phase II SEIR/SEIS
11	Construct bulb-outs and ADA ramps within ¼ mile walkshed of Station Area	73	EA	Pedestrian	Project Phase II SEIR/SEIS, ESJ MTIP
12	Install connection on E. St. John Street from Coyote Creek to N. 24th Street including new pedestrian/bicycle bridge	1	LS	Bicycle/Pedestrian	Roosevelt Park Master Plan, San José Bike Plan



**TABLE 16: LONG-TERM RECOMMENDED IMPROVEMENTS**

#	Description	Quantity	Unit	Category of Improvement	Previous/Ongoing Planning Document
13	Install Class II and two-way Class I bike lanes on McKee Road from N. 28th Street to N. 33rd Street w/ bridge widening	1	LS	Bicycle	ESJ MTIP
14	Install Class IV bike lane on E. Julian Street from N. 19th Street to N. 28th Street	2,566	LF	Bicycle	San José Bike Plan, ESJ MTIP
15	Provide PHB and east leg crosswalk at McKee Road and N. 34th Street	1	EA	Pedestrian	ESJ MTIP
16	Install traffic circles on N. 21st Street at intersections of Washington Street, E. Empire Street, and Jackson Street	1	LS	Bicycle	ESJ MTIP
17	Install Class II bike lane on McKee Road from N. 33rd Street to N. King Road	1,157	LF	Bicycle	San José Bike Plan, ESJ MTIP
18	Install Class IV bike lane on McKee Road from N. King Road to N. Jackson Avenue	4,053	LF	Bicycle	San José Bike Plan, ESJ MTIP
19	Install Class III bike boulevard on E. St. John Street from N. 13th Street to N. 18th Street	1,575	LF	Bicycle	San José Bike Plan, ESJ MTIP
20	Install Class III bike boulevard on E. St. John Street from N. 24th Street to N. 27th Street	927	LF	Bicycle	San José Bike Plan, ESJ MTIP
21	Improve intersection at N. King Road for crossing to Lower Silver Creek Trail	1	LS	Bicycle/Pedestrian	ESJ MTIP
22	Upgrade Signals within 1½ mile bikeshed	37	EA	Bicycle/Pedestrian/Transit	
23	Construct bulb-outs and ADA ramps within ½ mile walkshed of Station Area	147	EA	Pedestrian	ESJ MTIP
24	Construct transit islands within Station Area	9	EA	Bicycle/Transit	ESJ MTIP
25	Additional transit enhancements on E. Santa Clara Street/Alum Rock Avenue for transit travel speeds, to be determined based on future corridor study	1	LS	Transit	
26	Construct bus bulb-out at McKee Road/N. Jackson Avenue	1	EA	Transit/Pedestrian	ESJ MTIP



# Report Glossary

## *Accessible Pedestrian Signal (APS)*

Accessible Pedestrian Signals communicate in a non-visual format (i.e. by sound) to nearby pedestrians when it is safe to cross an intersection. APS helps ensure the safety of blind or visually-impaired pedestrians.

## *All-Way Stop Control*

An intersection where drivers approaching from all directions are required to stop before proceeding as opposed to a yield- or signal-controlled intersection.

## *Automatic pedestrian recall*

A method of traffic signal timing in which a pedestrian 'walk' signal always accompanies a green light given to drivers moving in the same direction. Without automatic pedestrian recall, a signal activation button must be pressed before the start of the cycle for pedestrians to be allowed to cross the intersection.

## *Bike box*

A painted green box that reserves space between the intersection and the vehicle stop bar (the line indicating where drivers are meant to stop) for bicyclists. When waiting for a green signal, bicyclists may use the box to move in front of waiting vehicles, allowing them to get a head start on vehicles and make a left turn more comfortably.

## *Bike detection*

Technology that triggers a call to a traffic signal when a bicyclist is waiting to turn or proceed straight.

## *Bulb-out*

A widening of the sidewalk, typically at an intersection, used to decrease the length of roadway a pedestrian must cross and to slow the speed of turning vehicles.

## *Bus Rapid Transit (BRT)*

Enhanced bus service typically characterized by all or a subset of features that are frequently associated with rail transit. These include a combination of elements such as dedicated lanes, signal priority, faster travel speeds, off-vehicle payment, enhanced stations/shelters with real-time arrival information, and less frequent stops than local bus routes.

## *Class I bicycle path*

Also known as an off-street path, a Class I Bicycle Facility has exclusive right-of-way for bicyclists or bicyclists and pedestrians, separate from motorized traffic.

## *Class II bicycle lane*

Also known as a standard bike lane, a Class II Bicycle Lane is a painted lane on the street designating an area to be used by bicyclists. These lanes are typically placed adjacent to traffic lanes, either between the traffic lane and parked cars, or against the curb. They may include a striped buffer between the traffic lane and the bicycle lane.



### ***Class III bike route***

A route indicated by signage, pavement markings (such as “sharrows”), and depicted on bicycle wayfinding maps along which bicycle activity is encouraged.

### ***Class III bike boulevard***

An on-street route specifically designed for comfortable bicycle travel. These boulevards frequently feature traffic calming treatments such as speed humps, neighborhood traffic circles, or traffic diverters to reduce vehicle speed and discourage cut-through auto travel.

