HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: June 20, 2017

To: Mr. Akoni Danielsen, David J. Powers & Associates, Inc.

From: Brian Jackson, Trisha Dudala

Subject: Traffic Operations Analysis for a Commercial Development at Race Street and W. San Carlos Street in San Jose, California

Hexagon Transportation Consultants, Inc. has completed a Traffic Operations Analysis (TOA) for a proposed commercial development located on the southeast corner of the Race Street and W. San Carlos Street intersection in San Jose, California (see Figure 1). The site is located in the Lincoln Auzerais Planning Subarea of the Midtown Specific Plan and is currently occupied by a small office building, as well as Mel Cotton's Sporting Goods store and a small warehouse building used by Mel Cotton's. The project would remove the three existing commercial buildings, totaling approximately 29,000 square feet, and construct a new 29,580 square-foot Smart & Final food and supply store. Thus, the project would result in a small net increase in commercial square footage. Access to the project site would be provided via W. San Carlos Street and Race Street.

Due to the small size of the project (resulting in less than 25 net peak hour vehicle trips), a comprehensive Transportation Impact Analysis (TIA) per the City of San Jose's Transportation Policy 5-3 is not necessary. The project also is not required to adhere to the VTA's CMP traffic study requirements due to the small number of net peak hour trips that would be generated by the project. The City of San Jose Public Works department has indicated, however, that a traffic operations analysis (TOA) is required in order to identify potential operational issues that could occur as a result of the proposed project. This traffic study is intended to satisfy the City's request.

The study includes an evaluation of existing conditions, including existing traffic conditions, transit services, and bicycle and pedestrian facilities. Based on the proposed project size, site-generated traffic was estimated. Vehicular site access, including truck access (i.e., trash pickup and freight loading activities), was evaluated. Parking supply and layout, on-site vehicular circulation, and overall traffic operations on the surrounding roadway network also were analyzed under project conditions. Lastly, bicycle and pedestrian site access and safety were evaluated.

Existing Conditions

This section describes the existing conditions for all the major transportation facilities in the vicinity of the project site, including the roadway network, transit services, and bicycle and pedestrian facilities.

Existing Roadway Network

Regional access to the study area is provided by SR 87 and I-280. Local access to the study area is provided via Race Street and W. San Carlos Street. These facilities are described below.

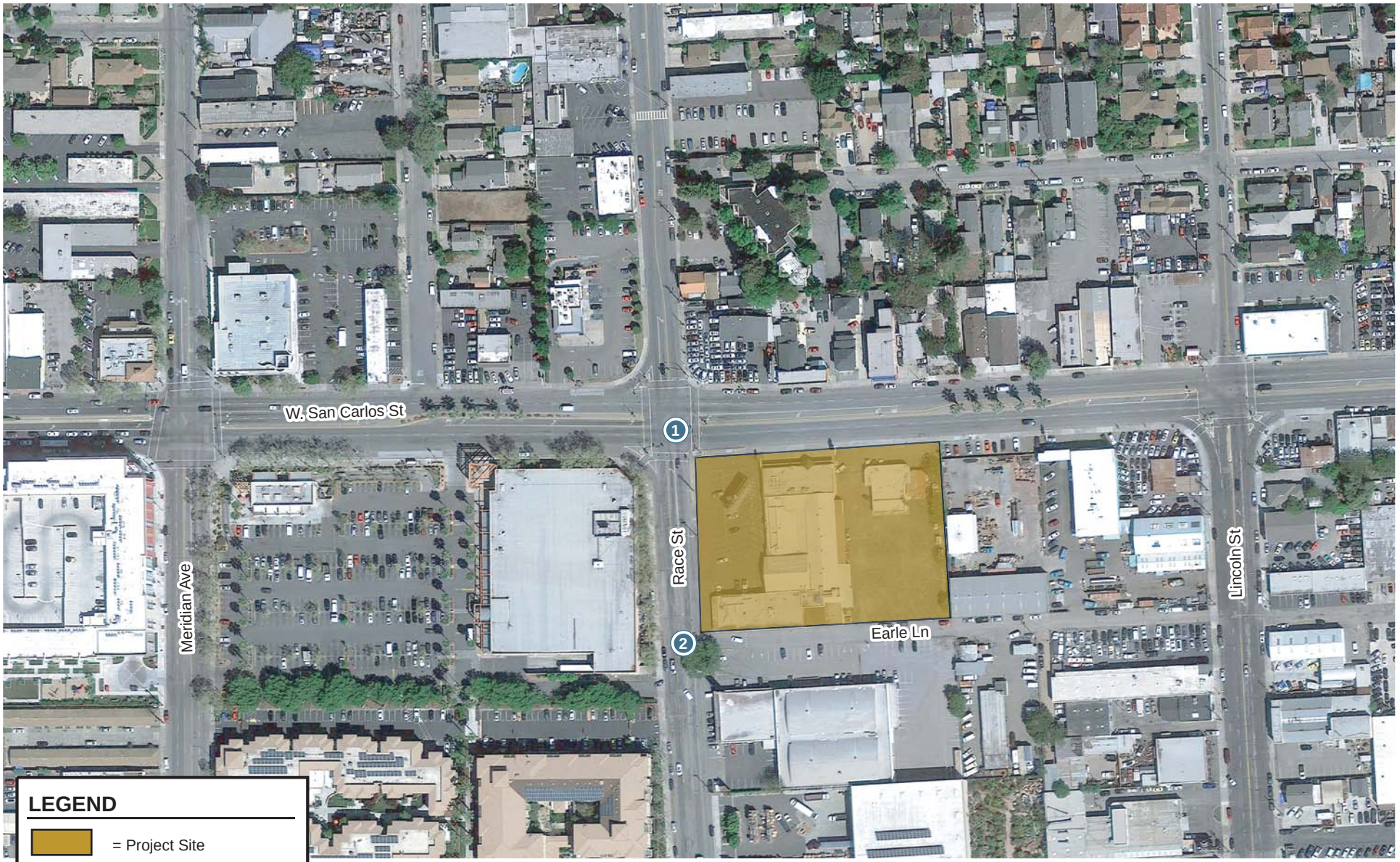


Figure 1
Site Location and Study Intersection

SR 87 is primarily a six-lane freeway (four mixed-flow lanes and two HOV lanes) that is aligned in a north-south orientation within the project vicinity. SR 87 begins at its interchange with SR 85 and extends northward, terminating at its junction with US 101. Site access to and from SR 87 is provided via San Carlos Street, Delmas Avenue, and Woz Way.

I-280 extends from US 101 in San Jose to I-80 in San Francisco. It is generally an east-west oriented eight-lane Freeway in the vicinity of downtown San Jose. The section of I-280 just north of the Bascom Avenue over-crossing has six mixed-flow lanes and two high-occupancy-vehicle (HOV) lanes. Site access to and from I-280 is provided via freeway ramps at Parkmoor Avenue, Race Street, and Meridian Avenue.

Race Street is a two-lane Local Connector Street extending from The Alameda to just south of I-280, where it becomes Cherry Avenue. Automobiles, bicycles, pedestrians and trucks are prioritized equally on Local Connector Streets. The posted speed limit on Race Street is 25 mph north of W. San Carlos Street, and 30 mph south of W. San Carlos Street. Race Street has Class II bike lanes between Auzerais Avenue and Parkmoor Avenue. Sidewalks are located on both sides of the street. Race Street provides direct access to the project site, as well as provides access via a partial interchange (northbound off-ramp) with I-280.

San Carlos Street is an east-west four-lane City Connector Street that extends from San Jose State University westward, ultimately becoming Stevens Creek Boulevard west of Bascom Avenue. Land uses located along San Carlos Street are generally commercial, with parking provided on both sides of the street in most areas. San Carlos Street is grade separated where it passes over the Southern Pacific Railroad tracks. San Carlos Street has a posted speed limit of 35 mph within the study area and provides direct access to the project site. Sidewalks are located on both sides of the street.

