HEXAGON TRANSPORTATION CONSULTANTS, INC.

4300 Stevens Creek Boulevard Mixed-Use Development

Draft Transportation Analysis

Prepared for:

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Executive Summary

This report presents the results of the transportation analysis (TA) conducted for the proposed mixed-use development at 4300 Stevens Creek Boulevard in San Jose, California. The project site is located within the Stevens Creek Boulevard Urban Village boundary. The site is currently occupied by multiple commercial buildings. The project would demolish three office buildings and construct three residential buildings (A, B, and C) with 580 apartment units and a 250-room hotel with 8,259 square feet (s.f.) of retail use. Residential building A would provide 173 affordable units, buildings B and C would provide 191 and 216 market-rate units, respectively. Each building would include a parking garage. The project would relocate Lopina Way approximately 300 feet east to the east edge of the project site, between Stevens Creek Boulevard and Albany Drive.

The potential impacts of the project were evaluated in accordance with the standards and methodologies set forth by the Cities of San Jose and Santa Clara and the Santa Clara Valley Transportation Authority (VTA)'s Congestion Management Program (CMP). Based on the City of San Jose's Transportation Analysis Policy (Council Policy 5-1) and the Transportation Analysis Handbook 2018, the TA report for the project includes a CEQA transportation analysis and a local transportation analysis (LTA). The CEQA transportation analysis comprises of an evaluation of Vehicle Miles Traveled (VMT) and cumulative impact analysis for the project's consistency with the Envision San Jose 2040 General Plan. The LTA supplements the CEQA transportation analysis by identifying transportation operational issues via an evaluation of weekday AM and PM peak-hour traffic conditions for 15 signalized intersections and one unsignalized intersection in the vicinity of the project site. The LTA also includes an analysis of freeway segment capacity, freeway ramp operations, site access, on-site circulation, parking, vehicle queueing, and effects to transit, bicycle, and pedestrian access. The LTA also includes an evaluation of potential effects of the Lopina Way relocation.

CEQA Transportation Analysis

VMT Impact

The VMT generated by the residential component of the project (10.33 daily VMT per capita) would exceed the threshold of 10.12 VMT per capita. Therefore, the project would result in a significant impact on VMT, and mitigation measures are required to reduce the VMT impact.

Mitigation Measures

The VMT evaluation tool was used to identify the possible mitigation measures. Based on the list of selected VMT reduction measures included in the VMT evaluation tool, it is recommended the project implement pedestrian network improvements and traffic calming measures beyond the development frontage to reduce the significant VMT impact. The following improvements require coordination with the Cities of San Jose and Santa Clara to implement.

- The project should remove the pork-chop island, eliminate the uncontrolled slip right-turn lane, and tighten the corner radius at the southwest and northeast corners of the Kiely Boulevard and Stevens Creek Boulevard intersection. The traffic signal at the intersection should be updated along with the geometry improvements.

The mitigation measures would reduce the project VMT per capita by 1.3 (or 11.6%) to 9.92, which would make the project impact less than significant.

Cumulative Impact

The project is consistent with the General Plan for the following reasons:

- The project would be a mixed-use development and would increase the supply of residential units for affordable and market-rate housing.
- The project would include ground floor-commercial spaces fronting Stevens Creek Boulevard.
- The project would provide a public accessible green promenade between Albany Drive and Stevens Creek Boulevard.
- The project would provide 20-foot sidewalks with planters and landscaping along Stevens Creek Boulevard. Wider sidewalks would improve pedestrian access to the transit stop and other destinations.
- The project would provide 12-foot sidewalks with planters along Lopina Way and Albany Drive along the project frontage.
- The project would be integrated with the City's transportation system, including transit, roads, and pedestrian facilities.
- The project would not negatively impact existing transit, bicycle, or pedestrian infrastructure, nor would it conflict with any adopted plans or policies for new transit, bicycle, or pedestrian facilities.
- The project would provide fewer vehicle parking spaces than the required parking and would implement a TDM plan to reduce parking demand.

Therefore, the project would be considered part of the cumulative solution to meet the General Plan's long-range transportation goals and would result in a less-than-significant cumulative impact.

Local Transportation Analysis

Project Trip Generation

Based on the ITE trip generation rates and applicable reductions, it is estimated that the proposed project would generate 2,480 new daily trips, including 208 new trips (29 inbound and 179 outbound) during the AM peak hour and 116 new trips (122 inbound and -6 outbound) during the PM peak hour.

Intersection Traffic Operations

Based on the City of San Jose intersection operations analysis criteria, the added project trips would not cause adverse operations effects at any of the signalized study intersections.

The results of the peak-hour signal warrant check indicates that the AM and PM peak-hour volumes at the unsignalized study intersection of Kiely Boulevard/Albany Drive would warrant signalization under

background plus project conditions. However, installation of a signal is not recommended due to the short distance to the traffic signal at the Kiely Boulevard/Norwalk Drive intersection.

Freeway Segment Capacity Analysis

The results of the CMP freeway segment analysis show that the project is not projected to add traffic volumes representing one percent or more of the freeway capacity. Based on CMP freeway impact criteria, none of the freeway segments would be impacted by the project.

Freeway Ramp Operations Analysis

The I-280/Saratoga Avenue and I-280/Stevens Creek Boulevard interchanges provide access to I-280 from the project site.

Based on the on-ramp meter analysis, existing vehicle storage on these on-ramps is adequate to serve the existing vehicle queues and would continue to adequately serve the estimated vehicle queues that would develop with the addition of project-generated traffic. At the I-280 off-ramps to Saratoga Avenue and Stevens Creek Boulevard, the queues do not back up onto the freeway mainline. The queues clear within one signal cycle; therefore, the project is not expected to result in a noticeable increase in vehicle queuing or delay on the off-ramps.

Effect of Lopina Way Relocation

The project would relocate the existing Lopina Way to the eastern project boundary with a new two-lane street extended between Stevens Creek Boulevard and Albany Drive. The existing Lopina Way runs through the project site. It serves the commercial uses on the street and connects the residential uses to the south of the project site on Albany Drive to Stevens Creek Boulevard. It is expected that with the Lopina Way relocation, some of the existing through traffic would continue to use the new Lopina Way and some would divert to Palace Drive. The analysis evaluated traffic operations on Palace Drive at Albany Drive and Stevens Creek Boulevard intersections with the diverted traffic and traffic operations on the new Lopina Way at Albany Drive and Stevens Creek Boulevard intersections with the diverted and project traffic.

Recommendations for the Lopina Way Relocation

Hexagon has the following recommendations resulting from the Lopina Way relocation:

- The project should provide a westbound left-turn pocket with a length of at least 50 feet along Stevens Creek Boulevard at the new Lopina Way
- Red curbs should be painted next to Lopina Way on Stevens Creek Boulevard ensuring a minimum of 360 feet of clear sight distance from the street.
- The project should provide an all-way stop at Lopina Way and Albany Drive, as proposed.
- Street parking should be provided along both sides of the new Lopina Way.

Urban Village and Grand Boulevard Requirements

The project site is located within the Stevens Creek Boulevard Urban Village Boundary and fronts Stevens Creek Boulevard, which has been designated as a Grand Boulevard by the Envision San José 2040 General Plan. The project would be required to implement the following Urban Village and Grand Boulevard design features to improve pedestrian and transit facilities:

- Provide a minimum 20-foot sidewalk width along the frontage on Stevens Creek Boulevard. The project plans to widen sidewalks along the frontages on Stevens Creek Boulevard to 22 feet.

- Provide 10 feet of buffer space between the building and the 12-foot sidewalk along the project frontage on Albany Drive. The project plans to widen sidewalks along the frontages on Albany Drive to 12 feet. The project will need to provide 10 feet of buffer space between the building and the sidewalks.
- Provide enhanced shelters for transit services. There is one bus stop along the project frontage on Stevens Creek Boulevard and it already has a shelter. If the VTA would like an enhanced shelter, it would be appropriate for the project to share the cost of the improvement.
- Contribute a fair share to the Class IV protected bikeways on Stevens Creek Boulevard along the project frontage. The project will need to comply to the requirement.

Other Transportation Issues

The proposed site plan shows adequate site access and on-site circulation, and no adverse traffic operational issues are expected to occur at the project driveways as a result of the project. The project would not have an adverse effect on the existing pedestrian or bicycle facilities in the study area.

Hexagon has the following recommendations resulting from the site access, circulation, and parking evaluations.

Recommendations

- Red curbs should be painted next to the project driveways on Lopina Way and Albany Drive ensuring a minimum of 200 feet of clear sight distance from the street.
- The project should provide adequate stacking space for at least two inbound vehicles (40 to 50 feet) between the sidewalk and the garage entry gates at Buildings A, B, and C driveways on Albany Drive and Lopina Way or keep the garage entry gates open during the time period of the day when most inbound vehicle trips are likely to occur (typically from 3:00 PM to 7:00 PM).
- The project should designate curbside passenger loading zones on Stevens Creek Boulevard for the retail uses, on Albany Drive near the residential building entrances, and on Lopina Way between the inbound only driveway to the hotel building and the driveway to the internal road.
- The project applicant should coordinate with City staff to determine if one freight loading space would be adequate to serve the hotel use of the project.
- The project should coordinate with the Cities of San Jose and Santa Clara to provide a mid-block crossing on Stevens Creek Boulevard at the proposed green promenade. The pedestrian crossing should be designed to not conflict with the future streetscape of Stevens Creek Boulevard with protected bike lanes, as planned by the Stevens Creek Urban Village Plan.
- The project should provide bike racks near the front doors of the retail building along Stevens Creek Boulevard.
- To qualify for a reduction in the required number of parking spaces, the project should implement a TDM plan to reduce parking demand and satisfy the parking reduction requirements as specified in Section 20.90.220 of the Zoning Code.
- The project should provide an adequate number of bicycle and motorcycle parking spaces, in accordance with the City zoning code.

1. Introduction

This report presents the results of the transportation analysis (TA) conducted for the mixed-use development at 4300 Stevens Creek Boulevard in San Jose, California (see Figure 1). The project site is located within the Stevens Creek Boulevard Urban Village boundary. This study was conducted for the purpose of identifying the potential transportation impacts related to the project.

The transportation impacts of the project were evaluated following the standards and methodologies established by the Cities of San Jose and Santa Clara and the Santa Clara Valley Transportation Authority (VTA)'s Congestion Management Program (CMP). Based on the City of San Jose's Transportation Analysis Policy (Council Policy 5-1) and the *Transportation Analysis Handbook* (April 2018), the TA report for the project includes a California Environmental Quality Act (CEQA) transportation analysis and a local transportation analysis (LTA).

Project Description

The site is currently occupied by multiple commercial/office buildings. The project would demolish three office buildings and construct three residential buildings (A, B, and C) with 580 apartment units and a 250-room hotel with 8,259 square feet (s.f.) of retail use (see Figure 2). Residential building A would provide 173 affordable units, buildings B and C would provide 191 and 216 market-rate units, respectively. Each building would include a parking garage. The project would relocate the existing Lopina Way to approximately 300 feet east, along the east edge of the site, between Stevens Creek Boulevard and Albany Drive. A new internal road would be provided that extends from the existing driveway on Stevens Creek Boulevard, through the site, to Lopina Way. Access to the Building A and Building B parking garages would be provided via the internal road and two new driveways (one for each building) on Albany Drive. Access to the Building C parking garage would be provided via the internal road and one driveway on Lopina Way. Access to the hotel/retail building would be provided via the internal road and one driveway on Lopina Way.

Urban Village and Grand Boulevard

The project site is located within the Stevens Creek Boulevard Urban Village per the Envision San Jose 2040 General Plan. Urban Villages are walkable, bicycle-friendly, transit-oriented, mixed-use settings that provide both housing and jobs, thus supporting the General Plan's environmental goals. The urban village strategy fosters:

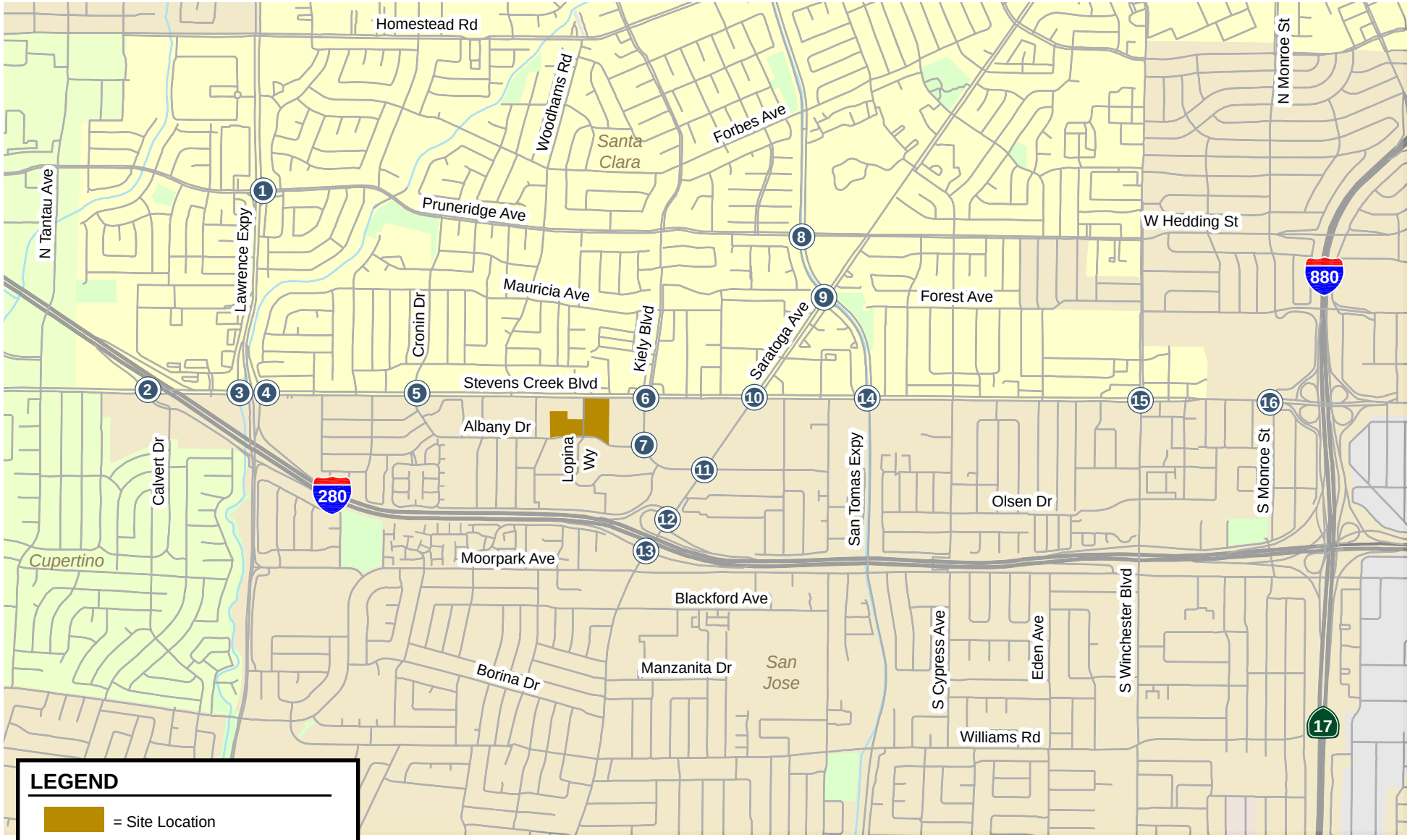


Figure 1
Site Location and Study Intersections

NORTH
Not to Scale

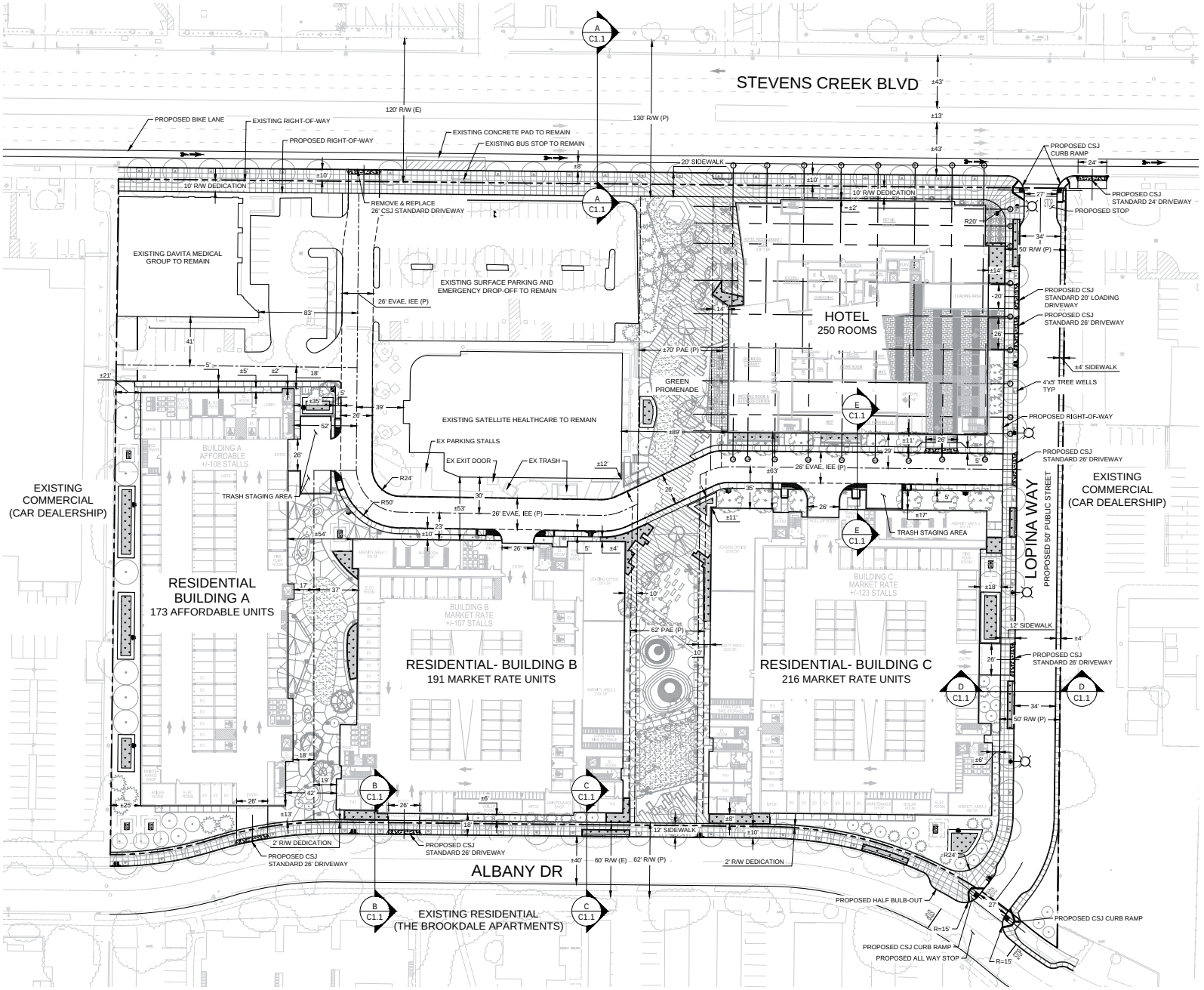


Figure 2
Site Plan

HEXAGON

NORTH
Not to Scale

- Engagement of village area residents in the urban village planning process
- Mixed residential and employment activities that are attractive to an innovative workforce
- Revitalization of underutilized properties that have access to existing infrastructure
- Densities that support transit use, bicycling, and walking
- High-quality urban design

The project fronts Stevens Creek Boulevard, Albany Drive, and Lopina Way. Stevens Creek Boulevard is designated as a Grand Boulevard in the Envision San Jose 2040 General Plan. Grand Boulevards are designated as major transportation corridors that connect City neighborhoods.

Transportation Analysis Policies

As established in Council Policy 5-1, San Jose evaluates transportation impacts under CEQA based on vehicle miles traveled (VMT). All new projects are required to analyze transportation impacts using the VMT metric and conform to Council Policy 5-1. The Policy aligns with the Envision San Jose 2040 General Plan which seeks to focus new development growth within Planned Growth Areas, bringing together office, residential, and service land uses to internalize trips and reduce VMT. VMT-based policies support dense, mixed-use, infill projects as established in the General Plan's Planned Growth Areas.