### ***Class IV protected bike lane***

A bicycle lane physically separated from vehicle traffic via a raised element, such as bollards, curb, planters, or parked cars.

### ***Curb radius***

A measurement of the radius of the curb at the corner of an intersection. An intersection with large curb radius (i.e. a gradual curve) allows drivers to make higher-speed turns. An intersection with a small curb radius (i.e. closer to a right angle) may force drivers to slow their speed, reducing risk for pedestrians using the intersection.

### ***Dwell time***

The amount of time a vehicle, typically a transit vehicle, taxi, or ridehail vehicle, spends waiting for passengers to load and/or unload.

### ***Leading Pedestrian Interval (LPI)***

A leading pedestrian interval gives pedestrians a ‘walk’ signal before drivers traveling in the same direction are given a green light. This allows pedestrians to get a head-start into the intersection, making them more visible to turning drivers, which improves pedestrian safety.

### ***Level of Traffic Stress (LTS)***

An attempt to quantify the degree of stress experienced by bicycle riders, LTS is a measurement applied to a road segment or street crossing. High levels of traffic stress are generally caused by the proximity of fast-moving automobiles and lead to only risk-tolerant travelers riding on the segment. In this report LTS is typically measured on a 1-5 scale, ranging from a physically separated path (LTS 1) to high-speed mixed traffic (LTS 5).

### ***Median refuge***

Typically installed on multilane roads, a median refuge provides pedestrians crossing a street with a place to rest outside of the traveled way. These are particularly useful for older adults or those with mobility impairments who are not able to cross an intersection within the duration of a walk and flashing ‘don’t walk’ phase.

### ***Neighborhood traffic circle***

A small roundabout, a neighborhood traffic circle is a traffic control device typically used in place of a four-way stop. Approaching vehicles must yield to vehicles currently within the circle before entering, proceeding in a counter-clockwise direction.



### ***Pedestrian Hybrid Beacon (PHB)***

A pedestrian-activated traffic signal used to alert drivers to the presence of a person trying to cross the street and requiring them to come to a complete stop. When activated, the beacon cycles through a yellow interval before showing a solid red indicator during the walk phase. It then switches to a flashing red light during the flashing 'don't walk' phase, allowing for vehicles to proceed slowly across the crosswalk if the pedestrian has completed their crossing.

### ***Pedestrian-scale lighting***

Street lighting at a lower height than typical street lights specifically intended to improve nighttime visibility for pedestrians rather than for drivers.

### ***Protected crossing***

A crosswalk with some type of enhanced signal or active warning sign control, either a Rectangular Rapid Flashing Beacon (RRFB), or Pedestrian Hybrid Beacon (PHB), traffic signal, or stop sign. Unprotected crossings, crosswalks with only striping or striping and static signs, tend to have very low yield rates from drivers, especially when vehicles are traveling quickly.

### ***Rectangular Rapid Flash Beacon (RRFB)***

A pedestrian-activated traffic signal used to alert drivers to the presence of a person trying to cross the street and encourage them to yield. When activated, the beacon flashes yellow for a period that allows pedestrians to traverse the crosswalk. An RRFB can be activated by the pedestrian actively with a push-button or passively using sensors.

### ***Traffic calming***

The broad term for a series of roadway treatments intended to slow the speed of drivers, typically applied in residential zones or areas with large volumes of pedestrian travel. Such measures may include speed humps, raised intersections, neighborhood traffic circles, and reducing lane widths.

### ***Traffic diverter***

A roadway feature designed to allow unimpeded travel by pedestrians and cyclists, but require a left- or right-turning movement for the automobile. The purpose of such diverters is to maintain connectivity for pedestrians and cyclists while discouraging cut-through automobile traffic. Diverters are typically designed to preserve all movements for emergency vehicles.

### ***Transit Oriented Development (TOD)***

A type of mixed-use development located proximate to high-frequency transit. Such developments often include amenities and facilities that encourage transit and non-auto use.

### ***Transit Oriented Community (TOC)***

While TOD generally refers to an individual mixed-use project adjacent to high-quality transit, the concept of a Transit Oriented Community encompasses the neighborhood surrounding the transit station. A TOC is one in which travel via non-auto modes is convenient, seamless, and comfortable.



### *Transit Signal Priority (TSP)*

A traffic signal operation in which transit vehicles are given priority treatment at signalized intersections. This includes a range of treatments such as modifying signal phase timings and providing dedicated transit phases or facilities.

### *Transportation Network Company (TNC)*

The preferred general term for companies such as Uber and Lyft, also known as ridehail or app-based transportation companies.

### *Two-stage left turn box*

A painted green box that helps bicyclists turn left across intersections. Most bikeways travel along the right side of the roadway. This makes left turns difficult on multilane roads, as a bicyclist would be required to cross several lanes of auto traffic to position themselves in the left-turn lane. A two-stage left turn box allows a bicyclist to proceed through an intersection to the far right-side corner, where they may wait in the box out of the flow of traffic until the cross traffic is given a green signal, allowing them to complete a left turn in two steps.

### *Walkshed*

The land area that falls within a 10-minute walk of a point, using the existing pedestrian network.