Existing Bicycle and Pedestrian Facilities

Pedestrian facilities consist mostly of sidewalks along the streets in the immediate vicinity of the project site, though there is no sidewalk along a 400-foot segment of Race Street south of W. San Carlos Street, half of which includes the project frontage. Crosswalks with pedestrian signal heads and push buttons are located at the adjacent signalized intersection of Race Street and W. San Carlos Street. Note that this intersection does not meet the current ADA design standards, which include wheel chair ramps with truncated domes at all corners/curb cuts. Truncated domes are the current standard design requirement for detectable warnings which enable people with visual disabilities to determine the boundary between the sidewalk and the street. While the intersection does not meet the current ADA design standards, the existing ramps complied with ADA standards at the time they were constructed.

Overall, the existing network of sidewalks has adequate connectivity and provides pedestrians with safe routes to transit services and other points of interest in the area.

Only one short segment of roadway in the vicinity of the project site includes Class II bike lanes: Race Street between Auzerais Avenue and Parkmoor Avenue. According to the City of San Jose 2020 Bike Plan, Class II bike lanes are planned for Race Street between Auzerais Avenue and San Carlos Street, and a Class III bike route is planned for the segment of Race Street between The Alameda and West San Carlos Street.

A connection to the northern segment of the Los Gatos Creek Trail system is located about a ½ mile walk from the project site with access provided via Dupont Street. The off-street trail begins at

San Carlos Street and extends south. From San Carlos Street, the Guadalupe River multi-use trail system can be accessed. The Guadalupe River trail system is an 11-mile trail that runs through the City of San Jose along the Guadalupe River and is shared with pedestrians and separated from motor vehicle traffic. The Guadalupe River trail is a continuous Class I bikeway from Curtner Avenue in the south to SR 237 in the north.

Existing Transit Services

Existing transit services in the study area are provided by the Santa Clara Valley Transportation Authority (VTA), Caltrain, Altamont Commuter Express (ACE), and Amtrak and are described below. The transit stations and local VTA bus lines near the project sites are shown on Figure 2.

VTA Bus Service

The VTA bus lines that operate within the study area are listed below in Table 1, including their terminus points, closest scheduled stop, and commute hour headways. Local routes 23, 63, 65, and 81, as well as express route 323, run along San Carlos Street adjacent to the project site. The nearest bus stops within the project vicinity are located along San Carlos Street at Grand Avenue, Race Street, and Lincoln Avenue.

Table 1
Existing VTA Bus Service

Bus Route	Route Description	Nearest Stop	Headway [1]
Local Route 23	DeAnza College to Alum Rock Transit Center	Grand/San Carlos	10-15 mins
Local Route 63	Almaden Expressway & Camden Avenue to San Jose State University	Race/San Carlos	30 mins
Local Route 65	Kooser Road & Blossom Hill Road to Hedding Street & 13th Street	Lincoln/San Carlos	40-50 mins
Local Route 81	Moffett Field/Ames Center to San Jose State University	Grand/San Carlos	20-35 mins
Express Route 323	Downtown San Jose to DeAnza College	Grand/San Carlos	10-15 mins

Notes:
[1] Approximate headways during peak commute periods.

VTA Light Rail Transit (LRT) Service

The VTA currently operates the 42.2-mile VTA light rail line system extending from south San Jose through downtown to the northern areas of San Jose, Santa Clara, Milpitas, Mountain View, and Sunnyvale. The service operates nearly 24-hours a day with 15-minute headways during much of the day.

The Mountain View-Winchester LRT line operates within walking distance of the project site. The Race Street LRT station is located less than ½ mile south of the project site. The LRT line provides service between downtown Mountain View, downtown San Jose, and Winchester Boulevard in the City of Campbell. The Mountain View-Winchester LRT line can be used to access the San Jose Diridon Station. The San Jose Diridon station is served by Caltrain, ACE, and Amtrak.

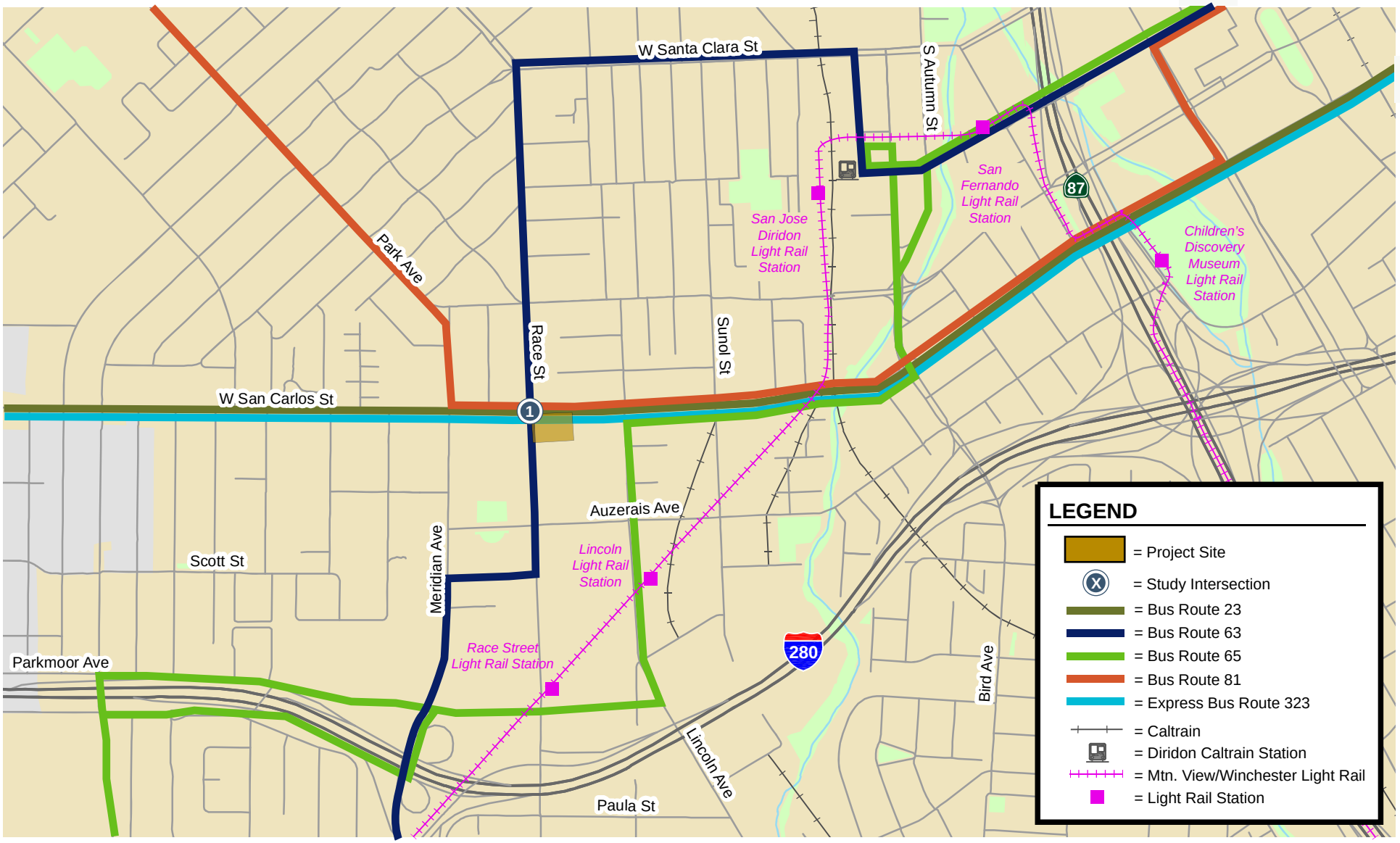


Figure 2
Existing Transit Services

San Jose Diridon Station

The San Jose Diridon Station, located approximately a mile from the project site, is situated along the Mountain View-Winchester LRT line and is served by Caltrain, ACE and Amtrak. The Diridon Station provides bike racks and bike lockers. The Diridon Station can be accessed from the project site via Race Street to San Fernando Street.

Caltrain Service

Commuter rail service between San Francisco and Gilroy is provided by Caltrain, which currently operates 92 weekday trains and carry approximately 58,500 riders on an average weekday. The project site is located approximately a mile from the San Jose Diridon Station. The Diridon Station provides 581 parking spaces, as well as 16 bike racks and 48 bike lockers. Trains stop frequently at the Diridon station between 4:30 AM and 10:30 PM in the northbound direction, and between 6:28 AM and 1:34 AM in the southbound direction. Caltrain provides passenger train service seven days a week, and provides extended service to Morgan Hill and Gilroy during weekday commute hours.