CEQA Transportation Analysis Scope

The CEQA transportation analysis for the project consists of a project-level VMT impact analysis and a cumulative evaluation that demonstrates the project's consistency with the Envision San Jose 2040 General Plan.

VMT Analysis Scope

The City of San Jose's Transportation Analysis Policy establishes procedures for determining project impacts on VMT based on project description, characteristics, and/or location. VMT is the total miles of travel by personal motorized vehicles a project is expected to generate in a day. VMT measures the full distance of personal motorized vehicle-trips with one end within the project. Typically, development projects that are farther from other, complementary land uses (such as a business park far from housing) and in areas without transit or active transportation infrastructure (bike lanes, sidewalks, etc.) generate more driving than development near complementary land uses with more robust transportation options. Therefore, developments located in a central business district with high density and diversity of complementary land uses and frequent transit services are expected to internalize trips and generate shorter and fewer vehicle trips than developments located in a suburban area with low density of residential developments and no transit service in the project vicinity.

A project's VMT is compared to the appropriate thresholds of significance based on the project location and type of development. When assessing a residential project, the project's VMT is divided by the number of residents expected to occupy the project to determine the VMT per capita. When assessing an office or industrial project, the project's VMT is divided by the number of employees to determine the VMT per employee. The VMT thresholds of significance are established based on the average area VMT.

To identify whether a project would result in VMT impacts and whether the impacts can be mitigated, the City has created heat maps for residential developments (Figure 3) that show the current VMT per capita based on the locations of residences. Areas are color-coded based on the level of existing VMT:

- Green-filled areas are parcels with existing VMT below the thresholds of significance.
- Yellow-filled areas are parcels with existing VMT close to the average VMT level.
- Orange-filled areas are parcels with existing VMT greater than the thresholds of significance. However, a project's VMT impact may be mitigated by implementing VMT-reducing measures.
- Red-filled areas are parcels with existing VMT greater than the residential threshold. Implementing VMT-reducing measures will not be sufficient to reduce a project's VMT to less than the threshold of significance.

As shown in Figure 3, the project site is in a yellow area for residents, which means that the current VMT level per capita in the project area is close to the city average VMT. However, the project's VMT impact may be mitigated by implementing the VMT reducing measures described in Chapter 3.

The project would include a hotel for which the City Policy does not establish procedures for determining impacts on VMT. Therefore, based on direction from City staff, an approach has been developed to evaluate the hotel's VMT impact. The VMT analysis approach is described under CEQA Transportation Analysis Methodology below.

Cumulative Evaluation

Projects that require a CEQA transportation analysis must demonstrate consistency with the *Envision San José 2040 General Plan* to address cumulative impacts. Consistency with the City's General Plan is based on the project's density, design, and conformance to the General Plan goals and policies. If a project is consistent with General Plan, it will be considered as part of the cumulative solution to meet the General Plan's long-range transportation goals, and therefore, will result in a less-than-significant cumulative impact. If a project is determined to be inconsistent with the General Plan, a cumulative impact analysis is required as part of the as part of the General Plan amendment to determine the project's cumulative effects.

General Plan Policies Addressing VMT

The Circulation Element of the *Envision San José 2040 General Plan* includes a set of balanced, long-range, multi-modal transportation goals and policies that provide for a transportation network that is safe, efficient, and sustainable (minimizes environmental, financial, and neighborhood impacts). These transportation goals and policies are intended to improve multi-modal accessibility to all land uses and create a city where people are less reliant on driving to meet their daily needs. The *Envision San José 2040 General Plan* contains the following policies to encourage the use of non-automobile transportation modes to minimize vehicle trip generation and reduce VMT:

- Accommodate and encourage the use of non-automobile transportation modes to achieve San Jose's mobility goals and reduce vehicle trip generation and VMT (TR-1.1);
- Consider impacts on overall mobility and all travel modes when evaluating transportation impacts of new developments or infrastructure projects (TR-1.2);
- Through the entitlement process for new development, projects shall be required to fund or construct needed transportation improvements for all transportation modes, giving first consideration to improvement of bicycling, walking and transit facilities and services that encourage reduced vehicle travel demand (TR-1.4);
- Require new development where feasible to provide on-site facilities such as bicycle storage and showers, provide connections to existing and planned facilities, dedicate land to expand existing facilities or provide new facilities such as sidewalks and/or bicycle lanes/paths, or share in the cost of improvements (TR-2.8);

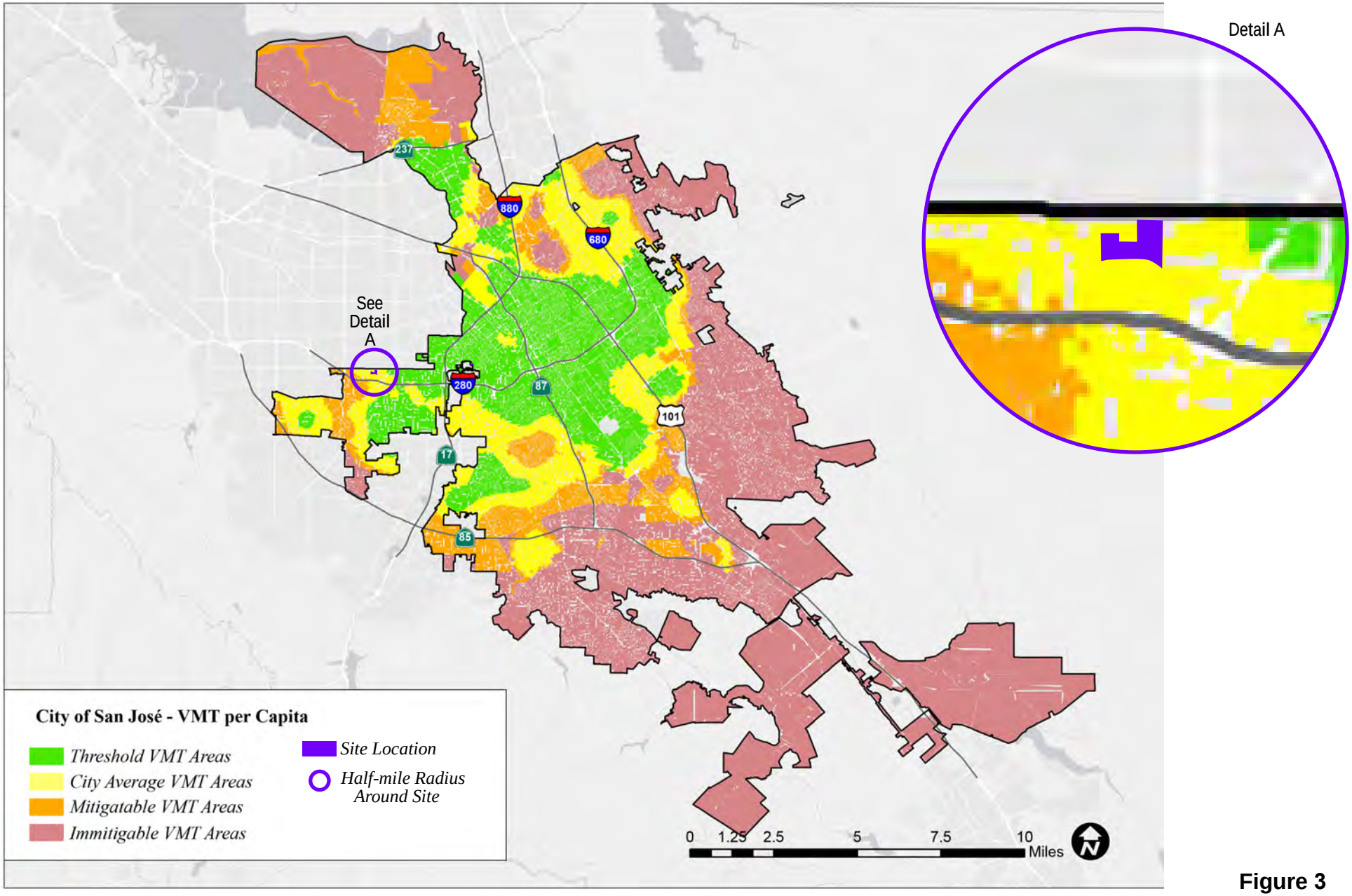


Figure 3
VMT Heat Map for Residents in San Jose

- As part of the development review process, require that new development along existing and planned transit facilities consist of land use and development types and intensities that contribute towards transit ridership, and require that new development is designed to accommodate and provide direct access to transit facilities (TR-3.3);
- Require large employers to develop and maintain TDM programs to reduce the vehicle trips generated by their employees (TR-7.1);
- Balance business viability and land resources by maintaining an adequate supply of parking to serve demand while avoiding excessive parking supply that encourages automobile use (TR-8.2);
- Support using parking supply limitations and pricing as strategies to encourage the use of non-automobile modes (TR-8.3);
- Discourage, as part of the entitlement process, the provision of parking spaces significantly above the number of spaces required by code for a given use (TR-8.4);
- Allow reduced parking requirements for mixed-use developments and for developments providing shared parking or a comprehensive transportation demand management (TDM) program, or developments located near major transit hubs or within Urban Villages and other Growth Areas (TR-8.6);
- Within new development, create and maintain a pedestrian-friendly environment by connecting the internal components with safe, convenient, accessible, and pleasant pedestrian facilities and by requiring pedestrian connections between building entrances, other site features, and adjacent public streets (CD-3.3);
- Create a pedestrian-friendly environment by connecting new residential development with safe, convenient, accessible, and pleasant pedestrian facilities. Provide such connections between new development, its adjoining neighborhood, transit access points, schools, parks, and nearby commercial areas (LU-9.1);
- Facilitate the development of housing close to jobs to provide residents with the opportunity to live and work in the same community (LU-10.5).

CEQA Transportation Analysis Methodology

Screening for VMT Analysis

The City of San Jose's *Transportation Analysis Handbook* includes screening criteria for projects that are expected to result in less-than-significant VMT impacts based on the project description, characteristics and/or location. Projects that meet the screening criteria do not require a CEQA transportation analysis but may be required to provide an LTA. The type of development projects that may meet screening criteria include small infill projects, local-serving retail, or local-serving public facilities. The proposed residential use does not meet the screening criteria set forth in the *Transportation Analysis Handbook* for small infill projects.

The *Transportation Analysis Handbook* does not provide screening criteria for hotel uses. Therefore, based on direction from the City staff, vehicle trips generated by the proposed hotel were converted into an equivalent retail square footage, for which the City has established a screening criterion and threshold of significance. Hotel uses exhibit similar vehicle mode share characteristics, travel patterns, and trip length characteristics to that of retail uses (e.g., both uses typically serve nearby local businesses). Since there are 97 existing hotels within a 5-mile radius of the project site (see Figure 4), it is expected that the proposed hotel would generate mostly localized traffic.

Based on the standard daily trip generation rates contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 11th Edition* for "Business Hotel" (ITE Land Use 312) and "Strip Retail Plaza less than 40,000 s.f." (ITE Land Use 822), a 250-room hotel is estimated to generate the same number of daily trips as 23,324 s.f. of retail space (see Table 1). With the proposed retail space, the hotel and retail would generate daily trips equivalent to 31,583 s.f. of retail use, which meets the screening criterion for local-serving retail developments (100,000 s.f. or less and without drive-through operations). Therefore, the hotel and retail uses are expected to result in a less-than-significant VMT impact.

Table 1
Equivalent Retail Space for Hotel Use

Land Use	ITE Land Use	Size	Daily Trips		
			Trip Rate		Trips
Proposed Non-Office Commercial Land Uses					
Hotel	Business Hotel (Land Use 312)	250 Room	5.08	per occupied room	1,270
Equivalent Land Use					
Retail	Strip Retail Plaza (Land Use 822)	23,324 s.f.	54.45	per 1000 s.f.	1,270
Proposed Retail					
Retail		8,259 s.f.			
Total Retail Use		**31,583 s.f.**			

All trip rates are from ITE Trip Generation Manual, 11th Edition, 2021

Thresholds of Significance

For a project that does not meet the screening criteria, a project's VMT impact is determined by comparing the project VMT to the appropriate thresholds of significance (see Table 2) based on the type of development. The VMT thresholds of significance are established based on the existing citywide average VMT level for residential uses and the existing regional average VMT level for employment uses.

The proposed residential use does not meet the screening criteria, and a VMT analysis is required to evaluate the project VMT against the thresholds of significance. For residential use, the threshold of significance is the citywide average VMT per capita minus 15 percent, which calculates to 10.12 daily miles per capita.

If a project is found to have a significant impact on VMT, the impact must be reduced by modifying the project to reduce its VMT to an acceptable level (below the established thresholds of significance applicable to the project) and/or mitigating the impact through multimodal transportation improvements or establishing a trip cap.

Projects that trigger a VMT impact can assess a variety of the four strategies described below to reduce impacts. A significant impact is said to be satisfactorily mitigated when the strategies and VMT reductions implemented render the VMT impact less than significant.

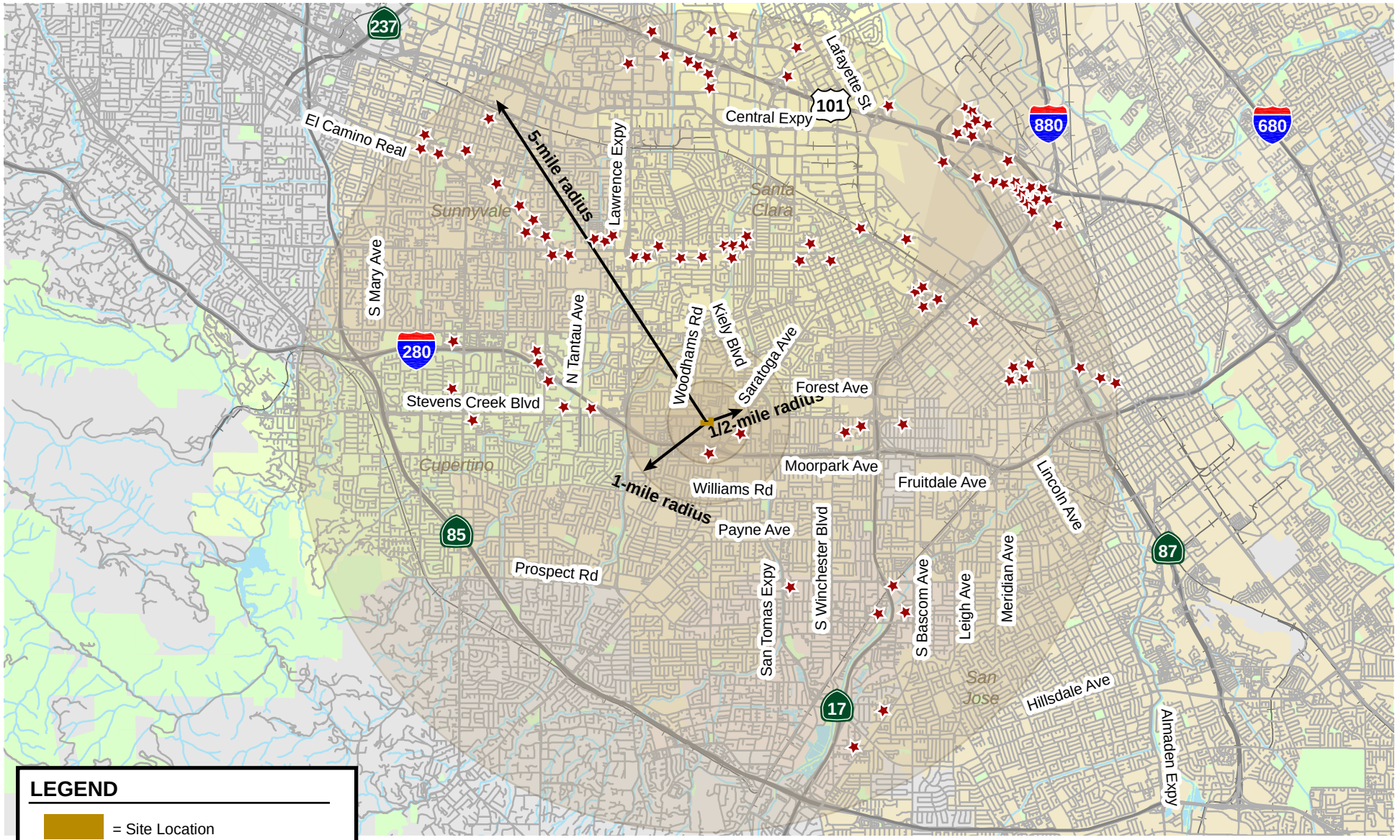


Figure 4
Existing Hotels in the Project Vicinity

NORTH
Not to Scale

Table 2
VMT Thresholds of Significance for Development Projects

Project Types	Significance Criteria	Current Level	Threshold
Residential Uses	Project VMT per capita exceeds existing citywide average VMT per capita minus 15 percent, or existing regional average VMT per capita minus 15 percent, whichever is lower.	11.91 VMT per capita (Citywide Average)	10.12 VMT per capita
General Employment Uses	Project VMT per employee exceeds existing regional average VMT per employee minus 15 percent.	14.37 VMT per employee (Regional Average)	12.21 VMT per employee
Industrial Employment Uses	Project VMT per employee exceeds existing regional average VMT per employee.	14.37 VMT per employee (Regional Average)	14.37 VMT per employee
Retail / Hotel / School Uses	Net increase in existing regional total VMT.	Regional Total VMT	Net Increase
Public / Quasi-Public Uses	In accordance with most appropriate type(s) as determined by Public Works Director.	Appropriate levels listed above	Appropriate thresholds listed above
Mixed-Uses	Evaluate each land use component of a mixed-use project independently, and apply the threshold of significance for each land use type included.	Appropriate levels listed above	Appropriate thresholds listed above
Change of Use / Additions to Existing Development	Evaluate the full site with the change of use or additions to existing development, and apply the threshold of significance for each project type included.	Appropriate levels listed above	Appropriate thresholds listed above
Area Plans	Evaluate each land use component of the Area Plan independently, and apply the threshold of significance for each land use type included.	Appropriate levels listed above	Appropriate thresholds listed above

Source: City of San Jose, *2018 Transportation Analysis Handbook* , Table 2.

VMT Analysis Methodology

To determine whether a project would result in CEQA transportation impacts related to VMT, the City has developed the San Jose VMT evaluation tool to streamline the analysis for residential, office, and industrial projects with local traffic.

The VMT evaluation tool evaluates a list of selected VMT reduction measures that can be applied to a project to reduce the project VMT. There are four strategy tiers whose effects on VMT can be calculated with the VMT evaluation tool:

1. Project characteristics (e.g., density, diversity of uses, design, and affordability of housing) that encourage walking, biking and transit uses.
2. Multimodal network improvements that increase accessibility for transit users, bicyclists, and pedestrians,
3. Parking measures that discourage personal motorized vehicle-trips, and
4. Transportation demand management (TDM) measures that provide incentives and services to encourage alternatives to personal motorized vehicle-trips.

The first three strategies – land use characteristics, multimodal network improvements, and parking – are physical design strategies that can be incorporated into the project design. TDM includes programmatic measures that aim to reduce VMT by decreasing personal motorized vehicle mode share and by encouraging more walking, biking, and riding transit. TDM measures should be enforced through annual trip monitoring to assess the project's status in meeting the VMT reduction goals.

Local Transportation Analysis Scope

The LTA evaluates potential adverse operational effects that may arise due to a new development on transportation system, site access, circulation, and other safety-related elements in the proximate area of the project.

As part of the LTA, a project is required to conduct an intersection operations analysis if the project is expected to add 10 or more vehicle trips per hour per lane to any signalized intersection that is currently operating at LOS D or worse, a CMP intersection outside of the City's infill opportunity zones, or outside the City limits with potential to be affected by the project. Based on these criteria, as outlined in the City's *Transportation Analysis Handbook,* a list of study intersections was developed. Note that intersections that do not meet all the criteria may be added to the list of study intersections at the City's discretion. The LTA comprises an analysis of AM and PM peak-hour traffic conditions for the following 16 signalized intersections and one unsignalized intersections (see Figure 1).

City of San Jose Study Intersections

- Kiely Boulevard and Stevens Creek Boulevard (CMP)
- Kiely Boulevard and Albany Drive (unsignalized)
- Saratoga Avenue and Stevens Creek Boulevard (CMP)
- Saratoga Avenue and Kiely Boulevard (CMP)
- Saratoga Avenue and I-280 Northbound (NB) Ramp (CMP)
- Saratoga Avenue and I-280 Southbound (SB) Ramp (CMP)
- San Tomas Expressway and Stevens Creek Boulevard (CMP)
- Winchester Boulevard and Stevens Creek Boulevard (CMP)
- Monroe Street and Stevens Creek Boulevard

City of Santa Clara Study Intersections

- Lawrence Expressway and Pruneridge Avenue
- I-280 SB Ramp and Stevens Creek Boulevard (CMP)
- Lawrence Expressway SB and Stevens Creek Boulevard (CMP)
- Lawrence Expressway NB and Stevens Creek Boulevard (CMP)
- Albany Drive/Cronin Drive and Stevens Creek Boulevard
- San Tomas Expressway and Pruneridge Avenue
- San Tomas Expressway and Saratoga Avenue (CMP)

Eleven signalized study intersections are designated CMP intersections, four of which are located in the City of Santa Clara. The VTA administers the CMP and monitors the PM peak-hour traffic conditions of CMP intersections.

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours. The weekday AM peak hour is generally between 7:00 and 9:00 AM and the weekday PM peak hour is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on a typical weekday.

Traffic conditions were evaluated for the following scenarios:

- ***Existing Conditions.*** Existing AM and PM peak-hour traffic volumes were obtained from the City of San Jose, 2018 CMP monitoring report, turning-movement counts conducted for previously completed traffic studies, and new turning-movement counts conducted on October 7, 2021 (see Appendix A).
- ***Background Conditions.*** Background traffic volumes were estimated by adding to existing peak-hour volumes the projected volumes from approved but not yet completed developments. The added traffic from approved but not yet completed developments was provided by the City of San Jose in the form of the Approved Trips Inventory (ATI). The ATI sheets are contained in Appendix B. The City of Santa Clara provided a list of approved developments. Approved developments in the study area were included under background conditions. Background conditions represent the baseline conditions to which project conditions are compared for the purpose of determining potential adverse operational effects of the project.
- ***Background Plus Project Conditions.*** Background plus project traffic volumes were estimated by adding to background traffic volumes the additional traffic generated by the project. Background plus project conditions were evaluated relative to background conditions to determine potential adverse project effects.

The LTA also includes a freeway segment capacity analysis, a freeway ramp operations analysis, a vehicle queuing analysis at selected intersections, an evaluation of potential effects of Lopina Way relocation, a review of site access and on-site circulation, an evaluation of potential effects to transit, bicycle, and pedestrian facilities, and a parking analysis.

Intersection Operations Analysis Methodology

This section presents the methods used to determine the traffic conditions at the study intersections and the potential adverse operational effects due to the project. It includes descriptions of the data requirements, the analysis methodologies, the applicable intersection level of service standards, and the criteria used to determine adverse effects on intersection operations.

Data Requirements

The data required for the analysis were obtained from new traffic counts, the Cities of San Jose and Santa Clara, the 2018 CMP Annual Monitoring Report, previous traffic studies, and Google Earth. The following data were collected from these sources:

- Existing traffic volumes
- Lane configurations
- Signal timing and phasing
- Approved project trips

Level of Service Analysis Methodology and Standards

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The analysis methods are described below.

The signalized study intersections located within the Cities of San Jose and Santa Clara were evaluated based on each city's standard. The CMP intersections and intersections on Lawrence Expressway and San Tomas Expressway were evaluated based on the CMP and Santa Clara County standard.

Signalized Intersections

The Cities of San Jose and Santa Clara evaluate level of service at signalized intersections based on the 2000 *Highway Capacity Manual (HCM)* level of service methodology using TRAFFIX software. This HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. The correlation between average delay and level of service is shown in Table 3.

Table 3
Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B+ B B-	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 12.0 12.1 to 18.0 18.1 to 20.0
C+ C C-	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.	20.1 to 23.0 23.1 to 32.0 32.1 to 35.0
D+ D D-	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lenghts, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 39.0 39.1 to 51.0 51.1 to 55.0
E+ E E-	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 60.0 60.1 to 75.0 75.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.
VTA Traffic Level of Service Analysis Guidelines (June 2003), Table 2.

Since TRAFFIX is the level of service methodology for the CMP-designated intersections, the City of San Jose employs the CMP defaults values for the analysis parameters and signal timing inputs. In addition to the CMP default values, the signal timing inputs for the intersections on expressways are based on the actual timing corresponding to the traffic count dates; and signal timing inputs for the City of Santa Clara intersections are based on the timing schedule of each intersection.

Signalized study intersections are subject to the local municipalities' level of service standards. The City of San Jose has established LOS D as the minimum acceptable intersection operations standard for all signalized intersections unless superseded by an Area Development Policy. The City of Santa Clara level of service standards are LOS D for city-controlled signalized intersections. The CMP study intersections and the study intersections on Lawrence Expressway and San Tomas Expressway are subject to the CMP and County standard of LOS E.

Four of the CMP study intersections in San Jose are inside designated infill opportunity zones (IOZ). According to the *Transportation Analysis Handbook*, the CMP legislation provided local jurisdictions options to designate IOZ and exempt CMP facilities located within the IOZ from the provisions of the CMP's intersection operations standard. Therefore, there is no operations standard for these intersections.

Unsignalized Intersections

The study includes the analysis of one unsignalized intersection located in the City of San Jose. The City of San Jose has not established a level of service standard for unsignalized intersections. The stop-controlled study intersection was analyzed for potential operational issues.

Adverse Signalized Intersection Operations Effects

According to the Cities of San Jose and Santa Clara, a project is said to create an adverse effect at a signalized intersection if for either peak hour, either of the following conditions occurs:

1. The level of service at the intersection degrades from an acceptable level (LOS D or better) under background conditions to an unacceptable level under background plus project conditions, or
2. The level of service at the intersection is an unacceptable level (LOS E or F) under background conditions and the addition of project trips cause both the critical-movement delay at the intersection to increase by four (4) or more seconds *and* the volume-to-capacity ratio (v/c) to increase by one percent (.01) or more.

The exception to criterion 2 above applies when the addition of project traffic reduces the amount of average control delay for critical movements, i.e., the change in average control delay for critical movements are negative. In this case, the threshold is when the project increases the critical v/c value by 0.01 or more.

Adverse effects at signalized intersections can be addressed by one of the following approaches:

- Construct improvements to the subject intersection or other roadway segments of the Citywide transportation system to increase overall capacity, or
- Reduce project-generated vehicle trips (e.g., implement a "trip cap") to eliminate the adverse operational effects and restore intersection operations to background conditions. The extent of trip reduction should be set at a level that is realistically attainable through proven methods of reducing trips.

The City recommends prioritizing improvements related to alternative transportation modes, parking measures, and/or TDM measures. Improvements that increase vehicle capacity are secondary and must not have unacceptable effects on existing or planned transportation facilities.

Although four of the study intersections are inside the City's IOZ that are exempt from the CMP's intersection operations standard, they are still subject to the City of San Jose level of service standards and are evaluated according to the City's adverse effect criteria.

CMP and County Definition of Level of Service Deficiencies

The project is said to create a level of service deficiency on traffic conditions at a CMP signalized intersection or County-controlled expressway intersection if for either peak hour:

1. The level of service at the intersection degrades from an acceptable level (LOS E or better) under no-project conditions to an unacceptable LOS E or F when project generated traffic is added, or
2. The level of service at the intersection is an unacceptable level (LOS F) under no-project conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four (4) or more seconds *and* the volume-to-capacity ratio (v/c) to increase by one percent (0.01) or more.

An exception to criterion 2 above applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e. the change in average delay for critical movements is negative). In this case, the threshold is an increase in the critical v/c value by 0.01 or more.

A level of service deficiency by the CMP/County standard is said to be satisfactorily improved when improvements are implemented that would restore intersection level of service to no project conditions or better.

Intersection Vehicle Queuing Analysis

The analysis of intersection operations is typically supplemented with a vehicle queuing analysis at study intersections where the project would add a substantial number of vehicle trips to the left-turn movements or stop-controlled approaches. The analysis provides a basis for estimating future left-turn pocket storage requirements at the study intersections and is presented for informational purposes only, since the City of San Jose has not defined a policy related to queuing. 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 # of vehicles in the queue per lane (vehicles per hr per lane/signal cycles per hr)

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 for a particular left-turn 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 left-turn movement. This analysis thus provides a basis for estimating future turn pocket storage requirements at intersections.

For signalized 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. Or, 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). Thus, turn pocket storage designs based on the 95th percentile queue length would ensure that storage space would be exceeded only 5 percent of the time for a signalized movement. Vehicle queuing at unsignalized intersections is evaluated based on the delay experienced at the specific study turn movement.

Freeway Ramp Analysis Methodology

The VTA's *Transportation Impact Analysis (TIA) Guidelines* recommend a TA include a queuing analysis for freeway on-ramps with existing or planned ramp meters, and off-ramps controlled by signals at junctions with local streets. Therefore, a freeway ramp operations analysis was performed to identify the effects of project traffic on the vehicle queues at the metered on-ramps and the signal-controlled off-ramps at the I-280/Saratoga Avenue and I-280/Stevens Creek Boulevard interchanges that provide access to the freeway system from the project site. It should be noted that the evaluation of freeway ramps is recommended but not required based on the VTA's *TIA Guidelines*, and there are no adopted methodologies and impact criteria for the analysis of freeway ramps.

Freeway Segment Capacity Evaluation

The City is still required to conform to the requirements of the VTA that establishes a uniform program for evaluating the transportation impacts of land use decisions on the designated CMP Roadway System. The VTA's CMP has yet to adopt and implement guidelines and standards for the evaluation of the CMP roadway system using VMT. Therefore, the effects of the proposed project on freeway segments in the vicinity of the project area following the current methodologies as outlined in the *VTA TIA Guidelines* was completed. However, this analysis is presented for informational purposes only. The freeway capacity was evaluated for the I-280 segments between Wolfe Road and SR 17 in the project area.

Report Organization

This report has a total of five chapters. Chapter 2 describes existing transportation conditions including the existing roadway network, transit service, and bicycle and pedestrian facilities. Chapter 3 describes the CEQA transportation analysis, including the project VMT impact analysis, mitigation measures to reduce the VMT impact, and cumulative transportation impact assessment. Chapter 4 describes the local transportation analysis including operations of study intersections, the methods used to estimate project-generated traffic, the project's effects on the study intersections, and an analysis of other transportation issues including freeway segment capacity analysis, freeway ramp operations, intersection vehicle queuing, site access and circulation, parking, and potential project effects on transit services, and bicycle and pedestrian facilities. Chapter 5 presents the conclusions of the transportation analysis.

2. Existing Transportation Conditions

This chapter describes the existing conditions of the transportation system within the study area of the project. It describes transportation facilities in the vicinity of the project site, including the roadway network, transit service, and pedestrian and bicycle facilities. The analysis of existing intersection operations is included as part of the local transportation analysis (see Chapter 4).

Existing Roadway Network

Regional access to the project site is provided via I-280, I-880, and SR 17. Direct access to the site is provided via Stevens Creek Boulevard, Albany Drive, and Lopina Way. Other roadways in the project vicinity include Saratoga Avenue and Kiely Boulevard. These facilities are described below.

I-280 is an eight-lane freeway (three mixed-flow lanes and one high-occupancy vehicle (HOV) lane in each direction) in the vicinity of the site. I-280 extends northward through San Francisco and southward to US 101 in San Jose. East of US 101, it makes a transition into I-680 to Oakland. Access to and from the site is provided via full interchanges at Saratoga Avenue and Stevens Creek Boulevard.

I-880 extends in a north-south direction from its junction with SR 85 near Los Gatos to Oakland. Within the study area, I-880 has six mixed-flow lanes. Near the project site, the peak direction of travel is northbound during the morning commute and southbound during the afternoon commute. I-880 provides access to and from the project site via its interchange at Stevens Creek Boulevard and connection to I-280.

Stevens Creek Boulevard is a six-lane arterial that runs in an east-west direction in the vicinity of the site. It is designated as a Grand Boulevard. There are left-turn pockets provided at intersections, and east of Cabot Avenue a two-way left turn center lane is provided between intersections. Stevens Creek Boulevard extends westward to Cupertino and eastward to Bascom Avenue, where it transitions into San Carlos Street. Stevens Creek Boulevard includes sidewalks on both sides of the street and has a posted speed limit of 40 miles per hour (mph). On-street parking is permitted on both sides of the street with a two-hour limit from 6 AM to 10 PM in the project vicinity. Stevens Creek Boulevard provides direct access to the project site.

Saratoga Avenue is a north-south designated Grand Boulevard extending from Fallon Avenue in the north to the City of Saratoga in the south. In the vicinity of the project, Saratoga Avenue has four lanes north of Stevens Creek Boulevard and six lanes south of Stevens Creek Boulevard. It has a raised, landscaped median with left-turn pockets provided at intersections. Saratoga Avenue has sidewalks on both sides of the street and has a posted speed limit of 35 mph. On-street parking is permitted on both sides of the street with a two-hour limit from 6 AM to 10 PM in the project vicinity. Saratoga Avenue has

bike lanes between Stevens Creek Boulevard and Williams Road. Saratoga Avenue provides access to the site via Stevens Creek Boulevard and Kiely Boulevard.

Kiely Boulevard is a north-south arterial that extends from Saratoga Avenue in the south to El Camino Real, where it transitions into Bowers Avenue, in the north. It is designated as a City Connector Street. Near the project site, Kiely Boulevard has four lanes with left-turn pockets provided at intersections and a center turn lane provided between intersections west of Saratoga Avenue. Kiely Boulevard has a posted speed limit of 35 mph near the project. Sidewalks are provided on both sides of the street. On-street parking is permitted on both sides of the street with a two-hour limit from 6 AM to 10 PM in the project vicinity. Kiely Boulevard provides access to the project site via its intersections with Albany Drive and Stevens Creek Boulevard.

Albany Drive is a two-lane local street that runs primarily in an east-west direction between Stevens Creek Boulevard and Kiely Boulevard. There are sidewalks on both sides of the street. Albany Drive has a posted speed limit of 25 mph. On-street parking is permitted on both sides of the street. Albany Drive provides direct access to the project site.

Lopina Way is a two-lane local street that runs in the north-south direction between Stevens Creek Boulevard and Albany Drive. There are sidewalks on both sides of the street. Lopina Way has a posted speed limit of 25 mph. On-street parking is permitted on both sides of the street. Lopina Way would be relocated approximately 300 feet east with the project and would provide direct access to the project site.

Existing Pedestrian, Bicycle and Transit Facilities

San Jose desires to provide a safe, efficient, economically, and environmentally sensitive transportation system that balances the needs of bicyclists, pedestrians, and public transit riders with those of cars and trucks. The existing bicycle, pedestrian and transit facilities in the study area are described below.

Existing Pedestrian Facilities

A complete network of sidewalks is present along the streets in the vicinity of the project site, including Albany Drive, Lopina Way, Stevens Creek Boulevard, and Kiely Boulevard. The signalized intersections in the vicinity of the project site all have crosswalks. Crosswalks are missing across Albany Drive at Kiely Boulevard and at the unsignalized intersections along Stevens Creek Boulevard. Therefore, in the project vicinity, there is a 2,000-foot section of Stevens Creek Boulevard without a crosswalk. Residents of the site would need to cross Stevens Creek Boulevard at Kiely Boulevard or at Woodhams Road.

Existing Bicycle Facilities

Striped bike lanes (Class II bikeway) are present on Saratoga Avenue south of Stevens Creek Boulevard. There are no other designated bike lanes or bike routes on streets in the immediate vicinity of the project site. Albany Drive is a local street that carries low traffic volumes and is conducive to bicyclists. Stevens Creek Boulevard, Kiely Boulevard (between Stevens Creek Boulevard and Saratoga Avenue), and Saratoga Avenue are arterial streets with high traffic volumes and vehicle speed. Bicyclists need to ride with caution on these streets. Bicycles are also permitted on San Tomas Expressway and Lawrence Expressway. However, due to high speeds and traffic volumes, these streets are recommended for use only by bicyclists with advanced skills.

Existing Transit Services

Existing transit service to the study area is provided by the VTA (see Figure 5 and Table 4). Two frequent bus routes (Routes 23 and 57) and one rapid bus route (Route 523) serve the vicinity of the

project area, as described below. The bus stop closest to the project site is located on Stevens Creek Boulevard along the project frontage.

Table 4
Existing Transit Facilities

Bus Route	Route Description	Closest Stop and Distance to Project Site	Weekday Hours of Operation[1]	Headway (minutes)[1]
Frequent Bus 23	DeAnza College - Alum Transit Rock Center	On Stevens Creek Blvd west of Lopina Way, 160 feet	5:00 AM - 1:30 AM	15 - 20
Frequent Bus 57	West Valley College - Old Ironsides Station	On Kiely Blvd at Stevens Creek Blvd, 690 feet	5:50 AM - 10:50 PM	12 - 15
Rapid Bus 523	San Jose State - Lockheed Martin via De Anza College	On Stevens Creek Blvd at Kiely Blvd, 780 feet	6:00 AM - 10:40 PM	20

1. Approximate weekday operation hours and headways during peak commute periods in the project area, as of November 2021.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field and are shown on Figure 6.