Altamont Commuter Express (ACE) Service

ACE provides commuter rail service between Stockton, Tracy, Pleasanton, and San Jose during commute hours, Monday through Friday. Service is limited to four westbound trips in the morning and four eastbound trips in the afternoon/ evening with headways averaging 60 minutes. ACE trains stop at the Diridon Station between 6:32 AM and 9:17 AM in the westbound direction, and between 5:47 PM and 8:50 PM in the eastbound direction.

Amtrak Service

Amtrak provides daily commuter passenger train service along the 170-mile Capitol Corridor between the Sacramento region and the Bay Area, with stops in San Jose, Santa Clara, Fremont, Hayward, Oakland, Emeryville, Berkeley, Richmond, Martinez, Suisun City, Davis, Sacramento, Roseville, Rocklin, and Auburn. The Capitol Corridor trains stop at the San Jose Diridon Station eight times during the weekdays between approximately 7:38 AM and 11:55 PM in the westbound direction. In the eastbound direction, Amtrak stops at the Diridon Station seven times during the weekdays between 6:40 AM and 7:15 PM.

The Coast Starlight trains provide daily passenger train service between Los Angeles and Seattle. The southbound Coast Starlight train stops at the San Jose Diridon Station at 9:55 AM and departs at 10:07 AM. The northbound Coast Starlight train stops at the Diridon Station at 8:11 PM and departs at 8:23 PM.

Project Trip Generation

Through empirical research, data have been collected that quantify the amount of traffic produced by common land uses. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates by the size of the development. The standard trip generation rates published in the Institute of Transportation Engineers' (ITE) manual entitled *Trip Generation, 9th Edition (*2012) for Shopping Center (Land Use 820) were utilized in this traffic study.

Trip Reductions and Trip Credits

A retail pass-by trip reduction of 25 percent (typical for Santa Clara County) can be applied to the project. Pass-by-trips are retail trips that would already be on the adjacent roadways (and so are

already counted in the background traffic) but would turn into the site while passing by. Justification for applying the pass-by-trip reduction is founded on the observation that such retail traffic is not actually generated by the retail development, but is already part of the ambient traffic levels.

The project site is currently occupied by three commercial buildings totaling approximately 29,000 square feet. Given that the proposed project would demolish the existing buildings on-site, the trips that are generated by the existing commercial uses can be subtracted from the gross project trip generation estimates. Based on the existing building square footages, ITE rates for Shopping Center (Land Use 820) and General Office (Land Use 710) were applied to estimate the existing trip credits. Note that since the small warehouse building on W. San Carlos Street is generating little to no trips during the peak commute periods of the day, trip credits were only applied to the 20,000 s.f. Mel Cotton's Sporting Goods building and the 6,000 s.f. office building on Race Street.

Net Project Trips

After applying the retail pass-by trip reduction and existing trip credits, the project would generate a net total of 241 daily trips, with 2 fewer trips (4 fewer inbound and 2 new outbound) during the AM peak hour and 17 new trips (10 inbound and 7 outbound) during the PM peak hour (see Table 2).

Table 2
Project Trip Generation Estimates

Land Use	Size		Daily Trip Rates	Daily Trips	AM Peak Hour				PM Peak Hour			
					Pk-Hr	Trips			Pk-Hr	Trips		
					Rate	In	Out	Total	Rate	In	Out	Total
Proposed Use												
Retail [1]	29,580	SF	42.70	1,263	0.96	17	11	28	3.71	53	57	110
Pass-By Trip Reduction				*-316*		*-4*	*-4*	*-8*		*-14*	*-14*	*-28*
Subtotal:				947		13	7	20		39	43	82
Existing Use												
Retail [1]	20,000	SF	42.70	854	0.96	12	7	19	3.71	36	38	74
Pass-By Trip Reduction				*-214*		*-3*	*-3*	*-6*		*-9*	*-9*	*-18*
Office [2]	6,000	SF	11.03	66	1.56	8	1	9	1.49	2	7	9
Subtotal:				706		17	5	22		29	36	65
Net Project Trips (Proposed - Existing):				***241***		***-4***	***2***	***-2***		***10***	***7***	***17***

Notes:
[1] Rates based on ITE Land Use Code 820 (Shopping Center), average rates used. A 25% pass-by trip reduction was applied.
[2] Rates based on ITE Land Use Code 710 (General Office); average rates used.

Project Trip Distribution and Assignment

The trip distribution pattern for the project was developed based on existing travel patterns on the surrounding roadway system, locations of complementary land uses, and locations of other Smart & Final food and supply stores (see Figure 3). The net AM and PM peak hour project-generated trips were assigned to the roadway network based on the trip distribution pattern. Also shown on Figure 3 are the total AM and PM peak hour inbound and outbound vehicle trips that would access the site via the driveways on West San Carlos Street and Earle Lane.

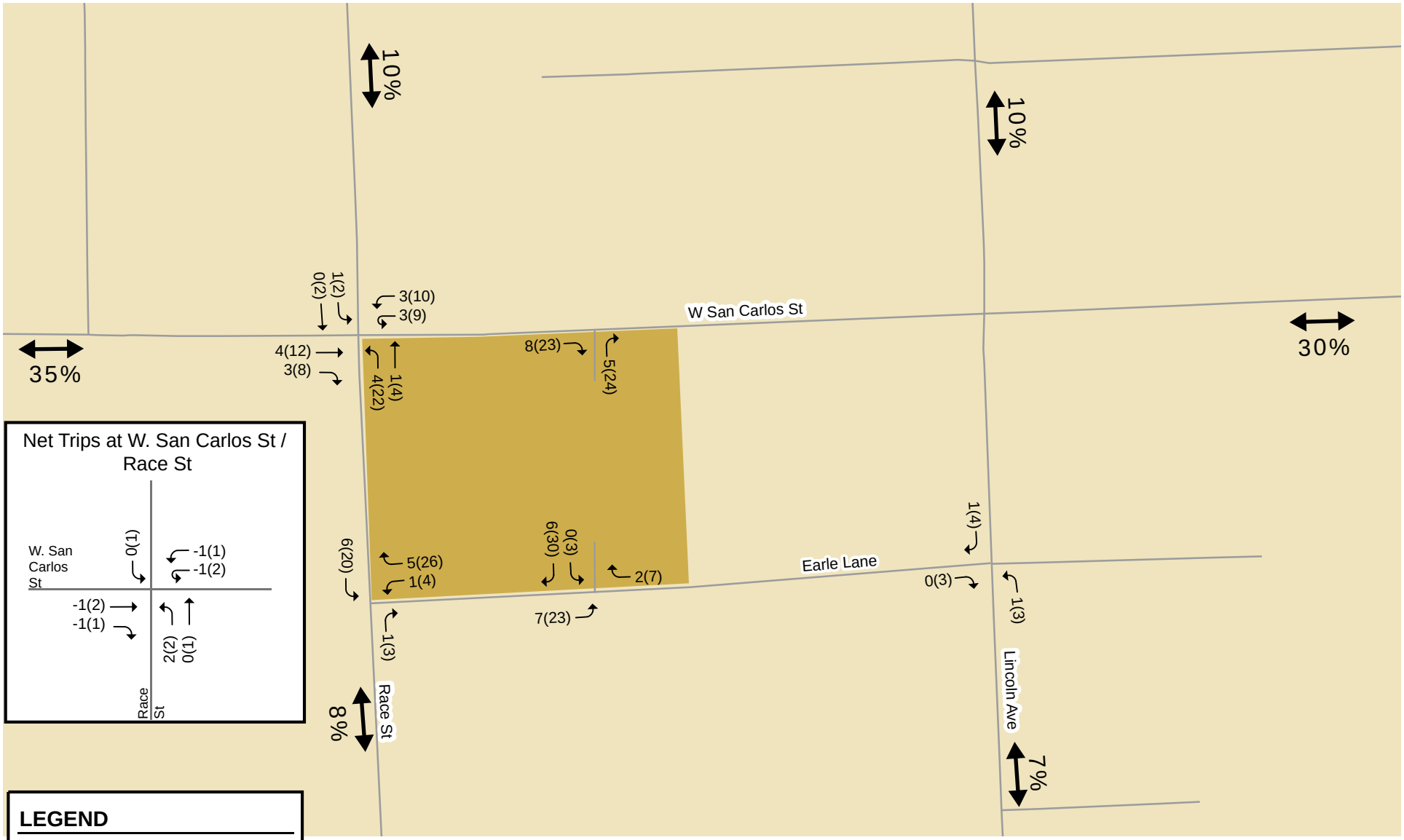


Figure 3
Project Trip Distribution Pattern and Gross Trip Assignment

Site Access and On-Site Circulation

The vehicular site access and on-site circulation evaluation is based on the February 1, 2017 site plan prepared by HMH (see Figure 4). Site access and on-site circulation were reviewed in accordance with generally accepted traffic engineering standards.

Vehicular Site Access

The current layout of the site with the Mel Cotton's Sporting Goods store has a driveway located on San Carlos Street, approximately 75 feet from the signal at Race Street. There are approximately 15 on-site parking spaces accessed directly from San Carlos Street. Vehicles must back directly onto San Carlos Street to exit these parking spaces, creating potential conflicts with the traffic flow on San Carlos Street. The current site layout also has a driveway on Race Street that is located less than 75 feet from San Carlos Street.

The proposed site plan shows that the project would make significant improvements to site access. The project would provide one limited access driveway (right-in and right-out) on West San Carlos Street, located 300 feet east of the traffic signal at Race Street. Access to the project site from Race Street would be provided via Earle Lane, which is an easement located adjacent to the southern property line. Earle Lane is located approximately 250 feet south of the signal at San Carlos Street, and provides a connection between Race Street and Lincoln Avenue. The site plan shows two entrances to the parking lot on Earle Lane. The project would improve overall traffic operations and safety at the site by providing site access as far away from the signalized Race Street and San Carlos Street intersection as possible.

The project driveway on West San Carlos Street measures 26 feet wide (measured at the throat) and would provide access to the open surface parking lot. Access to Earl Lane from Race Street would be provided via a 32-foot wide driveway. The two parking lot entrances along Earle Lane are shown to be 26 feet wide. The project driveways must provide adequate access and storage space to avoid backups onto the sidewalks and streets. The West San Carlos Street driveway would provide stacking space for approximately 2 inbound vehicles. Earle Lane would provide stacking space for approximately 4 inbound vehicles (between Race Street and the westernmost parking lot entrance). The City typically requires a minimum distance of 50 feet, measured from the face of curb, in order to provide adequate stacking space for at least two inbound vehicles. Thus, adequate stacking space for inbound vehicles would be provided at all driveways.

West San Carlos Street Driveway Operations

As previously shown on Figure 3, the project-generated trips that are estimated to occur at the West San Carlos Street driveway are 8 inbound trips and 5 outbound trips during the AM peak hour, and 23 inbound trips and 24 outbound trips during the PM peak hour. Vehicle queues are not expected to occur at this driveway, based on the relatively low number of project trips entering and exiting the driveway. In addition, the traffic signal at West San Carlos Street and Race Street would create gaps in the eastbound traffic flow on West San Carlos Street that would facilitate exiting this project driveway. Furthermore, field observations conducted during the weekday AM and PM peak hours show that the eastbound vehicular queues on West San Carlos Street at the signalized intersection of Lincoln Avenue do not extend back to the proposed project driveway and would not prevent vehicles from exiting onto West San Carlos Street.

Earle Lane Operations

The project-generated trips that are estimated to use the Earle Lane easement via Race Street and Lincoln Avenue are 9 inbound trips and 6 outbound trips during the AM peak hour, and 30 inbound trips and 33 outbound trips during the PM peak hour. The site plan shows nineteen 90-degree spaces between the two parking lot entrances that would be accessed directly via Earle Lane.

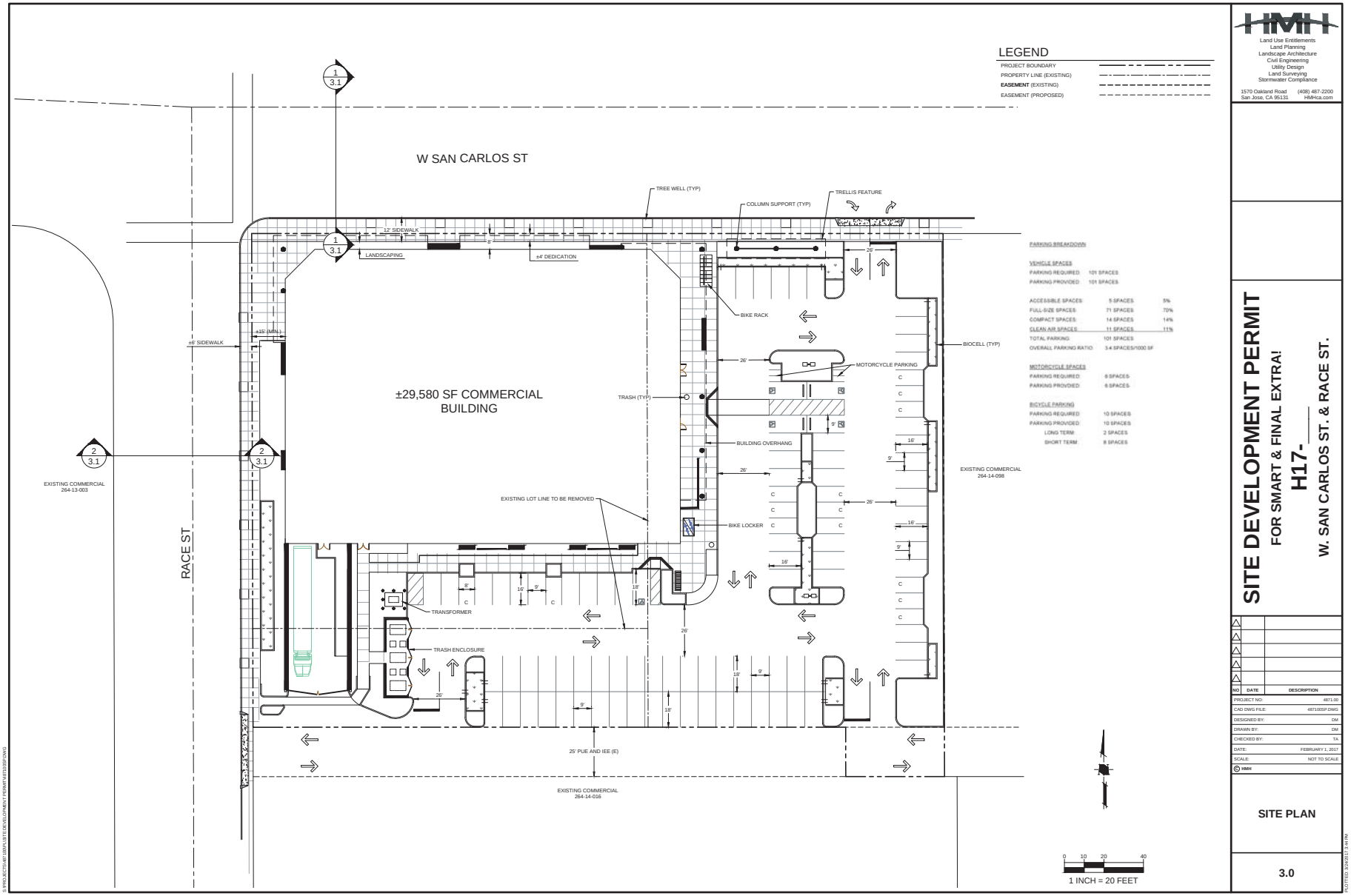


Figure 4
Site Plan

NORTH
Not to Scale

Given the low traffic volumes and low speeds on Earle Lane, accessing these parking spaces directly from Earle Lane should not cause any operational issues.

During the AM peak hour, field observations show long queues on Race Street in the northbound direction during the red phase of the traffic signal at West San Carlos Street. The vehicular queues on northbound Race Street extend past Earle Lane during the AM peak hour. However, the queues fully dissipate at the end of the green phase for the northbound movement. Given the relatively low number of project trips that would enter and exit the site via Earle Lane during the AM peak hour, no operational issues are anticipated at the intersection of Race Street and Earle Lane.