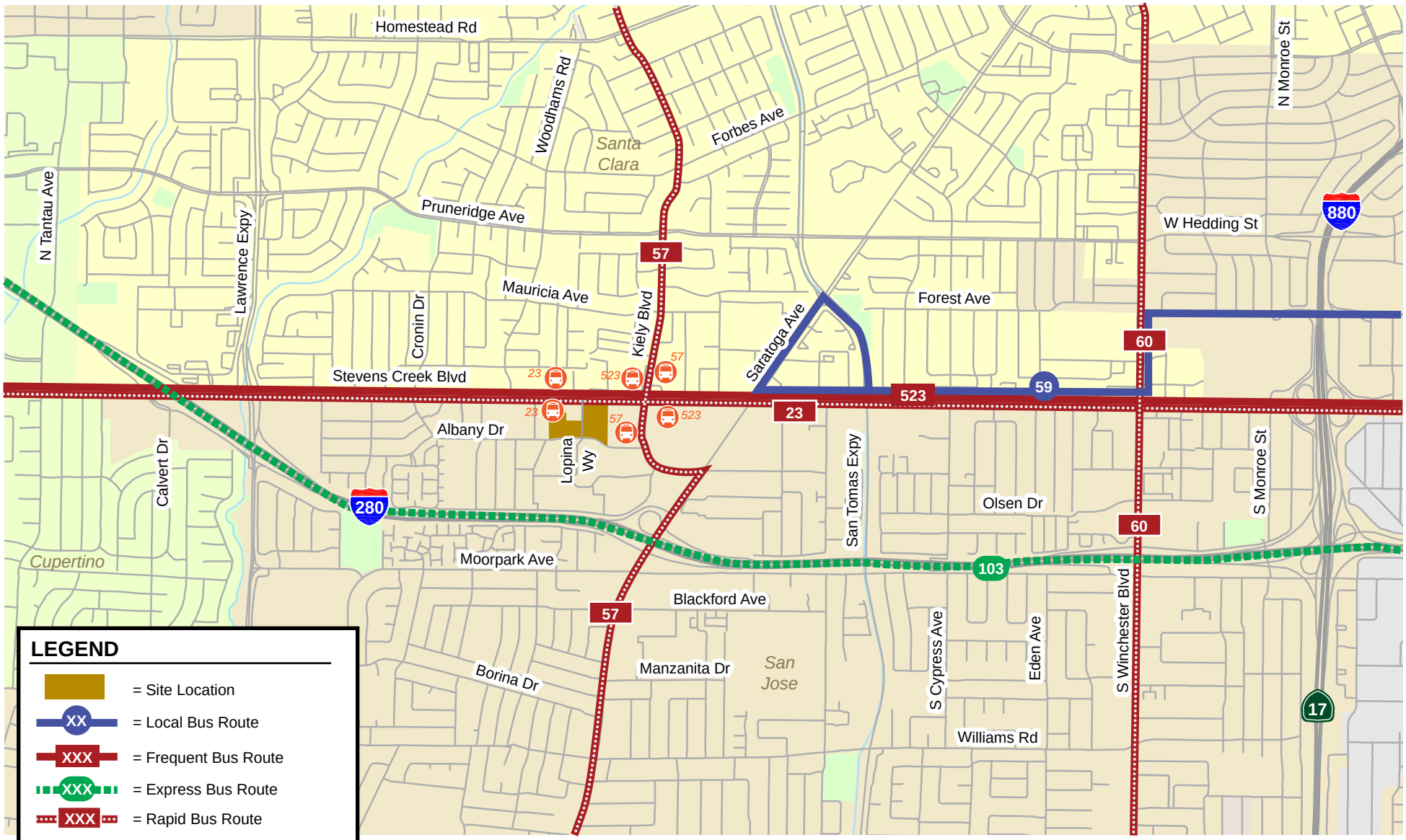
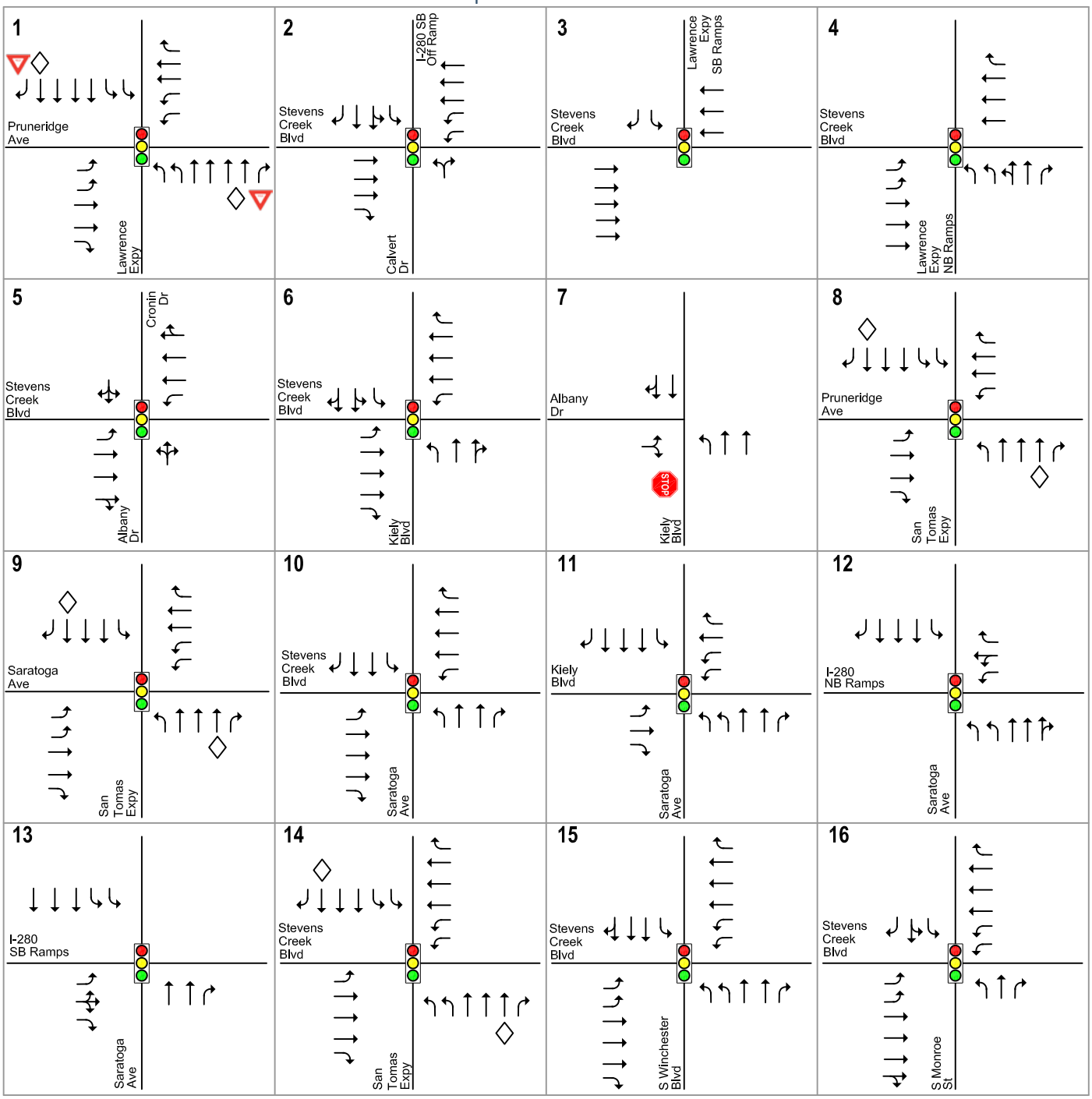


Figure 5
Existing Transit Services

NORTH
Not to Scale



LEGEND

STOP = Stop Sign

= Signalized Intersection

= Yield Sign

= HOV Lane

Figure 6
Existing Lane Configurations

NORTH
Not to Scale

3. CEQA Transportation Analysis

This chapter describes the CEQA transportation analysis, including the area VMT, project VMT impact, and cumulative transportation impact, according to the San Jose's Transportation Analysis Policy.

Area VMT

As described in Chapter 1, the current VMT of the project area is close to the citywide average VMT for residential uses. The project is located within two assessor parcel numbers (APN), separated by the existing Lopina Way. For the VMT analysis, this study uses the APN with the higher area VMT to provide the most conservative analysis.

Based on the San Jose VMT evaluation tool and the project site's APN, the project site has an existing area VMT of 11.22 daily miles per capita for residential uses. The citywide average VMT for residential uses is 11.91 per capita (see Table 1). Thus, the existing area VMT for residential uses in the project vicinity is less than the citywide average VMT level. However, it is over the VMT threshold for residential projects, which is 10.12 per capita.

Project-Level VMT Impact Analysis

The project-level impact analysis under CEQA uses the VMT metric to evaluate a project's transportation impacts by comparing against the VMT thresholds of significance as established in the Transportation Analysis Policy. As described in Chapter 1, the VMT evaluation tool was used to evaluate the VMT impact for the residential use of the project.

The project VMT estimated by the evaluation tool is 10.33 VMT per capita, which is lower than the area VMT for residential uses (11.22 per capita) in the project vicinity. This is because the project would include an affordable housing building (Building A). For the affordable units, 58 units (or 10% of total 580 units) would be for very low and low income (29 units each), and the remaining 115 units would be for moderate or higher income. The VMT evaluation tool estimates lower VMT for very low and low income units. Although the project VMT would be lower than area VMT, the VMT is above the threshold of 10.12 VMT per capita. Therefore, the project would result in a significant transportation impact on VMT. Appendix C shows the VMT evaluation summary reports generated by the City of San Jose's VMT evaluation tool for the proposed residential use of the project.

VMT Impacts and Mitigation Measures

Project Impact: Because the residential use would generate a VMT level (10.33 per capita) greater than the threshold (10.12 per capita), the project would result in a significant transportation impact on VMT. Therefore, mitigation measures are required to reduce VMT to the threshold.

Mitigation Measures: The VMT evaluation tool was used to identify the possible mitigation measures. Based on the list of selected VMT reduction measures included in the VMT evaluation tool, it is recommended the project implement pedestrian network improvements and traffic calming measures beyond the development frontage to reduce the significant VMT impact. The following improvements require coordination with the Cities of San Jose and Santa Clara to implement.

- The project should remove the pork-chop island, eliminate the uncontrolled slip right-turn lane, and tighten the corner radius at the southwest and northeast corners of the Kiely Boulevard and Stevens Creek Boulevard intersection. The traffic signal at the intersection should be updated in conjunction with the geometry improvements.

Removal of pork chop islands would improve the multi-modal environment by eliminating unsignalized pedestrian/vehicle conflict points, increasing visibility of pedestrians at the intersection corner, decreasing the crossing distance for pedestrians, providing safer refuge for pedestrians waiting to use the crosswalks, and providing ADA standard curb ramps.

Based on the review of 10-year collision data for the Kiely Boulevard/Stevens Creek Boulevard intersection, 68% and 19% of the collisions were broadside and rear end collisions, respectively. Of these broadside and rear end collisions, a majority of collisions were caused by running the red light and the lack of signal visibility. Because of the nature of the collisions, the City's 2018 Accident Crash Report (ACR) recommends improvements to increase signal/intersection visibility and resolve red light running, which include upgrading 8-inch signal heads to 12 inches, adjusting the yellow time, refreshing the lane striping, trimming the trees on the south leg for the northbound approach, and/or rebuilding the signal. These improvements to increase signal/intersection visibility and reduce red light running would also improve the safety of pedestrians crossing the intersection. Therefore, these intersection improvements should be considered when implementing the required mitigation measures listed above (Removal of pork chop islands and associated improvements).

The mitigation measures would reduce the project VMT per capita to 9.92, which would make the project impact less than significant. Appendix C presents the VMT evaluation tool summaries.

Cumulative Impact Analysis

Projects must demonstrate consistency with the Envision San Jose 2040 General Plan to address cumulative impacts. Consistency with the City's General Plan is based on the project's density, design, and conformance to the General Plan goals and policies.

The project site is located within the Stevens Creek Boulevard Urban Village. Urban villages are defined as walkable, bicycle-friendly, transit-oriented, mixed-use settings that provide both housing and jobs, thus supporting the policies and goals of the General Plan. The Stevens Creek Boulevard Urban Village Plan identifies the following goals to develop Stevens Creek Boulevard into a more walkable, bikeable, and transit-accessible street while maintaining vehicle mobility.

- Create a mixed-use Urban Village that focuses commercial activity along Stevens Creek Boulevard, Kiely Boulevard, and Saratoga Avenue, and is pedestrian focused, enhances the quality of life for residents in surrounding communities and supports the existing and planned public transit.

- Foster a development pattern that supports the creation of a walkable dynamic environment and reduces motor vehicle travel by encouraging the use of other modes of travel.
- Support a range of housing types within the Stevens Creek Urban Village and increase the supply of the Village's residential units consistent with the housing growth assigned by the Envision San José 2040 General Plan.
- Increase the number of public spaces that serve existing and new residents, as well as workers.
- Leverage new development in the Urban Village to improve and/or increase the amenities for surrounding neighborhoods.
- Use new developments and site plans to improve connectivity between established neighborhoods and Stevens Creek Boulevard, and to new or improved community amenities.
- Create vehicle parking requirements and guidelines for new development to encourage travel mode shifts and efficient use of land.
- Create a bicycle-friendly street network that provides access throughout the Urban Village to improve a) bicyclist safety and comfort, b) encourage mode shift to bicycle and c) maximize bike traffic to encourage economic development of local businesses.
- Enhance the pedestrian environment and connectivity along and across Stevens Creek Boulevard and other major roadways in the Urban Village to a) improve pedestrian safety, comfort, and convenience b) encourage more people to walk, and c) maximize foot traffic to encourage economic development of local businesses.

The project is consistent with the General Plan and Stevens Creek Boulevard Urban Village Plan goals and policies for the following reasons:

- The project would be a mixed-use development and would increase the supply of residential units for affordable and market-rate housing.
- The project would include ground floor-commercial spaces fronting Stevens Creek Boulevard.
- The project would provide a public accessible green promenade between Albany Drive and Stevens Creek Boulevard.
- The project would provide 20-foot sidewalks with planters and landscaping along Stevens Creek Boulevard.
- The project would provide 12-foot sidewalks with planters along Lopina Way and Albany Drive along the project frontage.
- The project would be integrated with the City's transportation system, including transit, roads, and pedestrian facilities.
- The project would not negatively impact existing transit, bicycle, or pedestrian infrastructure, nor would it conflict with any adopted plans or policies for new transit, bicycle, or pedestrian facilities.
- The project would provide fewer vehicle parking spaces than the required parking and would implement a TDM plan to reduce parking demand.

Therefore, the project would be considered part of the cumulative solution to meet the General Plan's long-range transportation goals and would result in a less-than-significant cumulative impact.

4. Local Transportation Analysis

This chapter describes the local transportation analysis (LTA) including the method by which project traffic is estimated, intersection operations analysis for existing, background, and background plus project, any adverse effects to intersection level of service caused by the project, effects of Lopina Way relocation, site access and on-site circulation review, effects on bicycle, pedestrian and transit facilities, and parking supply. Under project conditions, Lopina Way would be relocated 300 feet east, to the east edge of the project site.

Intersection Operations Analysis

The intersection operations analysis is intended to quantify the operations of San Jose and Santa Clara intersections and to identify potential negative effects due to the addition of project traffic. Information required for the intersection operations analysis related to project trip generation, trip distribution, and trip assignment are presented in this section. The study intersections are located in the Cities of San Jose and Santa Clara and are evaluated based on the Cities of San Jose and Santa Clara and CMP's intersection analysis methodology and standards in determining potential adverse operational effects due to the project, as described in Chapter 1.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, the directions to and from which the project trips would travel are estimated. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Trip Generation

Trip generation rates resulting from new development proposed within the City of San Jose typically are estimated using trip rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition. Trips that would be generated by the proposed mixed-use development were estimated using the ITE trip rates for "Mid-Rise Multifamily Housing" (Land use 221), "Business Hotel" (Land use 312), and "Strip Retail Plaza" (Land use 822). The "Mid-Rise Multifamily Housing" category refers to apartments, townhouses, and condominiums located within the same building that have between three and 10 levels. The "Business Hotel" category refers to a place of lodging aimed toward the business traveler that provides sleeping accommodations and limited facilities, such as a breakfast buffet bar and limited meeting rooms. The "Strip Retail Plaza" category refers to an integrated group of

commercial establishments. This category includes the trip data for retail/commercial uses less than 40,000 square feet.

Trip Adjustments and Reductions

Because the project would provide residential and retail mixed-use on site, some residents would patronize the retail businesses. Per the VTA TIA Guidelines, an internal trip reduction of 3% between retail and residential uses was applied to the project. The trip reduction factors were first applied to the smaller trip generator (retail); then the same trips were subtracted from the larger trip generators to account for both trip ends.

In accordance with the *Transportation Analysis Handbook* (Section 4.8, "Intersection Operations Analysis"), the project qualifies for a location-based trip adjustment from the baseline trip generation. The location-based adjustment reflects the project's vehicle mode share based on the "place type" in which the project is located per the San Jose Travel Demand Model. The project's place type was obtained from the San Jose VMT evaluation tool. Based on the VMT evaluation tool, the project site is located within a designated Urban Low-Transit area. Therefore, the baseline project trips were adjusted to reflect an Urban Low-Transit mode share. Residential and retail developments within Urban Low-Transit areas have a vehicle mode share of 87 percent. Similar to the VMT approach, the hotel was considered as a retail project for the vehicle mode share. Thus, a 13 percent location-based trip reduction for non-vehicle mode share was applied to the residential, hotel, and retail uses in the trip generation estimates.

Additionally, the VMT reduction resulting from implementing the multimodal infrastructure improvements as mitigation measures in the VMT evaluation tool should be included as part of the trip generation estimates for the residential development of the project. As discussed in Chapter 3, by implementing the mitigation measures, the VMT level for the residential development would be reduced from the existing level of 11.22 VMT per capita to 9.92 VMT per capita, which is a 12% reduction in VMT. The reduction was applied to the adjusted residential trips (with location-based adjustment).

In addition, trip generation for retail uses are typically adjusted to account for pass-by trips. Pass-by trips are trips that would already be on the adjacent roadways (and are therefore already counted in the existing traffic) but would turn into the site while passing by. Pass-by trips are therefore excluded from the traffic projections (although pass-by traffic is accounted for at the site entrances). An average pass-by trip reduction of 30% was applied to the PM peak-hour trips of the retail component of the project based on the VTA TIA Guidelines.

Existing Trip Credits

The project site is currently occupied by three office buildings that will be demolished as part of the proposed project. Trips that are generated by existing buildings can be subtracted from the gross project trip generation estimates. Due to Covid-19, the trips generated by the existing office buildings were obtained from AM and PM peak-hour driveway counts conducted on September 22, 2016 for a previous project (included in Appendix A). The driveway counts conducted in 2016 included a larger site that includes the three office buildings and two commercial/restaurant buildings (4400 and 4360 Stevens Creek Boulevard). To estimate the trips associated with the three existing office buildings, the counts for two of the existing driveways that primarily serve the commercial/restaurant buildings were excluded from the existing trip credits. Table 5 shows that based on the driveway counts, the AM and PM peak-hour trip rates were 0.6 and 1.28 trips per 1,000 s.f., respectively for the existing office buildings, which are lower than the ITE trip rates of 1.52 and 1.44 trips per 1,000 s.f. for AM and PM peak hours, respectively for "General Office" (Land use 710). Therefore, the estimate of existing trip credits presents a conservative estimate.

Net Project Trips

After applying the trip reduction and existing trip credits, it is estimated that the proposed project would generate 2,480 new daily trips, including 208 new trips (29 inbound and 179 outbound) during the AM peak hour and 116 new trips (122 inbound and -6 outbound) during the PM peak hour (see Table 5).

Table 5
Project Trip Generation Estimates

			Daily		AM Peak Hour						PM Peak Hour					
			Trip		Trip	Splits		Trips			Trip	Splits		Trips		
Land Use	Size		Rate	Trips	Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
Proposed Land Uses																
Apartment[1]	580	du	4.54	2,633	0.37	23%	77%	49	166	215	0.39	61%	39%	138	88	226
Residential/Retail Internal Capture (3%)[4]				-14				-1	0	-1				-2	0	-2
Location-Based Non-Vehicle Mode Share (13%)[5]				-340				-6	-22	-28				-18	-11	-29
Project-Specific Trip Reduction (12%)[6]				-273				-5	-17	-22				-14	-9	-23
Sub-Total Residential				*2,006*				*37*	*127*	*164*				*104*	*68*	*172*
Hotel[2]	250	rooms	5.08	1,270	0.51	52%	48%	67	61	128	0.41	56%	44%	58	45	103
Location-Based Non-Vehicle Mode Share (13%)[5]				-165				-9	-8	-17				-8	-5	-13
Sub-Total Hotel				*1,105*				*58*	*53*	*111*				*50*	*40*	*90*
Retail[3]	8,259	s.f.	54.45	450	2.36	60%	40%	11	8	19	6.59	50%	50%	27	27	54
Residential/Retail Internal Capture (3%)[4]				-14				0	-1	-1				0	-2	-2
Location-Based Non-Vehicle Mode Share (13%)[5]				-57				-1	-1	-2				-4	-3	-7
Pass-By Reduction (15% Daily/0% AM/30% PM)[7]				-57				0	0	0				-7	-7	-14
Sub-Total Retail				*322*				*10*	*6*	*16*				*16*	*15*	*31*
Total Gross Project Trips				***3,421***				***105***	***185***	***290***				***170***	***121***	***291***
Existing Land Uses																
Office[8]	136,800	s.f.	6.88	-941	0.60	93%	7%	-76	-6	-82	1.28	27%	73%	-48	-127	-175
Net Project Trips				**2,480**				**29**	**179**	**208**				**122**	**-6**	**116**

Notes:
All trip rates are from ITE Trip Generation Manual, 11th Edition, 2021.
1. Mid-Rise Multifamily Housing (ITE Land Use 221): average trip rates in trips per dwelling unit were used.
2. Business Hotel (ITE Land Use 312): average trip rates in trips per occupied room were used.
3. Strip Retail Plaza (Land Use 822): average trip rates were used.
4. Residential/retail internal trip reductions were applied to the project per the 2014 Santa Clara VTA TIA Guidelines.
5. A 13% reduction for the residential and hotel/retail uses were applied to the project based on the location-based vehicle mode share percentage outputs (Table 6 of TA Handbook) produced from the San Jose Travel Demand Model for the Urban Low-Transit area.
6. A reduction was applied because the proposed residential use will be required to reduce VMT through implementing physical design strategies and/or TDM measures. The VMT mitigation measures would reduce the project VMT from 11.22 per capita (area VMT) to 9.92 per capita by 12% based on the City's VMT Evaluation Tool.
7. An average 30% pass-by trip reduction was applied to the retail PM peak-hour trips based the maximum allowable pass-by trip reduction rate in the VTA Transportation Impact Analysis Guidelines, October 2014. Hexagon assumes no pass-by trip reduction during the AM peak hour for retail uses.
8. AM and PM peak-hour trip generation rates for the existing uses are based on existing driveway counts conducted on 9/22/2016. Daily trip generate rate was estimated based on the average ratio of ITE daily to AM and PM peak-hour trip rates for office use (ITE Land Use 710).