During the PM peak hour, the northbound vehicular queues on Race Street at the West San Carlos Street traffic signal are minimal and do not extend past Earle Lane. Thus, no operational issues occur at the signalized intersection, and no operational issues are anticipated at the intersection of Race Street and Earle Lane.

Sight Distance at Project Driveways

Based on the site plan provided, the driveway on West San Carlos Street would be free and clear of obstructions, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and vehicles traveling on W San Carlos Street. The project proposes street trees along the project frontages on West San Carlos Street and Race Street. Since street trees have narrow trunks and high canopies relative to a driver's line of sight, the street trees would not negatively affect sight distance or conflict with a driver's ability to locate a gap in traffic.

Adequate sight distance (sight distance triangles) should be provided at all driveways in accordance with Caltrans standards. Sight distance triangles should be measured approximately 10 feet back from the traveled way. Providing the appropriate sight distance reduces the likelihood of a collision at a driveway or intersection, and provides drivers with the ability to exit a driveway or locate sufficient gaps in traffic. Sight distance generally should be provided in accordance with Caltrans standards. The minimum acceptable sight distance is often considered the Caltrans stopping sight distance. Sight distance requirements vary depending on the roadway speeds. For driveways on W San Carlos Street, which has a posted speed limit of 35 mph, the Caltrans stopping sight distance is 300 feet (based on a design speed of 40 mph). For driveways on Race Street, which has a posted speed limit of 30 mph, the Caltrans stopping sight distance is 250 feet (based on a design speed of 35 mph). Based on the project site plan, it can be concluded that the project driveway on West San Carlos Street and the unsignalized intersection of Race Street and Earle Lane would meet the Caltrans sight distance standards.

On-Site Circulation

On-site vehicular circulation was reviewed for the project in accordance with generally accepted traffic engineering standards. The site plan shows that all parking spaces would be oriented at 90-degrees. The site plan shows efficient circulation within the parking lot with no dead-end drive aisles. The City's standard width for two-way drive aisles is 26 feet wide where 90-degree parking is provided. This allows sufficient room for vehicles to back out of parking spaces. According to the site plan, all drive aisles measure 26 feet wide. Adequate access to all parking stalls would be provided.

The site plan shows nineteen 90-degree parking spaces situated between the two parking lot entrances on Earle Lane. These parking spaces would be accessed directly via the Earle Lane easement. Given the low traffic volumes and low speeds on Earle Lane, backing out of these spaces directly onto Earle Lane is not expected to cause any operational issues along Earle Lane.

Truck Access and Circulation

The site plan, shown previously on Figure 4, shows that large trucks would access the site via Earle Lane from Race Street. Two freight loading spaces (loading docks) would be provided on site. Freight loading requirements and access to the loading spaces are described below.

Freight Loading Spaces

According to the City of San Jose Zoning Regulations (Section 20.90.410), the project is required to provide one (1) freight loading space to serve the proposed 28,580 s.f. retail building. Below is the City's requirement.

- One (1) off-street loading space shall be provided for any building totaling 10,000 s.f., plus one (1) additional loading space shall be included for each 20,000 s.f. in excess of 10,000 s.f.

The site plan shows two on-site freight loading spaces located behind the retail building. Access to both freight loading spaces would be provided along the Earle Lane easement, adjacent to the proposed project driveway on Earle Lane. This would meet the City requirement and would comply with the Urban Design Guidelines contained in the Midtown Specific Plan.

Loading Space Dimensions

According to the City of San Jose Zoning Regulations (Section 20.90.420), each off-street loading space required by the project shall be no less than 10 feet wide by 30 feet long by 15 feet high, exclusive of driveways for ingress and egress and maneuvering areas. The site plan shows the length and width of the on-site freight loading spaces would be adequate to accommodate very large semi-trailer delivery trucks (e.g., WB-60 truck types). However, the site plan does not show the amount of vertical clearance that would be provided.

Truck Deliveries

Deliveries to the project site would occur daily via a wide range of truck types varying from small tractors to large semitrailers. The anticipated number of truck deliveries are noted below:

- Refrigerated Deli/Produce – 4 to 5 deliveries per week
- Frozen Foods – 3 deliveries per week
- Grocery Trailers – 6 deliveries per week
- DSD Vendors (Coke, Pepsi, 7-up, etc.) – 8 to 12 trucks per day

Truck Access and On-Site Circulation

All deliveries would occur at the on-site loading spaces. The loading spaces were reviewed for truck access by the method of truck turning-movement templates. Access was reviewed for the truck type WB-60, which represents very large semitrailers. The analysis shows that the WB-60 truck types would have adequate access to the on-site loading spaces. Below is a discussion of inbound and outbound truck movements.

Inbound Truck Movements

Delivery trucks would access the on-site loading spaces from Race Street using the Earle Lane easement and back into the loading spaces. It is important to note that if a large semitrailer truck is already parked in one of the loading spaces, it is highly unlikely that another semitrailer truck could back into the adjacent loading space. However, a smaller truck type, such as an SU-30, could successfully access the open loading space. Note that when an inbound large delivery truck turns onto Earle Lane from Race Street, the truck would require the entire width of Earl Lane.

Outbound Truck Movements

For large delivery trucks exiting the loading spaces, outbound access would depend on which loading space was being utilized at the time. Large semitrailer trucks could turn left onto Earle Lane from the westernmost loading space (position nearest Race Street), but could not turn left from the easternmost loading space. Similarly, large semitrailer trucks could turn right toward Race Street from the easternmost loading space, but could not turn right from the westernmost loading space. Regardless of the direction upon exiting, trucks would utilize the entire width of Earle Lane.

Given the low traffic volumes on Earl Lane, and relatively low number of trucks accessing the project, no significant operational issues are anticipated. It can be concluded that truck loading and maneuvering would not disrupt traffic flow within the project site or along Race Street.

Garbage Collection

The site plan shows the trash enclosure would be located at the southwest corner of the parking lot, adjacent to the western project driveway on the Earle Lane easement. Garbage collection would occur at this on-site location and would involve rolling the trash bins out of the trash enclosure, collecting the waste material, and returning the bins to the enclosures. Since the bins would be stored in an outside trash enclosure, adequate overhead clearance would be available to empty the dumpsters over the garbage truck. Analysis using the SU-30 truck turning template, which represents garbage trucks, shows that the project driveway and drive aisle dimensions would be adequate to accommodate garbage trucks.

Parking

According to the City of San Jose Zoning Regulations (Chapter 20.90, Table 20-190), typical retail projects are required to provide one (1) off-street parking stall per 200 s.f. of sales area (Food, beverage, groceries under general retail) space. However, Zoning Ordinance Section 20.90.220 specifies that a reduction in the required off-street automobile parking spaces of up to 20 percent may be authorized with a development permit for structures or uses that are located within 2,000 feet of a proposed or existing rail station or bus rapid transit (BRT) station, and the structure or use provides adequate bicycle parking per the Zoning Ordinance. The project site is within 2,000 feet of the planned Stevens Creek BRT Race Street station and would provide adequate bicycle parking (see Bicycle Parking discussion below). Therefore, the project qualifies for a 20 percent reduction in automobile parking.

After applying the 20 percent parking reduction and a floor area ratio (FAR) of 0.85 to the standard parking rate, the project is required to provide 101 off-street parking spaces as follows:

- Project Parking Requirement: ((29,580 SF x 0.85) / 200 SF) x 0.8 = 101 parking stalls

The site plan shows a total of 101 automobile parking spaces, which meets the City code and would be adequate to serve the project. The site plan shows that parking would consist of 71 full-size spaces (70%), 14 compact stalls (14%), 5 handicapped stalls (5%), which are all van accessible stalls, and 11 clean air vehicle parking spaces (11%). The City of San Jose allows up to forty percent of the required off-street parking to be made up of compact parking stalls. Note that some of the full-size parking spaces are shown to be only 16 feet long. However, an overhang would be provided and these spaces would meet the City's design standard (18-foot stall length) for full-size car spaces.

Bicycle Parking

According to the City's Bicycle Parking Standards (Chapter 20.90, Table 20-190), the project is required to provide one bicycle parking space for every 3,000 s.f. of floor area. This equates to 10 bicycle parking spaces. The Zoning Code states that when the bicycle parking required for a land use is based solely on square footage, at least 80 percent of the bicycle parking should be short-term spaces and no more than 20 percent should be long-term spaces.

Definition of Long-Term and Short-Term Bicycle Parking

Long-term bicycle parking facilities are secure bicycle storage facilities for tenants of a building that fully enclose and protect bicycles and may include:

- A covered, access-controlled enclosure such as a fenced and gated area with short-term bicycle parking facilities,
- An access-controlled room with short-term bicycle parking facilities, and
- Individual bicycle lockers that securely enclose one bicycle per locker.

Short-term bicycle parking facilities are accessible and usable by visitors, guests or business patrons and may include:

- Permanently anchored bicycle racks,
- Covered, lockable enclosures with permanently anchored racks for bicycles,
- Lockable bicycle rooms with permanently anchored racks, and
- Lockable, permanently anchored bicycle lockers.

Bicycle Parking Provided

The site plan shows 8 short-term bicycle parking spaces and 2 long-term bicycle parking spaces, which meets the parking code.

Motorcycle Parking

According to the City's Motorcycle Parking Standards (Chapter 20.90, Table 20-250), the project should provide one motorcycle parking space for every 20 code-required vehicle space. This equates to 6 motorcycle parking spaces. The site plan shows 6 motorcycle spaces, which meets the City's Motorcycle Parking Standards.

Queuing Analysis

The operations analysis is based on vehicle queuing for high-demand movements at signalized intersections. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of "n" vehicles for a vehicle movement using the following formula:

$$P(x=n) = \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:

P (x=n) = probability of "n" vehicles in queue per lane
n = number of vehicles in the queue per lane
λ = average number of vehicles in the queue per lane (vehicles per hour per lane/signal cycles per hour)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future turn pocket storage requirements at intersections. The 95th percentile queue length value indicates that during the peak hour, a queue of this length or less would occur on 95 percent of the signal cycles. Likewise, a queue length larger than the 95th percentile queue would only occur on 5 percent of the signal cycles (about 3 cycles during the peak hour for a signal with a 60-second cycle length). Therefore, left-turn storage pocket designs based on the 95th percentile queue length would ensure that storage space would be exceeded only 5 percent of the time. The 95th percentile queue length is also known as the “design queue length”.

The following left-turn movements were examined as part of the queuing analysis for this project:

- Northbound left-turn at Race Street and West San Carlos
- Westbound left-turn at Race Street and West San Carlos
- Southbound left-turn at Race Street and Earle Lane
- Westbound shared left-right at Race Street and Earle Lane

Vehicle queuing for these turn movements was analyzed under existing, existing plus project, background and background plus project conditions. Traffic volumes at the study intersections under all four traffic scenarios are shown on Figure 5. The estimated queue lengths based on the Poisson numerical calculations show queuing deficiencies for two of the four studied turn pockets, as discussed below (see Table 3).

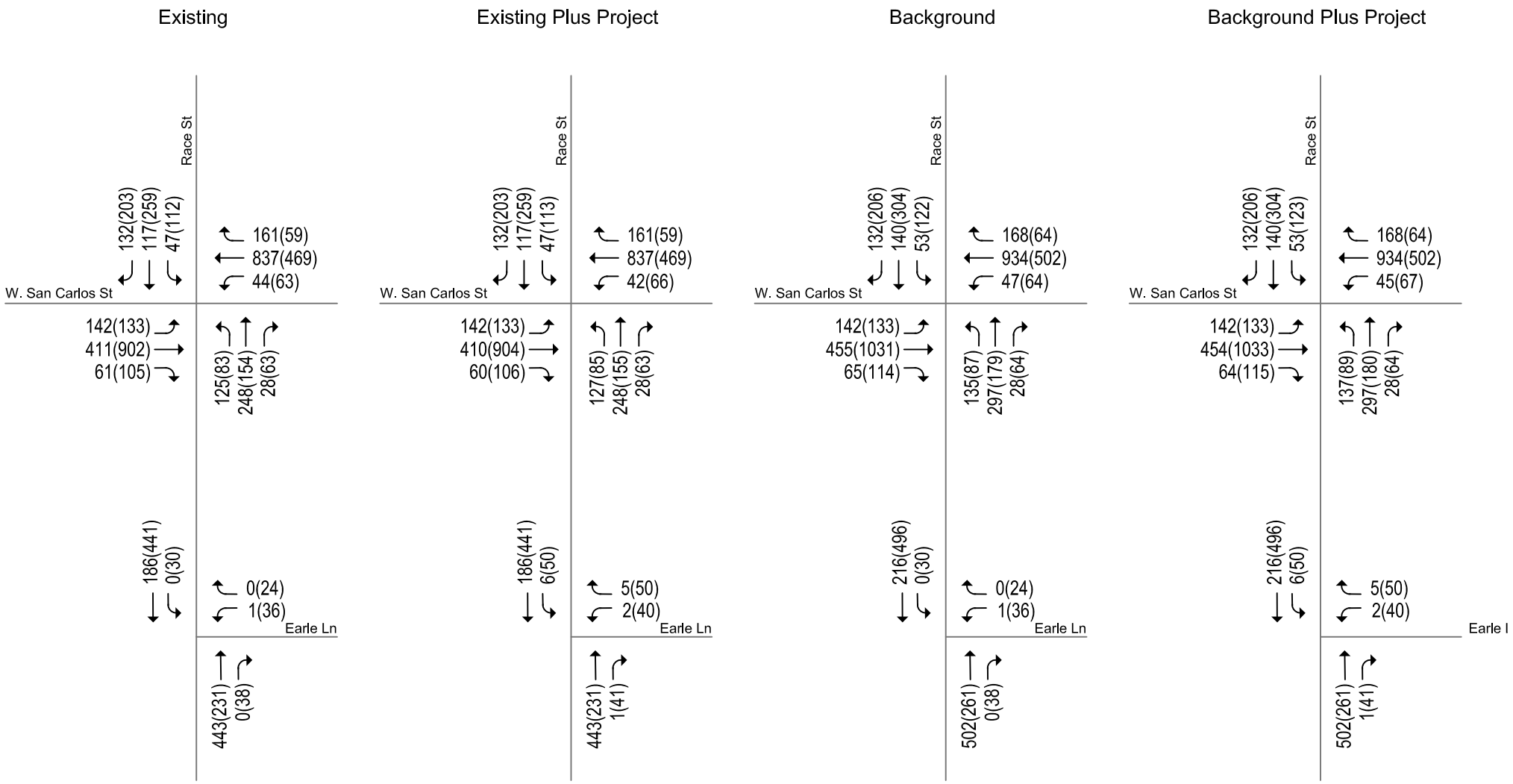
W. San Carlos and Race Street

The queueing analysis showed that the northbound left-turn vehicle queue on Race Street currently exceeds the turn pocket storage during the AM peak hour by approximately two vehicles, and the maximum queue length would increase by one vehicle under background conditions as a result of approved projects in the area. The project would add only two vehicles to this left-turn movement and would not increase the 95th percentile queue length. AM peak hour field observations at the study intersection show the vehicle queues for the northbound left-turn movement do not actually exceed the turn pocket storage. Therefore, the calculated maximum northbound left-turn vehicle queue length during the AM peak hour is a conservative estimate, and the left-turn pocket is expected to provide adequate vehicle storage under all traffic scenarios.

During the PM peak hour, the northbound left-turn pocket storage is currently adequate, but the analysis showed that the 95th percentile vehicle queue would exceed the turn pocket storage by one vehicle under existing plus project, background, and background plus project conditions. However, similar to the AM peak hour, PM peak hour field observations also show the vehicle queues for the northbound left-turn movement do not exceed the turn pocket storage. Therefore, the estimated maximum northbound left-turn vehicle queue length during the PM peak hour is a conservative estimate, and the left-turn pocket is expected to provide adequate vehicle storage under all traffic scenarios.