Trip Distribution and Assignment

The trip distribution patterns for the proposed residential, hotel, and retail uses and the existing office use were developed based on existing travel patterns on the surrounding roadway network, the locations of complementary land uses, and freeway access points. Figure 7 shows the distribution patterns for the project's residential, hotel, and retail uses. Figure 8 shows the distribution patterns for the existing offices to be demolished. The peak-hour vehicle trips generated by the existing and proposed project uses were assigned to the roadway network in accordance with the trip distribution patterns for each land use and the locations of project driveways (see Figure 9). The trips generated by the existing uses were subtracted from the roadway network prior to assigning project trips.

Traffic Volumes Under All Scenarios

Existing Traffic Volumes

Existing AM and PM peak-hour traffic volumes (see Figure 10) were obtained from previous and new traffic count data, the 2018 CMP Annual Monitoring Report, and the City of San Jose. Previous AM and PM peak-hour turning movement counts were collected in 2016, 2018, and 2019, and new turning movement counts were collected in 2021 (see Appendix A). New turning movement counts were used for the Saratoga Avenue/I-280 Northbound Ramps and the Saratoga Avenue/I-280 Southbound Ramps intersections because the new counts were similar to the previous counts. Previous turning movement counts were conducted in 2018 and 2019, except for the counts at the Kiely Boulevard/Albany Drive intersection, which were conducted in 2016. Previous and new turning movement counts were used without adjustments, as directed by the City. Traffic volumes for all traffic scenarios are tabulated in Appendix D.

Background Traffic Volumes

Background AM and PM peak-hour traffic volumes were estimated by adding to existing traffic volumes the trips generated by nearby approved but not yet completed or occupied projects (see Figure 11). The added traffic from approved but not yet constructed developments in the City of San Jose was obtained from the City's Approved Trips Inventory (ATI). The City of Santa Clara provided a list of approved developments. For developments in Santa Clara, Hexagon considered both the location and size of the approved developments in order to eliminate those that were too far away or too small to affect traffic conditions at the selected study intersections. The San Jose ATI and The Santa Clara approved developments considered for the study are listed in Appendix B.

Background Plus Project Traffic Volumes

Project trips were added to background traffic volumes to obtain background plus project traffic volumes (see Figure 12).

Intersection Traffic Operations

The results of the intersection level of service analysis are shown in Table 6. The detailed intersection level of service calculation sheets for all study scenarios are included in Appendix E.

Existing Conditions

Intersection levels of service were evaluated against the standards of the Cities of San Jose and Santa Clara and the CMP. The results of the analysis show that most of the signalized study intersections are currently operating at acceptable levels of service during the AM and PM peak hours of traffic. The San Tomas Expressway/Pruneridge Avenue intersection is currently operating at an unacceptable LOS F during the AM peak hour.

Background and Project Conditions

The results of the analysis show that under background conditions the San Tomas Expressway/Pruneridge Avenue intersection would continue to operate at an unacceptable LOS F during the AM peak hour. The Winchester Boulevard/Stevens Creek Boulevard and Monroe Street/Stevens Creek Boulevard intersections would operate at an unacceptable LOS F and LOS E, respectively, during the PM peak hour. The added project trips would not cause an adverse effect at any of the intersections operating at an unacceptable level of service.