Race Street and Earle Lane

The analysis did not show any queueing issues at the Race Street and Earle Lane intersection that would disrupt traffic operations along Race Street. The analysis showed that the westbound queues on Earle Lane would not extend back to the project parking lot driveway and, therefore, would not block vehicles exiting the parking lot and turning onto Earle Lane.



LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 5
Traffic Volumes

Table 3
Intersection Queuing Analysis Summary

	W. San Carlos St & Race St				Race St & Earle Ln			
	NBL		WBL		SBL		WBLR	
Measurement	AM	PM	AM	PM	AM	PM	AM	PM
Existing								
Cycle/Delay [1] (sec)	130	140	130	140	0	8	13	14
Volume (vphpl)	125	83	44	63	0	30	1	60
Avg. Queue (veh/ln.)	4.5	3.2	1.6	2.5	0.0	0.1	0.0	0.2
Avg. Queue [2] (ft./ln)	113	81	40	61	0	2	0	6
95th %. Queue (veh/ln.)	8	6	4	5	0	1	1	1
95th %. Queue (ft./ln)	200	150	100	125	0	25	25	25
Storage (ft./ ln.) [3]	150	150	325	325	100	100	75	75
Adequate (Y/N)	**N**	Y	Y	Y	Y	Y	Y	Y
Existing Plus Project								
Cycle/Delay [1] (sec)	130	140	130	140	8	8	13	14
Volume (vphpl)	127	85	42	66	6	50	7	90
Avg. Queue (veh/ln.)	4.6	3.3	1.5	2.6	0.0	0.1	0.0	0.4
Avg. Queue [2] (ft./ln)	115	83	38	64	0	3	1	9
95th %. Queue (veh/ln.)	8	7	4	5	1	1	1	1
95th %. Queue (ft./ln)	200	175	100	125	25	25	25	25
Storage (ft./ ln.) [3]	150	150	325	325	100	100	75	75
Adequate (Y/N)	**N**	**N**	Y	Y	Y	Y	Y	Y
Background								
Cycle/Delay [1] (sec)	130	140	130	140	0	8	14	15
Volume (vphpl)	135	87	47	64	0	30	1	60
Avg. Queue (veh/ln.)	4.9	3.4	1.7	2.5	0.0	0.1	0.0	0.3
Avg. Queue [2] (ft./ln)	122	85	42	62	0	2	0	6
95th %. Queue (veh/ln.)	9	7	4	5	0	1	1	1
95th %. Queue (ft./ln)	225	175	100	125	0	25	25	25
Storage (ft./ ln.) [3]	150	150	325	325	100	100	75	75
Adequate (Y/N)	**N**	**N**	Y	Y	Y	Y	Y	Y
Background Plus Project								
Cycle/Delay [1] (sec)	130	140	130	140	9	8	14	15
Volume (vphpl)	137	89	45	67	6	50	7	90
Avg. Queue (veh/ln.)	4.9	3.5	1.6	2.6	0.0	0.1	0.0	0.4
Avg. Queue [2] (ft./ln)	124	87	41	65	0	3	1	9
95th %. Queue (veh/ln.)	9	7	4	5	1	1	1	2
95th %. Queue (ft./ln)	225	175	100	125	25	25	25	50
Storage (ft./ ln.) [3]	150	150	325	325	100	100	75	75
Adequate (Y/N)	**N**	**N**	Y	Y	Y	Y	Y	Y

Notes:
[1] Vehicle queue calculations based on cycle length for signalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued.
[3] Storage Length represents the length of turn pocket or the distance to the closet driveway.

Pedestrian, Bicycle, and Transit Analysis

All new development projects in San Jose should encourage multi-modal travel, consistent with the goals of the City's General Plan. It is the goal of the General Plan that all development projects accommodate and encourage the use of non-automobile transportation modes to achieve San Jose's mobility goals and reduce vehicle trip generation and vehicle miles traveled. In addition, the adopted City Bike Master Plan establishes goals, policies and actions to make bicycling a daily part of life in San Jose. The Master Plan includes designated bike lanes along all City streets, as well as on designated bike corridors. In order to further the goals of the City, pedestrian and bicycle facilities should be encouraged with new development projects.

Pedestrian Facilities

Pedestrian facilities consist mostly of sidewalks along the streets in the immediate vicinity of the project site. Crosswalks with pedestrian signal heads and push buttons are located at all the adjacent signalized intersections in the study area. Overall, the network of sidewalks has good connectivity and provides pedestrians with safe routes to transit services and other points of interest in the area.

The project would construct a 12-foot wide sidewalk along its frontage on West San Carlos Street, and a 6-foot wide sidewalk along its frontage on Race Street. This project improvement would eliminate half of the existing gap in the sidewalk network that currently exists along the east side of Race Street south of West San Carlos Street. The site plan also shows that a paved path would be provided for pedestrians and bicyclists along the east and south sides of the building. This path would connect the store entrance to the sidewalks on West San Carlos Street and Race Street.

Planned Pedestrian Improvements

City staff have indicated that there is a plan to provide pedestrian access along Earle Lane between Race Street and Lincoln Avenue in the future. However, the design for the pedestrian access has not yet been developed and the timing is unknown. The project would not be required to contribute toward this improvement.

West San Carlos Streetscape Project

The intersection of Race Street and West San Carlos Street is part of the West San Carlos Urban Village Streetscape Improvements (see Figure 6). The conceptual streetscape plan for this intersection was provided by the City of San Jose and shows curb extensions on all four corners of the intersection. Curb extensions visually and physically narrow the roadway, thereby slowing vehicle speeds and creating safer and shorter crossings for pedestrians, while also increasing space for street furniture (e.g., benches) and landscaping. The streetscape plan shows that the westbound right-turn lane on West San Carlos Street will be removed to install the proposed curb extension on the northeast corner of the intersection with low planting. The streetscape plan also shows a 10-foot wide parking lane with 20-foot long parking stalls will be added along the north side of West San Carlos Street. This parking lane will be aligned with the curb extension on the northeast corner of the intersection to increase the overall visibility of pedestrians. An 8-foot wide parking lane is shown on the northbound leg of the intersection along the proposed project frontage on Race Street. The streetscape plan shows that the northbound and southbound through lanes on Race Street will be striped as 14-foot wide Sharrow lanes. Sharrows are painted shared lane markings on a road that indicate to motorists that bicyclists may use the full travel lane. Sharrows are most often used on roadways that are too narrow to install a standard striped bike lane. The southbound right-turn lane will be removed to install a curb extension on the northwest corner of the intersection and to accommodate the wide Sharrow lane on southbound Race Street.