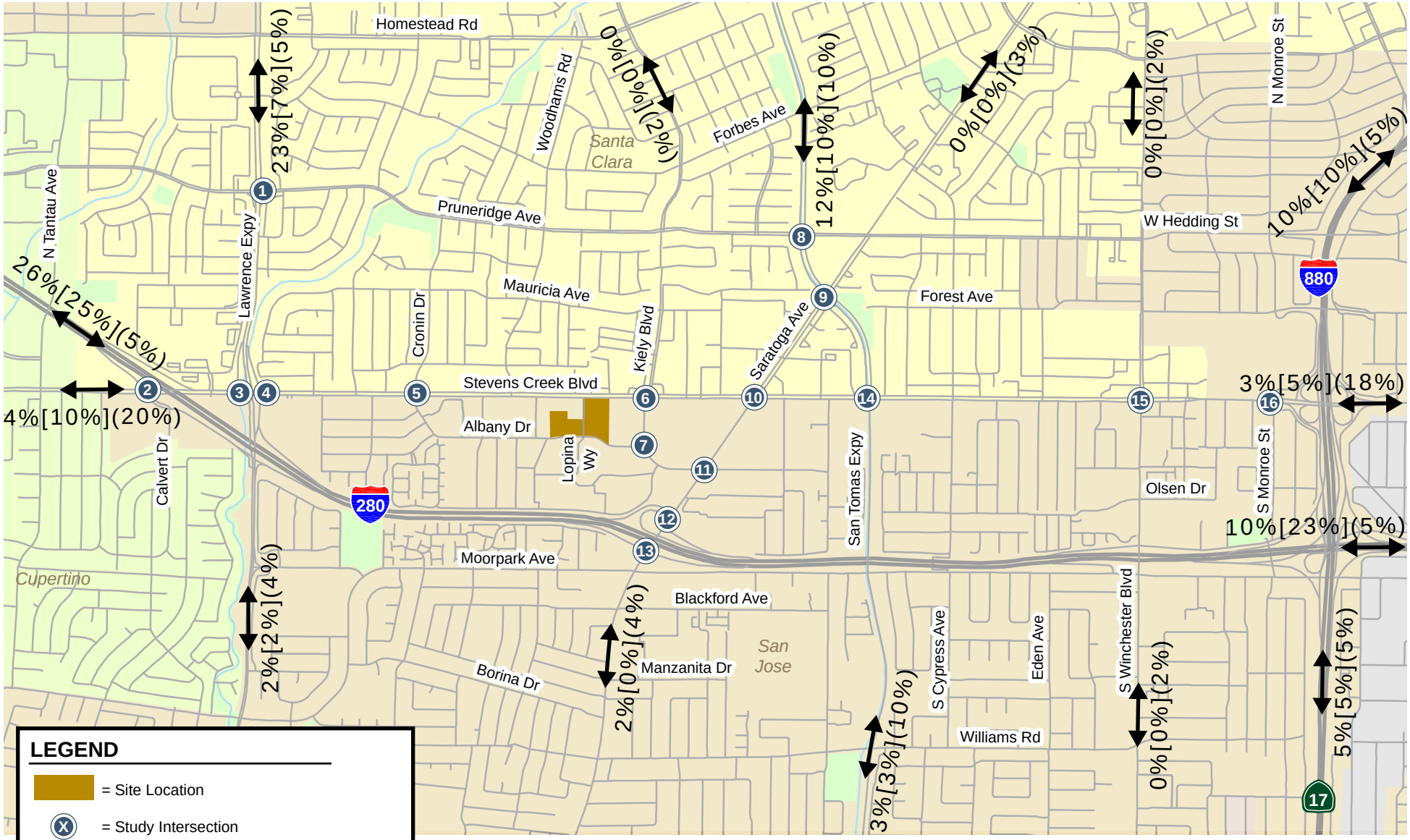


Figure 7
Project Trip Distribution - Residential, Hotel, and Retail

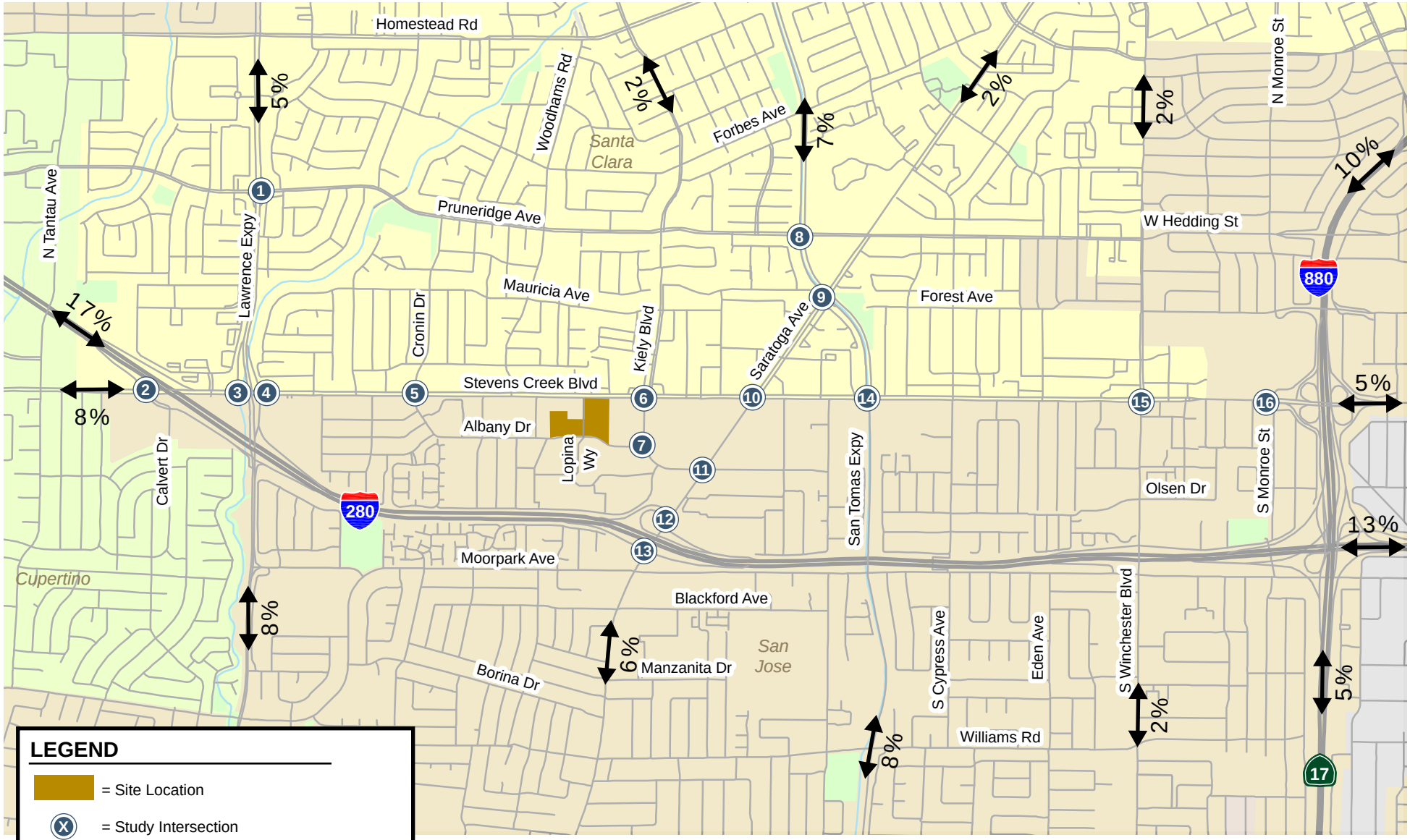


Figure 8
Existing Office Trip Distribution

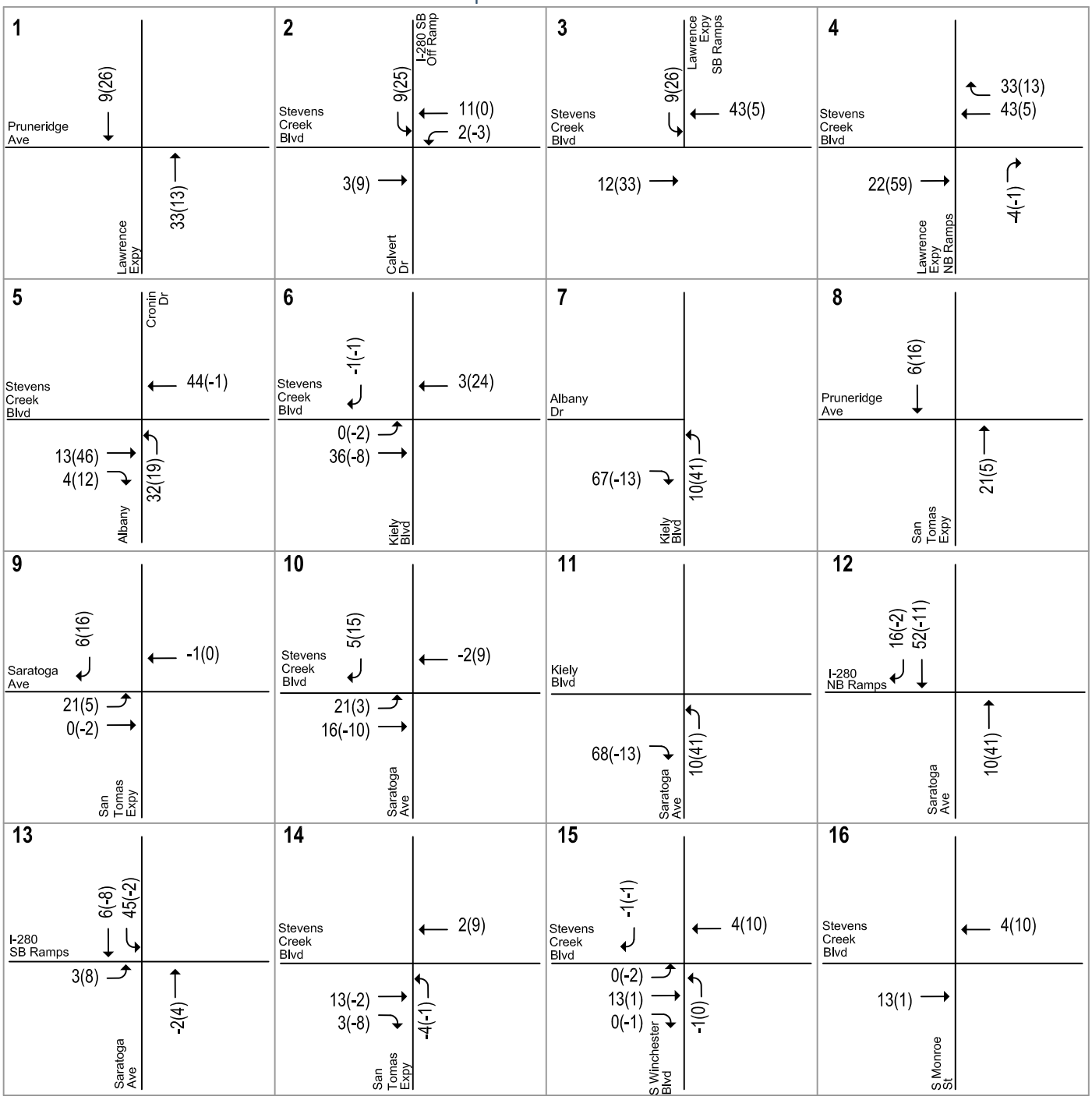


Figure 9
Project Trip Assignment

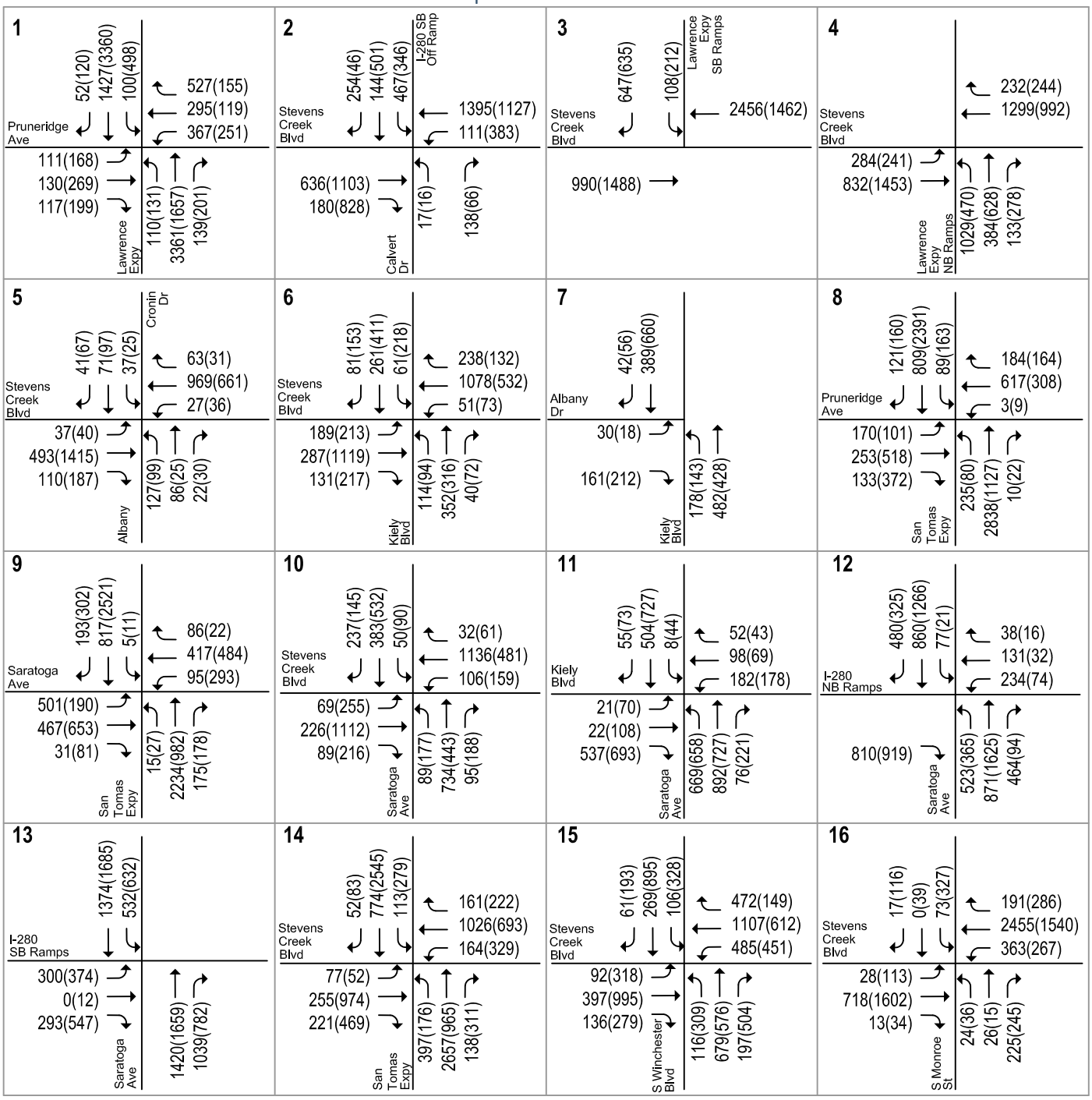


Figure 10
Existing Traffic Volumes

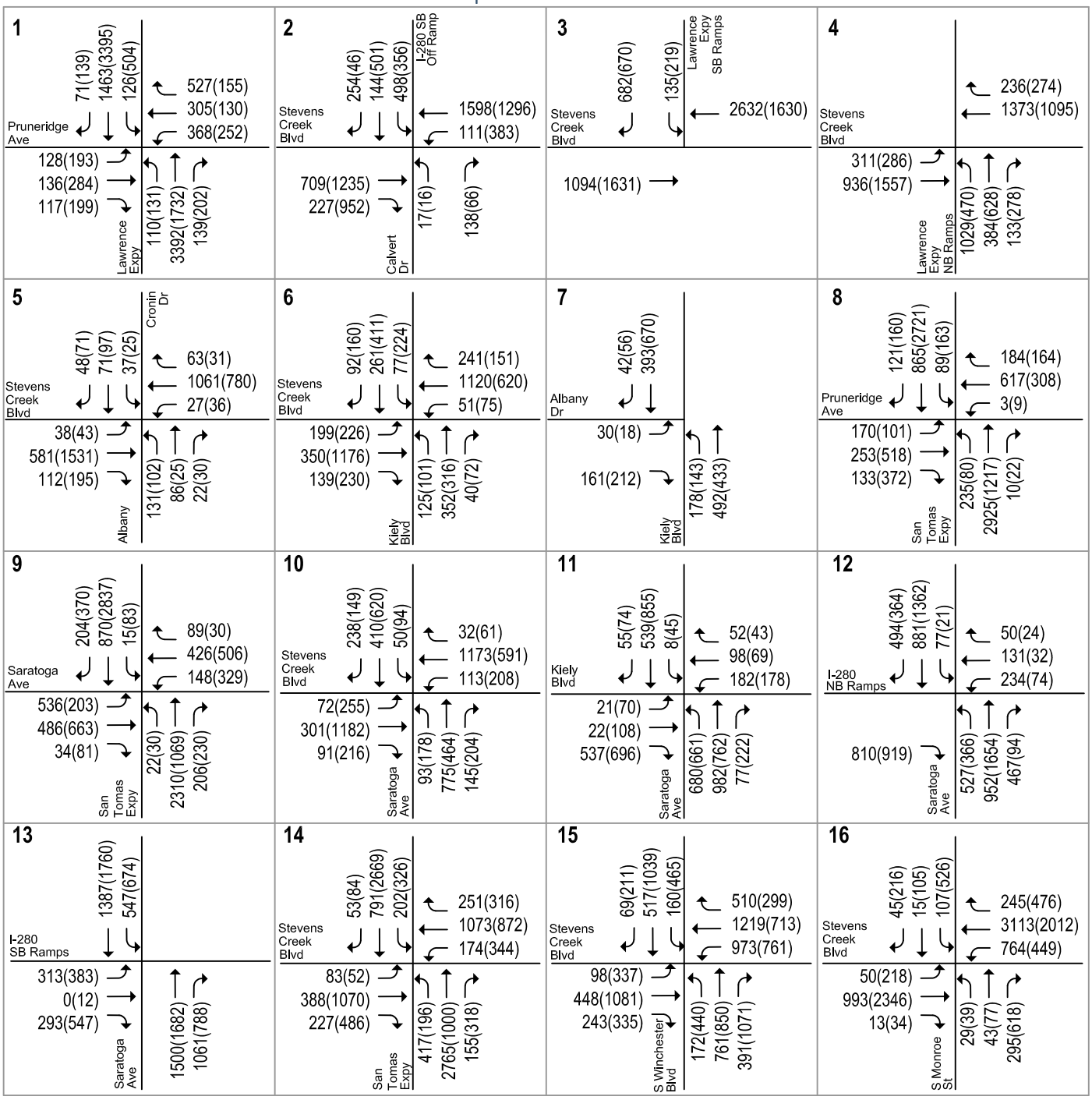


Figure 11
Background Traffic Volumes

NORTH
Not to Scale

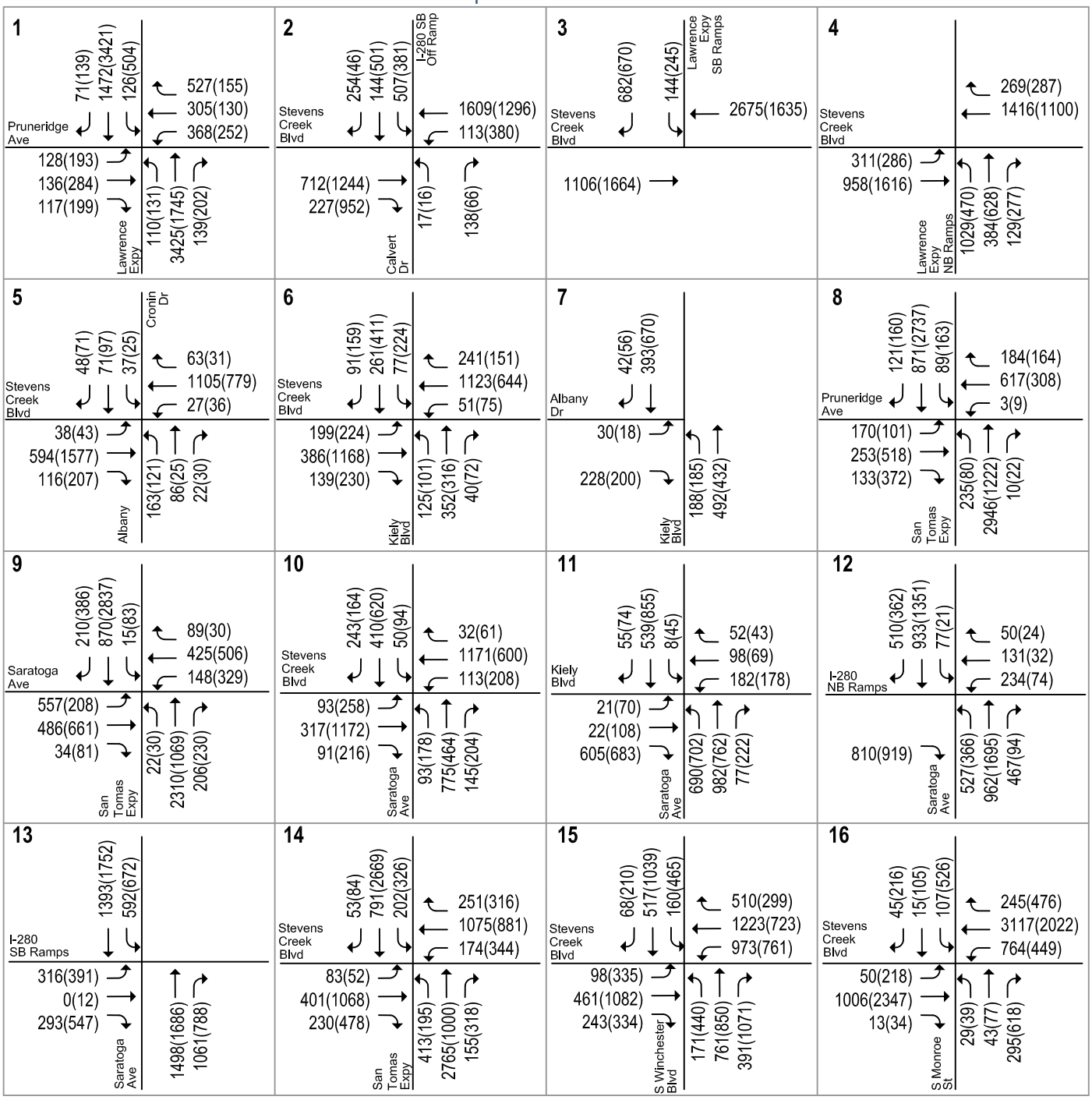


Figure 12
Background Plus Project Traffic Volumes

Table 6
Intersection Level of Service Summary

	Intersection	LOS Standard	Peak Hour	Count Date	Existing Avg. Delay (sec)	Existing LOS	Background No Project Avg. Delay (sec)	Background No Project LOS	Background with Project Avg. Delay (sec)	Background with Project LOS	Critical Delay (sec)	Incr. in Critical V/C
1	Lawrence Expressway and Pruneridge Ave	E	AM	01/11/18	48.4	D	49.0	D	49.5	D	0.9	0.005
			PM	01/11/18	38.0	D	38.6	D	38.7	D	0.0	0.002
2	I-280 SB Off Ramp and Stevens Creek Blvd*	E	AM	01/11/18	37.4	D	32.0	C	32.1	C	0.1	0.005
			PM	11/15/18	33.2	C	43.3	D	44.2	D	1.6	0.004
3	Lawrence Expy SB and Stevens Creek Blvd*	E	AM	01/17/18	28.9	C	31.2	C	31.5	C	0.5	0.008
			PM	11/15/18	26.1	C	26.5	C	26.5	C	0.0	0.001
4	Lawrence Expy NB and Stevens Creek Blvd*	E	AM	01/17/18	29.3	C	29.5	C	29.4	C	0.1	0.008
			PM	11/15/18	24.9	C	25.1	C	25.0	C	0.0	0.001
5	Albany Dr and Stevens Creek Blvd	D	AM	01/17/18	24.8	C	24.5	C	25.5	C	1.3	0.029
			PM	01/17/18	20.6	C	20.9	C	21.1	C	0.1	0.011
6	Kiely Blvd and Stevens Creek Blvd*	D[1]	AM	01/31/19	37.5	D	37.7	D	37.6	D	0.0	0.000
			PM	11/15/18	38.4	D	38.5	D	38.5	D	0.0	-0.002
8	San Tomas Expy and Pruneridge Ave	D	AM	01/23/19	**85.8**	**F**	**91.8**	**F**	**93.4**	**F**	2.4	0.005
			PM	02/28/19	44.2	D	46.6	D	46.8	D	0.2	0.004
9	San Tomas Expy and Saratoga Ave*	E	AM	09/04/19	51.6	D	55.3	E	56.1	E	1.3	0.007
			PM	11/15/18	50.5	D	55.5	E	55.4	E	-0.1	-0.001
10	Saratoga Ave and Stevens Creek Blvd*	D[1]	AM	01/23/19	33.1	C	33.1	C	33.8	C	1.2	0.013
			PM	11/15/18	38.3	D	39.8	D	39.8	D	0.0	-0.002
11	Saratoga Ave and Kiely Blvd*	D[1]	AM	01/23/19	36.8	D	36.5	D	38.3	D	1.0	0.042
			PM	11/15/18	42.7	D	43.4	D	42.5	D	-0.9	-0.008
12	Saratoga Ave and I-280 NB Ramps*	E	AM	10/07/21	31.3	C	31.0	C	30.8	C	0.1	0.010
			PM	10/07/21	17.5	B	18.4	B	18.3	B	0.1	-0.002
13	Saratoga Ave and I-280 SB Ramps*	E	AM	10/07/21	35.0	C	36.8	D	39.1	D	4.1	0.016
			PM	10/07/21	49.0	D	52.0	D	52.5	D	0.5	0.002
14	San Tomas Expy and Stevens Creek Blvd*	E	AM	01/23/19	57.5	E	67.0	E	66.9	E	0.0	0.002
			PM	11/15/18	56.9	E	60.6	E	60.4	E	0.0	0.000
15	Winchester Blvd and Stevens Creek Blvd*	D[1]	AM	01/23/19	33.2	C	36.2	D	36.2	D	0.2	0.003
			PM	12/13/18	46.7	D	**86.5**	**F**	**86.5**	**F**	0.1	0.000
16	Monroe St and Stevens Creek Blvd	D	AM	05/10/18	17.6	B	21.6	C	21.7	C	0.0	0.001
			PM	05/10/18	29.8	C	**62.1**	**E**	**62.2**	**E**	0.1	0.000

Note:
* Denotes the CMP designated Intersection
Bold indicates a substandard level of service
1. The CMP intersection is within San Jose's Infill Opportunity Zone (IOZ) and is subject to City standards.

There are several signalized intersections for which the average delay under project conditions is shown to be less than under no project conditions during at least one peak hour. The decrease in average delay can be less under project conditions because the intersection delay is a weighted average of all intersection movements. The addition of project traffic to movements with delays lower than the average intersection delay can reduce the average delay for the entire intersection.

Unsignalized Intersection Traffic Operations

The Kiely Boulevard/Albany Drive intersection is a T-intersection and is stop controlled on Albany Drive (eastbound movement) with a center turn lane on Kiely Boulevard that provides opportunities for the eastbound left-turn traffic to make two-stage turns. During the AM and PM peak hours, Albany Drive is estimated to operate adequately (equivalent to LOS B) under existing and background conditions, and the added project trips would slightly increase the delay for the eastbound approach but is not expected to cause a noticeable effect on traffic operations at this intersection.

In conjunction with the traffic operations analysis, a signal warrant analysis was performed to determine if the unsignalized intersection of Kiely Boulevard/Albany Drive would warrant traffic signals. Unsignalized study intersections are analyzed on the basis of the Peak-Hour Volume Signal Warrant, (Warrant #3 – Part B) described in the California *Manual on Uniform Traffic Control Devices* (MUTCD), 2014 Edition. This method provides an indication whether peak-hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Additional analysis may include unsignalized intersection level of service analysis and/or operational analysis such as evaluating vehicle queuing and delay. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions.

The results of the peak-hour signal warrant checks indicate that the PM peak-hour volumes at the intersection warrant signalization under all scenarios, both with and without the project traffic. The AM peak-hour volumes warrant signalization under background plus project conditions. The peak-hour signal warrant sheets are contained in Appendix F. However, due to the short distance to the traffic signal at the Kiely Boulevard/Norwalk Drive intersection, installation of a new signal could affect through movement progression on Kiely Boulevard and may potentially cause additional congestion. Additionally, the upstream and downstream signal-controlled intersections on Kiely Boulevard allow the eastbound traffic to find gaps in traffic to make a left or right turn from Albany Drive onto Kiely Boulevard. Therefore, a signal is not recommended.

Interstate 280/Winchester Boulevard Transportation Development Policy (TDP)

The I-280/Winchester Boulevard interchange area TDP provides for additional capacity in the immediate area of the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges. The TDP was completed for the purpose of managing existing traffic congestion in the I-880/Stevens Creek and I-280/Winchester interchange areas as well as provide additional traffic capacity to accommodate future developments in the area. The I-880/ Stevens Creek and I-280/Winchester interchanges serve as the primary access points to regional freeway facilities in the area. As such, the Stevens Creek Boulevard and Winchester Boulevard corridors that serve the I-880/Stevens Creek and I-280/Winchester interchanges currently experience traffic congestion during the peak commute hours.

The TDP will provide partial funding, via a traffic fee imposed on proposed developments, for the implementation of a new westbound off-ramp from I-280 to Winchester Boulevard to reduce traffic congestion at the I-880/Stevens Creek Boulevard and Stevens Creek Boulevard corridors. A schedule for completion of the new westbound off-ramp from I-280 to Winchester Boulevard has yet to be determined. The traffic fee will be based on the estimated trips to be added to the new westbound off-ramp from I-280 to Winchester Boulevard by each individual development.

The project is 1.5 miles away from Winchester Boulevard, and the I-280/Saratoga Avenue interchange provides access to the site within 0.5 mile. Therefore, it is expected that the majority of project traffic traveling on I-280, I-880 and SR 17 would access the site directly via the I-280/Saratoga Avenue interchange with a small amount of traffic using the I-880/Stevens Creek Boulevard interchange (8 AM and 5 PM peak-hour trips). However, the TDP would potentially relieve traffic congestion at the Saratoga Avenue/I-280 interchange.

Intersection Queuing Analysis

The analysis of intersection operations was supplemented with a vehicle queuing analysis for intersections where the project would add a substantial number of trips to the left-turn movements or stop-controlled movements. This analysis provides a basis for estimating future storage requirements at the intersections under existing, background, and project conditions. Vehicle queues were estimated using a Poisson probability distribution, described in Chapter 1. The following left-turn movements were evaluated, and the results of the queueing analysis are summarized in Table 7:

- Southbound I-280 Off-Ramp left turn to Stevens Creek Boulevard
- Southbound Lawrence Expressway Boulevard left turn to Stevens Creek Boulevard
- Northbound Kiely Boulevard left turn to Albany Drive
- Eastbound Saratoga Avenue left turn to San Tomas Expressway
- Northbound Saratoga Avenue left turn to Kiely Boulevard
- Southbound Saratoga Avenue left turn to I-280 Southbound On-Ramp
- Eastbound Stevens Creek Boulevard left turn to Saratoga Avenue

The queuing analysis indicates that the following intersections would have queuing deficiencies caused or exacerbated by the project:

- Northbound Saratoga Avenue left turn to westbound Kiely Boulevard (AM and PM peak hours)
- Eastbound Stevens Creek Boulevard left turn to northbound Saratoga Avenue (PM peak hour)

The queueing analysis indicates that the existing eastbound left turn movement from Saratoga Avenue to San Tomas Expressway exceeds the storage length during the AM peak hour, but the project is not expected to further increase the 95th percentile queue.

The southbound left-turn lanes on Saratoga Avenue to the I-280 SB On-Ramp extend from the intersection to the I-280 NB Ramp intersection. In addition, at the Saratoga Avenue/I-280 NB Ramp intersection, one of the southbound through lanes is designated for I-280 southbound traffic. The total left-turn storage capacity is about 1,125 linear feet (or 45 vehicles), which is greater than the 95th percentile vehicle queue estimated for all study scenarios. Therefore, the added project trips are not expected to result in insufficient left-turn storage.

Northbound Left Turn from Saratoga Avenue to Kiely Boulevard

The provided vehicle storage capacity for two northbound left-turn lanes on Saratoga Avenue to Kiely Boulevard is approximately 13 vehicles (325 feet) per lane. Previous field observations showed that the vehicle queues occasionally exceeded the storage length by one to two vehicles. The estimated 95th percentile vehicle queues for the northbound left-turn movement are approximately 16 vehicles per lane during the AM and PM peak hours under existing and background conditions, which exceed the storage length by three vehicles per lane. The addition of project traffic would only lengthen the projected vehicle queues by one vehicle per lane, causing the 95th percentile left-turn queues to exceed the storage length by four vehicles per lane.

Table 7
Intersection Queuing Analysis Summary

	I-280 SB Off-Ramp & Stevens Creek		Lawrence Creek Blvd SB & Stevens Creek		Kiely Blvd & Albany Dr		San Tomas Expy & Saratoga Ave		Saratoga Ave & Kiely Blvd		Saratoga Ave & I-280 SB On Ramp		Saratoga Ave & Stevens Creek	
	SBL		SBL		NBL		EBL		NBL		SBL[4]		EBL	
Analysis Scenario	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Existing														
Cycle/Delay[1] (sec)	130	100	135	120	9	10	190	189	170	170	170	170	130	130
Volume (vph)	467	346	108	212	178	143	501	190	669	658	532	632	69	255
Number of lanes	2	2	1	1	1	1	2	2	2	2	1	1	1	1
Volume (vphpl)	234	173	108	212	178	143	251	95	335	329	532	632	69	255
95th %. Queue (veh/ln)	13	9	8	12	2	2	19	9	16	16	34	39	5	14
95th %. Queue[2] (ft/ln)	325	225	200	300	50	50	475	225	400	400	850	975	125	350
Storage (ft/ln)	700	700	400	400	125	125	300	300	325	325	1125	1125	325	325
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	**N**	Y	**N**	**N**	Y	Y	Y	**N**
Background														
Cycle/Delay[1] (sec)	130	100	135	120	8.9	10	190	189	170	170	170	170	130	130
Volume (vph)	498	356	135	219	178	143	536	203	680	661	547	674	72	255
Number of lanes	2	2	1	1	1	1	2	2	2	2	1	1	1	1
Volume (vphpl)	249	178	135	219	178	143	268	102	340	331	547	674	72	255
95th %. Queue (veh/ln)	14	9	9	12	2	2	21	9	16	16	34	41	5	14
95th %. Queue[2] (ft/ln)	350	225	225	300	50	50	525	225	400	400	850	1025	125	350
Storage (ft/ln)	700	700	400	400	125	125	300	300	325	325	1125	1125	325	325
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	**N**	Y	**N**	**N**	Y	Y	Y	**N**
Background Plus Project														
Cycle/Delay[1] (sec)	130	100	135	120	9	10.2	190	189	170	170	170	170	130	130
Volume (vph)	507	381	144	245	188	185	557	208	690	702	592	672	93	258
Number of lanes	2	2	1	1	1	1	2	2	2	2	1	1	1	1
Volume (vphpl)	254	191	144	245	188	185	279	104	345	351	592	672	93	258
95th %. Queue (veh/ln)	14	9	9	13	2	2	21	10	17	17	37	41	7	15
95th %. Queue[2] (ft/ln)	350	225	225	325	50	50	525	250	425	425	925	1025	175	375
Storage (ft/ln)	700	700	400	400	125	125	300	300	325	325	1125	1125	325	325
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	**N**	Y	**N**	**N**	Y	Y	Y	**N**

Notes:

NBL = northbound left-turn movement; NBT = northbound through movement; NBR = northbound right-turn movement; SBL = southbound left-turn movement; SBT = southbound through movement; EBL = eastbound left-turn movement; EBT = eastbound through movement; EBR = eastbound right-turn movement

[1] Cycle length used for signalized intersections, delay of movement used for unsignalized intersections

[2] Assumes 25 feet per vehicle queued.

[3] Length between intersection and closest intersection/driveway shown.

[4] Total storage length of movement shown.

Because the second left-turn lane continues from a through lane at the upstream intersection, it is likely that many drivers are familiar with the configuration and would not be in that lane to continue through the Saratoga Avenue and Kiely Boulevard intersection. There are two lanes to continue through the intersection, and therefore, through traffic is not expected to be negatively affected by the addition of one vehicle to the current maximum queue.

Eastbound Left Turn from Stevens Creek Boulevard to Saratoga Avenue

The eastbound left-turn lane has a storage capacity of 13 vehicles (325 feet). The queuing analysis indicates that in the PM peak hour, the estimated 95th percentile left-turn vehicle queue exceeds the vehicle storage capacity by one vehicle under existing and background conditions. The project trips would increase the maximum vehicle queue by just one vehicle. Lengthening this turn pocket to accommodate the estimated maximum vehicle queue length is not a feasible option because of the median break provided for Buckingham Drive. There are three travel lanes provided for the eastbound through traffic on Stevens Creek Boulevard. Therefore, although the maximum left-turn queue would occasionally exceed the turn pocket storage, it is not expected to hinder the eastbound traffic flow.

Freeway Segment Capacity Evaluation

Traffic volumes on the study freeway segments with the project were estimated by adding project trips to the freeway segment volumes obtained from the 2018 CMP Annual Monitoring Report. The results of the freeway segment analysis show that the project trips represent less than one percent of capacity to freeway segments on I-280 in the project vicinity (See Table 8). Thus, the project would not have an adverse effect on the traffic operations on nearby freeway segments.

Freeway Ramp Operations Analysis

An analysis of freeway ramps providing access to I-280 from the project site was performed to identify the effects of project traffic on the vehicle queues and wait times at the metered ramps. It should be noted that the evaluation of freeway ramps is not required based on the County's or City's TIA guidelines. Nor are there adopted methodologies and impact criteria for the analysis of freeway ramps.

The I-280/Saratoga Avenue and I-280/Stevens Creek Boulevard interchanges provide access to I-280 from the project site. Prior to Covid-19, the I-280 northbound on-ramp at Saratoga Avenue was metered during the AM commute period, the I-280 southbound on-ramp was metered during the PM commute period, and the I-280 northbound on-ramp at Stevens Creek Boulevard was metered during the AM commute period. However, due to Covid-19, the ramp meters are turned off during the peak hours. Ramp operations at the interchange were evaluated based on previous field observations and vehicle queue lengths and metering rates measured in the field during the AM and PM peak hours of traffic (see Table 9). Wait times (the time it took a vehicle at the end of the queue to proceed through the meter) at the metered on-ramps were derived from the collected data.

I-280 Northbound On-Ramp from Saratoga Avenue

The northbound on-ramp has two lanes and is about 750 feet long between the meters and Saratoga Avenue, which can accommodate about 30 vehicles per lane. The existing vehicle queue length was about 24 vehicles per lane with the metering rate at about 2.8 seconds per vehicle (or 1,286 vehicles per hour) during the AM peak hour.

Table 8
Freeway Segment Analysis

Freeway Segment		Dir	Peak Hour	Existing Conditions: Mixed-Flow # of Lanes[1]	Capacity[2]	LOS[3]	HOV Lane # of Lanes[1]	Capacity[2]	LOS[3]	Project Trips: Mixed-Flow Project Trips	% of Capacity
I-280	Wolfe Rd to Lawrence Expwy	EB	AM	3	6,900	D	1	1,650	B	12	0.2%
			PM	3	6,900	**F**	1	1,650	D	32	0.5%
I-280	Lawrence Expwy to Saratoga Ave	EB	AM	3	6,900	C	1	1,650	B	3	0.0%
			PM	3	6,900	**F**	1	1,650	E	8	0.1%
I-280	Saratoga Ave to Winchester Blvd	EB	AM	3	6,900	D	1	1,650	B	45	0.7%
			PM	3	6,900	**F**	1	1,650	**F**	-2	0.0%
I-280	Winchester Blvd to I-880	EB	AM	3	6,900	D	1	1,650	B	45	0.7%
			PM	3	6,900	**F**	1	1,650	**F**	-2	0.0%
I-280	I-880 to Meridian Ave	EB	AM	3	6,900	D	1	1,650	B	21	0.3%
			PM	3	6,900	**F**	1	1,650	**F**	-8	-0.1%
I-280	Meridian Ave to I-880	WB	AM	3	6,900	**F**	1	1,650	**F**	1	0.0%
			PM	3	6,900	D	1	1,650	A	12	0.2%
I-280	I-880 to Winchester Blvd	WB	AM	3	6,900	**F**	1	1,650	**F**	9	0.1%
			PM	3	6,900	E	1	1,650	C	30	0.4%
I-280	Winchester Blvd to Saratoga Ave	WB	AM	3	6,900	**F**	1	1,650	**F**	9	0.1%
			PM	3	6,900	E	1	1,650	B	30	0.4%
I-280	Saratoga Ave to Lawrence Expwy	WB	AM	3	6,900	**F**	1	1,650	**F**	16	0.2%
			PM	3	6,900	D	1	1,650	B	-2	0.0%
I-280	Lawrence Expwy to Wolfe Rd	WB	AM	3	6,900	**F**	1	1,650	**F**	46	0.7%
			PM	3	6,900	D	1	1,650	B	7	0.1%

Notes:
HOV = high-occupancy vehicle; LOS = level of service.
1. Number of lanes on each segment are taken from the Google Earth software.
2. Capacity is based on the capacities cited in VTA's *Transportation Impact Analysis Guidelines* (2014).
3. Level of service (LOS) of each segment are taken from VTA's *2018 CMP Monitoring Report*.
Bold indicates a substandard level of service.

The projected AM peak-hour vehicles entering the ramp are 1,152 vehicles and 1,168 vehicles under background and background plus project conditions. A ratio between the existing on-ramp volumes and the background and background plus project condition volumes was used to estimate the number of vehicles that would be added to the existing queue under background and background plus project conditions. Based on this analysis, it was determined that although the ramp would operate close to its capacity under project conditions, the addition of project traffic to the on-ramp would equate to a 1% increase in volume during the AM peak hour and would not result in a noticeable increase in vehicle queue length and wait time at the ramp.

The existing vehicle storage on the on-ramp is adequate to serve the existing maximum vehicle queues that develop due to ramp metering and would continue to adequately serve the estimated maximum vehicle queues that would develop with the addition of project-generated traffic. Therefore, the project is not expected to noticeably worsen conditions at the northbound I-280 on-ramp during the AM peak hour.

I-280 Southbound On-Ramp from Saratoga Avenue

The southbound on-ramp has two lanes and is about 700 feet long between the meters and Saratoga Avenue, which can accommodate about 28 vehicles per lane. The existing vehicular queues were about 24 vehicles per lane with the metering rate at about 2.5 seconds per vehicle (or 1,440 vehicles per hour) during the PM peak period.

The projected PM peak-hour vehicles entering the ramp are 1,474 vehicles under background and background plus project conditions, as the project is not expected add any new trips to the ramp after applying the existing trip credits. Therefore, the project would not result in an increase in vehicle queue length and wait time at the ramp, and the project is not expected to worsen conditions at the southbound I-280 on-ramp during the PM peak hour.

I-280 Northbound On-Ramp from Stevens Creek Boulevard

The northbound on-ramp has two lanes and is about 950 feet long between the meters and Stevens Creek Boulevard, which can accommodate about 38 vehicles per lane. The existing vehicle queue length was about 14 vehicles with the metering rate at about 3.6 seconds per vehicle during the AM peak hour. Therefore, the vehicle queues were well contained within the on-ramp.

The project is expected to add 30 trips during the AM peak hour, which is approximately 120 seconds per vehicle. Based on the observed metering rate of 3.6 seconds per vehicle, the project is not expected to result in a noticeable increase in vehicle queue. Therefore, the project is not expected to noticeably worsen operational conditions at the northbound I-280 on-ramp during the AM peak hour.

I-280 Northbound Off-Ramp to Northbound Saratoga Avenue

The northbound off-ramp is indirectly controlled by the traffic signal at the Saratoga Avenue/I-280 northbound on-ramp intersection. The off-ramp turns into a northbound lane at the intersection. A vehicle queue builds up on the off-ramp when there is a red light for northbound Saratoga Avenue; however, the queue is well contained within the ramp and dissipates shortly after the signal turns green. The project would add 4 AM and 24 PM peak-hour trips to the ramp. Because the vehicle queue is well contained on the off-ramp and clears within one signal cycle, the project is not expected to result in a noticeable increase in vehicle queuing or delay at the off-ramp.

I-280 Southbound Off-Ramp to Saratoga Avenue

The southbound off-ramp intersects with Saratoga Avenue at a signalized intersection. During the AM commute period, although the northbound vehicle queues occasionally backup from the downstream intersection (the northbound on-ramp), the left-turn traffic on the off-ramp is usually able to make turns within one signal cycle. The project would add 3 AM and 8 PM peak-hour left-turn trips to the ramp. Because the vehicle queue clears within one signal cycle, the project is not expected to result in a noticeable increase in vehicle queuing or delay at the off-ramp.

I-280 Southbound Off-Ramp to Stevens Creek Boulevard

The southbound off-ramp intersects with Stevens Creek Boulevard at a signalized intersection. Based on the vehicle queuing analysis (see Table 7), the existing queue and the expected background queue are well contained within the off-ramp. The project would add 9 AM and 25 PM peak-hour left-turn trips to the ramp. The project is not expected to result in a noticeable increase in vehicle queuing or delay at the off-ramp.

Effect of Lopina Way Relocation

The project would relocate the existing Lopina Way to the eastern project boundary with a new two-lane street (the relocated Lopina Way) extended between Stevens Creek Boulevard and Albany Drive. The new Lopina Way/Albany Drive intersection would be directly across from the driveway serving the apartment complex to the south. Northbound traffic on the relocated Lopina Way would still be able to make either a left or right turn onto Stevens Creek Boulevard.

Table 9
Freeway Ramp Operations Analysis

Freeway Ramp	Peak Hour	On-Ramp Storage (veh/ln)	Existing[1]				Background			Background Plus Project				
			Volume	Metering Rate (sec/veh)	Queue Length (veh/ln)	Wait Time[2] (sec)	Volume	Queue Length[3] (veh/ln)	Wait Time[2] (sec)	Project Trips	Volume	% Increase[4]	Queue Length[3] (veh/ln)	Wait Time[2] (sec)
I-280 Northbound On-Ramp from Saratoga Avenue	AM	30	1,134	2.8	24	68	1,152	24	68	16	1,168	1%	25	71
I-280 Southbound On-Ramp from Saratoga Avenue	PM	28	1,426	2.5	24	60	1,474	25	63	0	1,474	0%	25	63

Notes:
1. Existing queue length in vehicle per lane in the queue and existing metering rate in second per vehicle passing the meter were measured during the AM and PM peak hours in November 2019.
2. Wait time was estimated based on the queue length and measured metering rate.
3. Queue lengths for background and background plus project conditions were estimated based on the ratio of background volume to existing volume and the ratio of background plus project volume to existing volume.
4. Percent increase was calculated from background to background plus project conditions.

The existing Lopina Way runs through the project site. It serves the commercial uses on the street and connects the residential uses to the south of the project site on Albany Drive to Stevens Creek Boulevard. It is expected that with the Lopina Way relocation, some of the existing through traffic would continue to use the new Lopina Way and some would divert to Palace Drive. The analysis evaluated traffic operations on Palace Drive at Albany Drive and Stevens Creek Boulevard intersections with the diverted traffic and traffic operations on the relocated Lopina Way at Albany Drive and Stevens Creek Boulevard intersections with the diverted and project traffic. Additionally, the street parking demand on Lopina Way was evaluated to determine whether street parking should be allowed on the new Lopina Way. Due to Covid-19, the analysis is based on the traffic counts collected on Lopina Way and Palace Drive in 2016 and 2017 for a previous project at the project site (included in Appendix A).

Diverted Traffic

The through traffic on Lopina Way that would be diverted to Palace Drive was estimated using the peak-hour driveway counts at existing driveways on Lopina Way and the peak-hour intersection counts on Lopina Way at Stevens Creek Boulevard and at Albany Drive. The driveway counts were subtracted from the Lopina Way traffic volumes to derive the through traffic on Lopina Way during AM and PM peak hours. The two-way traffic volumes on Lopina Way were 91 and 137 vehicles based on the counts at Albany Drive and Stevens Creek Boulevard, respectively, in the AM peak hour. The two-way traffic volumes on Lopina Way were and 124 and 170 vehicles at Albany Drive and Stevens Creek Boulevard, respectively, in the PM peak hour. The driveway counts were 81 and 129 vehicles in the AM and PM peak hours, respectively. Therefore, the through traffic was estimated to be 74 and 83 vehicles[1] in the AM and PM peak hours, respectively.

It is expected that the through traffic traveling to the west on Stevens Creek Boulevard and Albany Drive would use Palace Drive, and the remaining through traffic would use the new Lopina Way. Because the existing amount of traffic on Lopina Way is small, the amount of traffic diverted to each street also would be small. Figure 13 shows the estimated diverted traffic and background plus project traffic on Palace Drive and the new Lopina Way during AM and PM peak hours.

Traffic Operations on Palace Drive and Relocated Lopina Way

Traffic operations on Palace Drive and the new Lopina Way with the diverted traffic and project traffic were evaluated based on vehicle queuing analysis and a peak-hour volume signal warrant analysis at their intersections with Albany Drive and Stevens Creek Boulevard. Table 10 shows the vehicle queuing analysis for movements with added diverted traffic and project traffic. The estimated 95th percentile vehicle queues under background with project conditions would be short (1-3 vehicles) at these intersections in both AM and PM peak hours and are not expected to block the nearby driveways on these streets. At the new Lopina Way/Stevens Creek Boulevard intersection, the project should provide a westbound left-turn pocket with a length of at least 50 feet, which could accommodate the estimated 95th percentile queue of one vehicle during the AM and PM peak hours.

The results of the peak-hour traffic signal warrant checks indicate that the peak-hour volumes at the relocated Lopina Way/Albany Drive intersection would not warrant signalization during either the AM or PM peak hours under background with project conditions. The peak-hour signal warrant sheets are contained in Appendix F.

Recommendation: The project should provide a westbound left-turn pocket with a length of at least 50 feet along Stevens Creek Boulevard at the new Lopina Way.

[1] Through traffic in the AM peak hour = (137 + 91 – 81) / 2. Through traffic in the PM peak hour = (170 + 124 – 129) / 2.

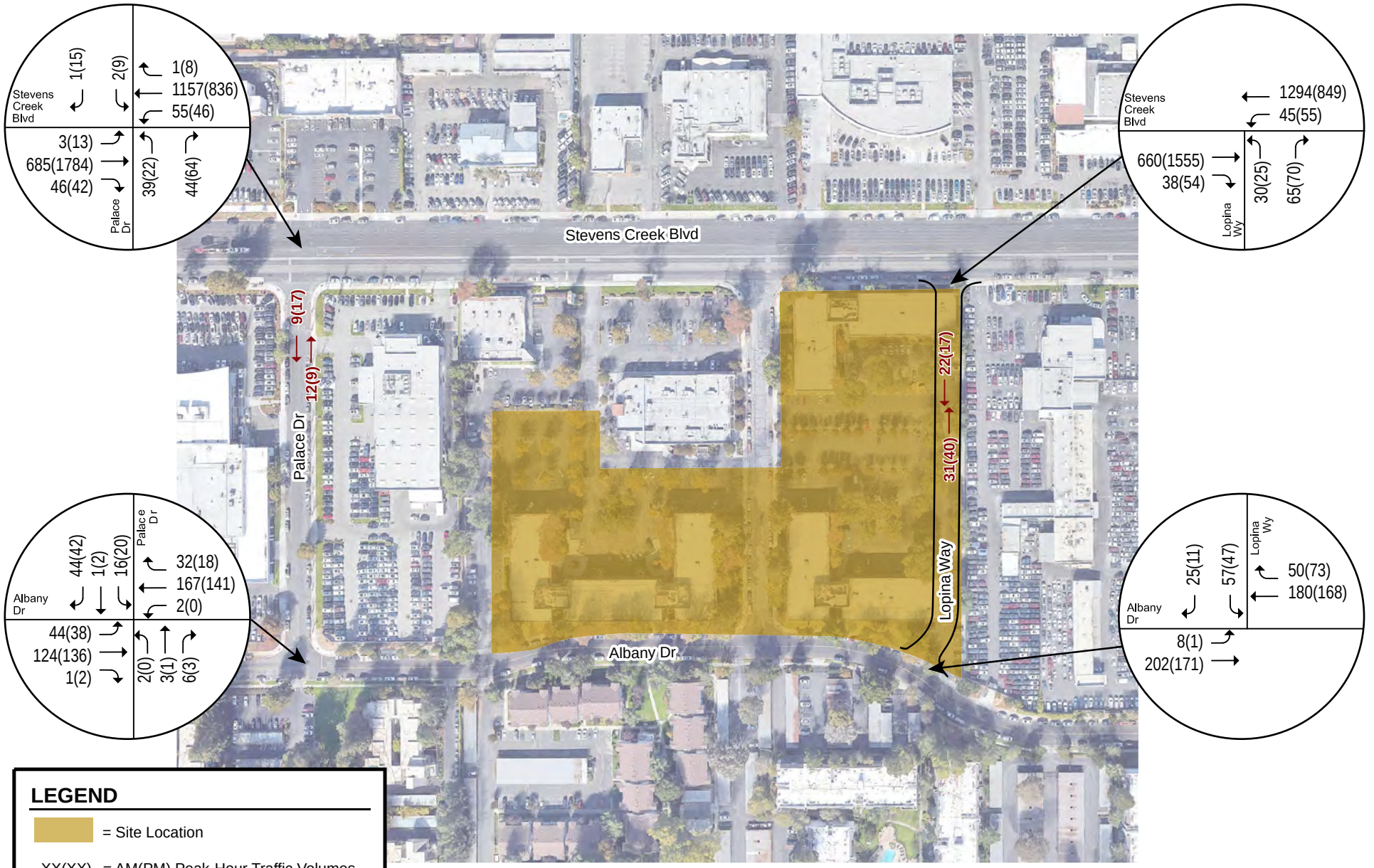


Figure 13
Diverted and Background Plus Project Traffic on Palace Drive and Relocated Lopina Way

Table 10
Vehicle Queuing Analysis at Intersections on Palace Drive and Relocated Lopina Way

Intersection	Relocated Lopina/ Stevens Creek				Relocated Lopina/ Albany		Palace/ Stevens Creek		Palace/ Albany			
Movement	WB LT	WB LT	NB	NB	SB	SB	NB	NB	EB	EB	SB	SB
Peak Hour Period	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Background Plus Project												
Delay (sec)	9.2	15.1	12.5	22.3	11.4	11.0	14.7	37.2	8.4	8.3	7.6	7.6
Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	45	55	95	95	82	58	83	86	169	176	61	64
Volume (vphpl)	45	55	95	95	82	58	83	86	169	176	61	64
95th% Queue (veh/ln)	1	1	1	2	1	1	1	3	2	2	1	1
95th% Queue (ft/ln)	25	25	25	50	25	25	25	75	50	50	25	25
Storage (ft/ ln)	100	100	300	300	165	165	75	75	225	225	75	75
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Notes:
WB = westbound; EB = eastbound; SB = southbound; NB = northbound.
RT = right turn movement; LT = left turn movement; TH = through movement.
[1] Assumes 25 feet per vehicle queued.

Sight Distance at Relocated Lopina Way/Stevens Creek Boulevard

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 street and locate sufficient gaps in traffic. The new Lopina Way would be located along the project's eastern boundary and would create a new intersection on Stevens Creek Boulevard. The speed limit on Stevens Creek Boulevard is 40 mph. The Caltrans recommended stopping sight distance is 360 feet for the speed limit. This means that a driver on Lopina Way must be able to see 360 feet down the street to locate a sufficient gap to turn out of the street. There are no roadway curves or landscaping features on Stevens Creek Boulevard that would obstruct the vision of exiting drivers. However, street parking is allowed on Stevens Creek Boulevard and could obstruct the vision of exiting drivers if there were cars parked next the street.

Recommendation: Red curbs should be painted next to Lopina Way on Stevens Creek Boulevard ensuring a minimum of 360 feet of clear sight distance from the street.

Sight Distance at Relocated Lopina Way/Albany Drive

The new Lopina Way would intersect with Albany Drive on a horizontal curve, which could obstruct the vision of exiting drivers. There is not a posted speed limit along Albany Drive. It is presumed that the speed limit is 25 mph. The Caltrans recommended stopping sight distance is 200 feet for the speed limit. This means that a driver on Lopina Way must be able to see 200 feet down the street to locate a sufficient gap to turn out of the street. Street parking along the north side of Albany Drive and landscaping on the adjacent property could block the view of exiting drivers of approaching vehicles around the horizontal curve on Albany Drive. To ensure a minimum of 200 feet of clear sight distance from Lopina Way, the street parking along the north side of Albany Drive should be prohibited and landscaping on the adjacent property should be removed or relocated. However, the existing landscaping is not within the project's property line, and the removal of the landscape is a temporary solution if maintenance is not observed periodically. To address the sight distance issue, the project proposes to install an all-way stop at the new Lopina Way/Albany Drive intersection (see Figure 2).