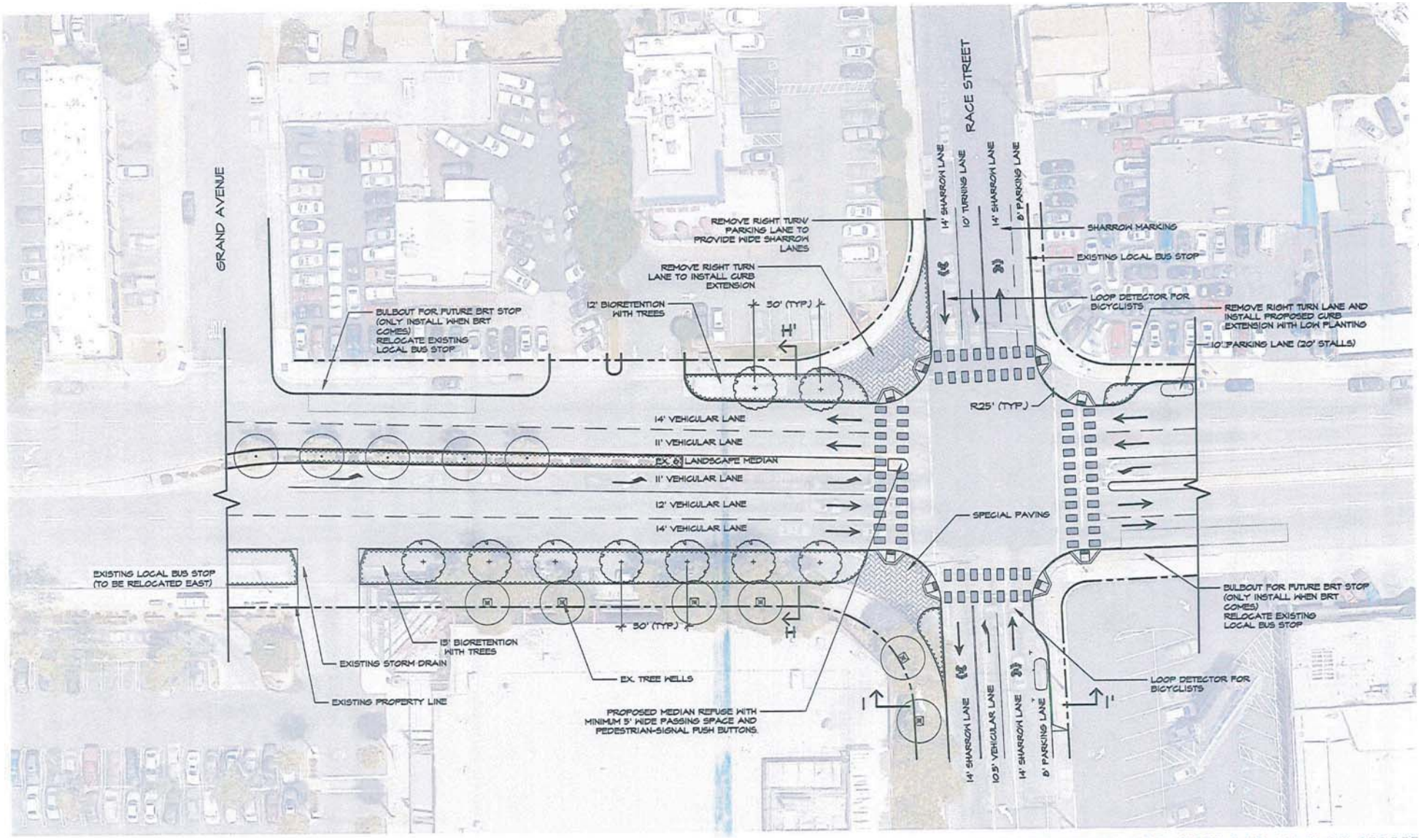


Figure 6
West San Carlos Streetscape Project

Project Consistency with the West San Carlos Streetscape Project

In comparing the project site plan to the Streetscape Project, it is noted that the project site plan does not show any on-street parking along the project frontage on Race Street. The project site plan should be revised to include the improvements to Race Street that are planned as part of the West San Carlos Streetscape Project. Note that the retail project would only be required to implement the Streetscape Project improvements along the project frontage on Race Street. The retail project would not be required to construct any other improvements proposed as part of the Streetscape Project.

Bicycle Facilities

Only one short segment of roadway in the vicinity of the project site includes Class II bike lanes: Race Street between Auzerais Avenue and Parkmoor Avenue. According to the City of San Jose 2020 Bike Plan, Class II bike lanes are planned for Race Street between Auzerais Avenue and San Carlos Street, and a Class III bike route is planned for the segment of Race Street between The Alameda and West San Carlos Street. According to the West San Carlos Streetscape Project conceptual plan, bicycle detection loops will be installed on Race Street at the West San Carlos Street intersection.

A connection to the northern segment of the Los Gatos Creek Trail system is located about a ½ mile walk/bike ride from the project site with access provided via Dupont Street. The off-street paved trail begins at San Carlos Street and extends south. From San Carlos Street, the Guadalupe River multi-use trail system can be accessed. The Guadalupe River trail system is an 11-mile paved trail that runs through the City of San Jose along the Guadalupe River and is shared with pedestrians and separated from motor vehicle traffic. The Guadalupe River trail is a continuous Class I bikeway from Curtner Avenue in the south to SR 237 in the north.

The retail project is not expected to generate many bicycle trips and is not proposing to make any modifications or provide additions to the existing bicycle network.

Transit Services

The project site is located within walking distance to bus stops served by local routes 23, 63, 65, 81 and express route 323. A future Bus Rapid Transit (BRT) stop is proposed along West San Carlos Street near the Race Street intersection. The project site is located within walking distance of the future BRT stop.

Based on the proposed retail use, the project is not expected to generate many transit related trips. It is estimated that the small increase in transit demand generated by the proposed project could be accommodated by the current available ridership capacities of the transit services in the study area, and no project-sponsored transit related improvements would be necessary. However, future improvements to transit services in the area are planned and are described below.

Future Transit Services

Several future transit services are planned within and near the mid-town area of San Jose, which will further enhance the opportunities for commute alternatives. These include services that will be provided by VTA, BART, and high speed rail (HSR).

Bus Rapid Transit (BRT)

The Santa Clara/Alum Rock BRT project will provide a rapid bus service connecting East San Jose to the Downtown area using specialized vehicles and enhanced BRT stations. A BRT stop will be

provided on West San Carlos Street along the project frontage. BRT lines will provide service at each stop every 10 minutes during the weekday peak traffic periods. Passenger service is planned to begin in 2017.

Bay Area Rapid Transit (BART) Phase II Project

Phase II of VTA's BART Silicon Valley Extension project will include a 6-mile-long subway tunnel through downtown San Jose, and will extend the BART system from the Berryessa Extension terminus (Phase I). The Phase II project includes the addition of four BART stations including the Alum Rock, Downtown San Jose, Diridon, and Santa Clara stations. The BART extension will travel through downtown beneath Santa Clara Street, and terminate at grade in the City of Santa Clara near the Santa Clara Caltrain Station. Passenger service for the Phase II Project is planned to begin in 2025.

The Diridon BART Station would be located in the area of the Diridon Caltrain Station. The proposed Diridon BART Station would be located underground between Los Gatos Creek (to the east) and the Diridon Caltrain Station (to the west) and south of/parallel to West Santa Clara Street. The existing VTA bus transit center at the Diridon Station would be reconfigured for better access and circulation to accommodate projected bus and shuttle transfers to and from the BART station. A kiss-and-ride facility would be located at the Diridon Station along Cahill Street.

Access to the Diridon BART Station would be provided from W. Santa Clara Street at Cahill and Autumn Streets from the north. Access from the south would be provided via W. San Fernando Street. Street-level station entrance portals would provide pedestrian linkages to the Diridon Caltrain Station and SAP Center.

California High-Speed Rail (HSR) Phase I Project

Phase I of the California HSR project will provide passenger high-speed rail service connecting San Jose to the state's major cities in the Bay Area, Central Valley, and Los Angeles Basin. Functioning as the Silicon Valley stop, the HSR project will travel through downtown San Jose and include a HSR stop at the Diridon Station. Passenger service operations between Silicon Valley and the Central Valley is planned to begin in 2025.

Conclusions

After applying a retail pass-by trip reduction and existing use trip credits, the proposed project would generate a net total of 241 daily vehicle trips, with 2 fewer trips (4 fewer inbound trips and 2 new outbound trips) occurring during the AM peak hour and 17 new trips (10 inbound trips and 7 outbound trips) occurring during the PM peak hour.

The results of the traffic operations analysis show that adequate site access, including sight distance, would be provided via a limited access driveway on W. San Carlos Street and a full access driveway on Race Street (Earle Lane easement). On-site vehicular circulation also would be adequate, based on the proposed site plan. Adequate truck access would be provided for on-site garbage collection activities, as well as for large trucks to enter and exit the on-site loading spaces.

The results of the intersection queueing analysis show that no operational issues would occur at the signalized Race Street/West San Carlos Street intersection, or at the unsignalized Race Street/ Earle Lane intersection.

The network of sidewalks, including the project-sponsored improvements, has good connectivity and would provide pedestrians with safe routes to transit services and other points of interest in the area.

A review of the site plan shows that the on-site vehicular parking supply, motorcycle parking supply, and short-term and long-term bicycle parking supply, would all meet the City of San Jose parking requirements.

In comparing the project site plan to the streetscape plan, it is noted that the project site plan does not show any on-street parking along the project frontage on Race Street.

> **Recommendation**: The project site plan should be revised to include the improvements along the project frontage on Race Street that are planned as part of the West San Carlos Streetscape Project. Note that the proposed retail project would only be required to implement the Streetscape Project improvements along the project frontage on Race Street. The retail project would not be required to construct any other improvements proposed as part of the Streetscape Project.