Stop Sign Warrant at Relocated Lopina Way/Albany Drive

The all-way stop at the new Lopina Way/Albany Drive intersection was evaluated based on the guidance in the CA MUTCD. The applicable quantitative criteria described in the CA MUTCD for streets where the 85th percentile speed is lower than 40 mph include:

A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

B. A crash problem, as indicated by 5 or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right- and left-turn collisions as well as right-angle collisions.

C. Minimum volumes: The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day, AND the combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour.

D. Where no single criterion is satisfied, but where Criteria B and C are all satisfied to 80 percent of the minimum values.

As discussed above, the peak-hour volumes of the new Lopina Way/Albany Drive intersection do not warrant signalization; therefore, Criterion A is not satisfied. This is a new intersection with no prior collision record; therefore, Criterion B is not satisfied.

For Criterion C, 24-hour traffic counts were conducted in 2017 on the existing Lopina Way and Albany Drive adjacent to the intersection (see Appendix A) to obtain the highest 8 hours of traffic data on each street. The traffic count data on the existing Lopina Way and the project trips on the new Lopina Way were used to derive 8-hour traffic on the new Lopina Way. The minimum volume criteria were not satisfied during any single hour of a typical day (see Table 11). Therefore, Criterion C is not satisfied. For Criterion D, the 80% volume criteria were not satisfied for any single hour of a typical day, and there is no prior collision record for the new intersection. Therefore, Criterion D is not satisfied.

In summary, the intersection would not meet any of the quantitative CA MUTCD criteria for an all-way stop.

Table 11
Summary of Highest Eight Hours of Traffic Data at Relocated Lopina Way/Albany Drive

Hour Start Time	Major Street (Albany Drive)			Minor Street (Lopina Way)		
	Total Volume	Threshold	80% Threshold	Total Volume	Threshold	80% Threshold
8:00 AM	449	300	240	139	200	160
9:00 AM	429	300	240	112	200	160
1:00 PM	428	300	240	151	200	160
2:00 PM	417	300	240	106	200	160
3:00 PM	409	300	240	94	200	160
4:00 PM	483	300	240	121	200	160
5:00 PM	471	300	240	130	200	160
6:00 PM	482	300	240	113	200	160
Average	**446**			**121**		

Secondary (qualitative) criteria stated in the CA MUTCD that may be considered include:

E. The need to control left-turn conflicts;

F. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;

G. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop; and

H. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

For Criterion E, the addition of stop signs on Albany Drive are not needed to control left turn conflicts. For Criterion F, the pedestrian volumes are not high enough to justify additional stop control.

For Criterion G, as discussed above (Sight Distance at Relocated Lopina Way/Albany Drive), the new intersection would be placed on a horizontal curve on Albany Drive, which would obstruct the vision of exiting drivers on Lopina Way. The sight distance can be improved by prohibiting street parking (red curb) along the north side of Albany Drive and removing or relocating landscaping on the adjacent property. The red curb is required from the new Lopina Way for approximately 160 feet east of the new Lopina Way, which would result in the loss of 4 existing street parking spaces on Albany Drive to the east of the adjacent property's driveway. With the improvements, additional stop control on Albany Drive is not warranted. However, the project nor the city could require the adjacent property to remove or trim landscaping in such a way to ensure adequate sight distance. Therefore, Criterion G would be met.

For Criterion H, Albany Drive is clearly the major street, and the new Lopina Way is the minor Street. The subject streets are not of similar design. The traffic volumes on Albany Drive are greater than those of Lopina Way. There would be no clear improvement in the operational characteristics of the subject intersection with an all-way stop.

Installation of all-way stop control is recommended due to the following:

- Removal of the landscape is a temporary solution if maintenance is not observed periodically.
- Loss of parking along Albany Drive would be avoided with an all-way stop.
- The relocated Lopina Way would be directly across from an ingress/egress driveway serving the apartment complex to the south.
- An all-way stop at this location would be in the approximate mid-block location between the nearest intersections of Palace Drive/Albany Way (all-way stop) and Kiely Boulevard/Albany Way.

Street Parking on Lopina Way

Currently street parking is provided on both sides of Lopina Way. The site plan shows the new Lopina Way would be 34 feet wide with a 12-foot sidewalk on the west side and a 4-foot sidewalk on the east side, but it does not indicate whether street parking would be permitted. Based on the roadway width, street parking could be provided on both sides of the Lopina Way. It was estimated that the west side of new Lopina Way could accommodate about 17 parked vehicles, which takes into account the recommended red curb segments next to the driveways, as described in the Sight Distance at Project Driveways section. The east side of new Lopina Way could accommodate about 21 parked vehicles, for a total of 38 vehicles on both sides. A parking survey conducted at midnight showed that there were 31 vehicles parking on Lopina Way. The parking supply on the street is about 38 vehicles. Because the surrounding businesses were closed at midnight, the parked vehicles are likely from residents in the residential developments on Albany Drive. The parking survey showed that street parking on Albany Drive was also highly occupied and might not be able to accommodate the lost parking on Lopina Way. Therefore, street parking would be desirable on the new Lopina Way.

Recommendation: It is recommended that street parking be provided on both sides of the new Lopina Way.

Relocated Lopina Way Intersection Improvements

The project proposes to provide a bulb-out along Lopina Way at Stevens Creek and bulb-outs at the northern corners of the Lopina Way/Albany Drive intersection. The project also proposes to provide curb ramps, adequate to ADA standards, with crosswalks across Lopina Way at both intersections.

Vehicular Site Access and On-Site Circulation

The site access and circulation evaluations are based on the site plan prepared by HMH, dated August 20, 2021 (see Figure 2 in Chapter 1). Site access was evaluated to determine the adequacy of the site's driveways with regard to the following: traffic volume, vehicle queues, geometric design, and stopping sight distance. On-site vehicular circulation and parking layout were reviewed in accordance with generally accepted traffic engineering standards and transportation planning principles.

Site Access

Vehicular access to all residential buildings would be provided via the existing full access driveway on Stevens Creek Boulevard and one new driveway on Lopina Way. The two driveways would be connected through a new internal road. The internal road would connect to driveways for the Buildings A, B, and C parking garages. Albany Drive would provide additional access to the Buildings A and B garages with one full access driveway to each building. Vehicular access to the hotel/retail building would be provided via an inbound only driveway on Lopina Way and an outbound only driveway on the internal road.

According to the City of San Jose Department of Transportation (DOT) Geometric Design Guidelines (Addendum Drawing No. R-6), the typical width for a two-way driveway that serves a residential or commercial development is 26 - 32 feet wide. This provides adequate width for vehicular ingress and egress and provides a reasonably short crossing distance for pedestrians. The Stevens Creek Boulevard driveway, Buildings A and B driveway on Albany Drive, and Building C and internal road driveways on Lopina Way are shown to be 26 feet wide, which meets City guidelines.

Vehicular access to the hotel and retail uses would be provided via one new inbound only driveway on Lopina Way and one outbound only driveway on the internal road. The typical width for a one-way driveway is 16 feet wide. These driveways would be approximately 26 feet wide, which would exceed the City's guidelines. However, because the inbound driveway would lead to the porte cochere for loading and check in for hotel guests, the 26-foot driveway would allow through vehicles to pass the loading vehicles stopped in the porte cochere (see Figure 18 under On-Site Circulation below). Because there are on-site 90-degree parking spaces near the outbound driveway, the 26-foot driveway would allow vehicles to back out of the parking spaces and exit the driveway. Therefore, it is not recommended to narrow the driveways to 16 feet.

Sight Distance at Project Driveways

The project driveways should be free and clear of any obstructions to provide adequate sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and vehicles and bicycles traveling on Stevens Creek Boulevard, Lopina Way, and Albany Drive. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site. Providing the appropriate sight distance reduces the likelihood of a collision at a driveway and provides drivers with the ability to locate sufficient gaps in traffic and exit a driveway.

The minimum acceptable sight distance is considered according to the Caltrans recommended stopping sight distance. Sight distance requirements vary depending on roadway speeds. For driveways on Albany Drive and Lopina Way, which have a posted speed limit of 25 mph, the Caltrans stopping sight distance is 200 feet (based on a design speed of 30 mph). Thus, a driver must be able to see 200 feet on both directions of Albany Drive and Lopina Way to locate a sufficient gap to turn out of the driveways. Similarly, the driveway on Stevens Creek Boulevard requires a stopping sight distance of 300 feet, based on a design speed of 40 mph.

According to the site plan, the landscape plan shows street trees would be added along the project frontage on Albany Drive, Lopina Way, and Stevens Creek Boulevard. The type and location of the street trees would be determined by the City of San Jose Public Works Department at the implementation stage. Note that street trees have a high canopy and would not obstruct the view of drivers exiting the project driveways. There are no roadway curves on Stevens Creek Boulevard or Lopina Way that would obstruct the vision of exiting drivers.

Albany Drive Driveways

On-street parking along Albany Drive could potentially block the view of exiting drivers at the Building A and B driveways if there were cars parked next the driveways. Therefore, red curbs should be painted adjacent to each driveway ensuring a minimum of 200 feet of clear sight distance from the driveways. The driveway for Building A on Albany Drive would be on a horizontal curve. The on-street parking along the north side of Albany Drive west of the driveway could block the view of exiting drivers. Therefore, to ensure a minimum of 200 feet of clear sight distance from the driveway, the street parking west of the driveway along the north side of Albany Drive should be prohibited by painting approximately 80 feet of red curb. The street parking east of the Building A driveway and next to the Building B driveway should be prohibited by painting 15 to 20 feet of red curb.

Lopina Way Driveways

The street parking along the west side of Lopina Way could potentially block the view of exiting drivers. Therefore, to ensure a minimum of 200 feet of clear sight distance from the driveway, the street parking along the west side of Lopina Way should be prohibited by painting 15 to 20 feet of red curb.

Stevens Creek Boulevard Driveway

The driveway would be approximately 30 feet west of the existing concrete pad for the VTA bus stop. Occasionally, a bus would block the exiting vehicle's sight of the westbound traffic. However, the bus would stop once every 15 minutes during the peak hours. In addition, northbound left turn vehicles from the driveway could turn into the two-way center left turn lane before merging into westbound traffic.

Recommendation: Red curb should be painted next to the project driveways on Lopina Way and Albany Drive ensuring a minimum of 200 feet of clear sight distance from the street.

Traffic Operations at Project Driveways

The gross project-generated trips that are estimated to occur at the project driveways are 105 inbound trips and 185 outbound trips during the AM peak hour, and 170 inbound trips and 121 outbound trips during the PM peak hour (see Figure 14).

Stevens Creek Boulevard Driveway

Traffic operations at the project driveways were evaluated with a vehicle queuing analysis for left-turn inbound traffic and outbound driveway traffic at the Stevens Creek Boulevard driveway (see Table 12). The analysis evaluates whether adequate left-turn storage would be provided for the project's inbound traffic and whether there would be long vehicle queues on site for the outbound traffic.

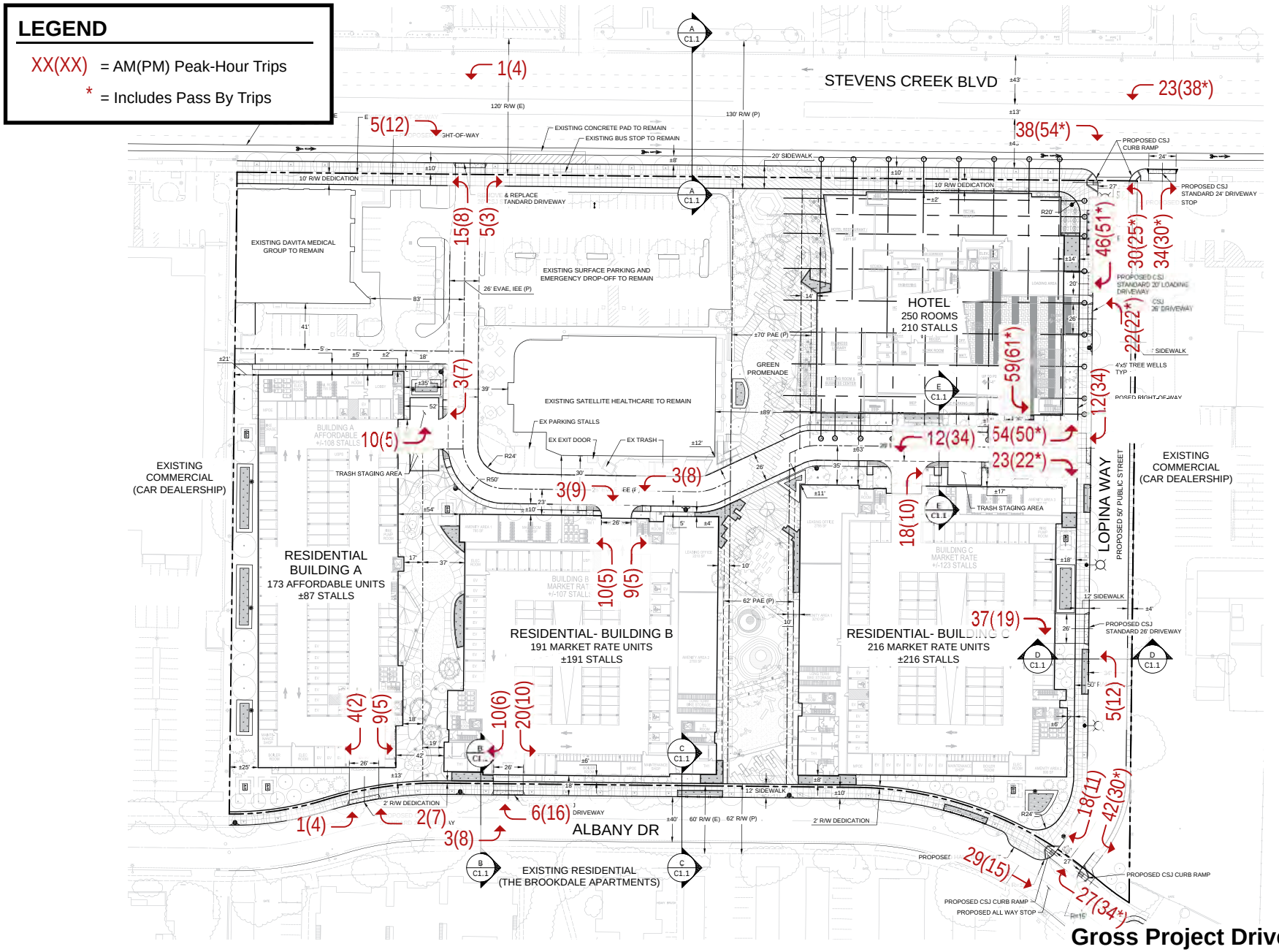


Figure 14
Gross Project Driveway Trips

Table 12
Driveway Queuing Analysis

Analysis Scenario	Stevens Creek Boulevard Driveway			
	WBL		NBL/NBR	
	AM	PM	AM	PM
Background Plus Project				
Delay (sec)	9.3	16.6	13.6	34.1
Volume (vph)	21	14	27	52
Number of lanes	1	1	1	1
Volume (vphpl)	21	14	27	52
95th %. Queue (veh/ln)	3	3	3	3
95th %. Queue[1] (ft/ln)	75	75	75	75
Storage (ft/ln)	75	75	25	25
Adequate (Y/N)	Y	Y	**N**	**N**

Notes:
NBL = northbound left-turn movement; NBR = northbound right-turn movement; WBL = westbound left-turn movement
[1] Assumes 25 feet per vehicle queued.

Due to the relocation of Lopina Way, existing trips accessing 4360 Stevens Creek Boulevard via the driveway on Lopina Way are expected to access the building via the existing driveway on Stevens Creek Boulevard. Therefore, based on the driveway counts conducted for the driveway on Lopina Way for 4360 Stevens Creek Boulevard and the driveway on Stevens Creek Boulevard for 4360 and 4400 Stevens Creek Boulevard, the existing uses at 4360 and 4400 Stevens Creek Boulevard are expected to generate 33 inbound trips and 7 outbound trips during the AM peak hour, and 16 inbound trips and 41 outbound trips during the PM peak hour at the Stevens Creek Boulevard driveway. With the existing and project trips, there would be 27 AM peak-hour and 52 PM peak-hour outbound trips at the driveway and 21 AM peak-hour and 14 PM peak-hour inbound trips making a westbound left-turn in to the driveway.

The queueing analysis shows that vehicles making a left turn into the driveway from Stevens Creek Boulevard would experience a maximum queue of approximately 3 vehicles. The queue would be contained within the two-way left-turn center lane and would not block the nearby driveway along the north side of Stevens Creek Boulevard.

For the outbound traffic, there is expected to be a maximum vehicle queue of 3 vehicles during the AM and PM peak hours. The driveway has a throat length of 40 feet between the face of curb and the drive aisle within the parking lot, which could accommodate a vehicle queue of one outbound vehicle without blocking the access to the drive aisle. Therefore, the outbound vehicle queue would occasionally block the drive aisle. However, the vehicle queue is not expected to affect the on-site circulation because the parking lot can be accessed by another drive aisle farther south along the internal road. In the PM peak hour, the outbound traffic may experience a short delay (equivalent to LOS D). However, it is likely that vehicles would be able to find a gap in traffic to make either a left or right turn. Vehicles making a left turn onto Stevens Creek Boulevard could wait in the two-way left-turn median before merging into the westbound traffic along Stevens Creek Boulevard.

The VTA bus stop is approximately 30 feet east of the driveway, which would potentially make it more difficult for vehicles to turn out of the driveway when the Route 23 bus was stopped at the bus stop.

However, because the bus would stop once every 15 minutes, it is not expected to affect the operations of the driveway.

Buliding A Albany Drive Driveway

The estimated trips expected to occur at the Building A driveway on Albany Drive are 3 inbound trips and 13 outbound trips during the AM peak hour and 11 inbound trips and 7 outbound trips during the PM peak hour. The estimated 11 AM inbound trips calculate to approximately one trip every 5 to 6 minutes. Because traffic along Albany Drive is low, vehicles making a left turn into the driveway would have a short delay. However, the project would provide a security gate at the driveway, which could potentially create queuing on the driveway that could spill out into the street. The City typically requires developments to provide adequate stacking space for two inbound vehicles (approximately 40 to 50 feet) between the sidewalk and any entry gates, on-site drive aisles, or on-site perpendicular parking spaces. This prevents vehicles from queuing onto the sidewalk or the street. The security gate to the parking garage is shown to be 18 feet from the sidewalk. This would not provide enough room for one inbound vehicle. The security gate should be moved farther into the garage to provide inbound stacking space (at least 40 feet) for two vehicles between the gate and sidewalk or keep the garage entry gates open during the time period of the day when most inbound vehicle trips are likely to occur (typically from 3:00 PM to 7:00 PM).

Some minor on-site vehicle queuing could occur due to the security gate, a combination of the inherent unpredictability of vehicle arrivals at the driveway, and the random occurrence of gaps in traffic along Albany Drive. However, given the estimated 13 AM outbound trips at the driveway, which calculates to about one outbound trip every 4 to 5 minutes, the probability of two or more outbound vehicles exiting the site at the same time would be low. The maximum queue is not expected to affect on-site circulation.

Building B Albany Drive Driveway

The estimated trips expected to occur at the Building B driveway on Albany Drive are 9 inbound trips and 30 outbound trips during the AM peak hour and 24 inbound trips and 16 outbound trips during the PM peak hour. The estimated 24 AM inbound trips calculate to approximately one trip every 2 to 3 minutes. Due to the relatively low number of project-generated trips at the driveway and low traffic volumes on Albany Drive, operational issues related to vehicle queueing and/or vehicle delay are not expected to occur at the driveway. However, the project would provide a security gate at the driveway, which could potentially create queuing on the driveway that could spill out into the street. The security gate to the parking garage is shown to be 13 feet from the sidewalk. This would not provide enough room for one inbound vehicle. The security gate should be moved farther into the garage to provide inbound stacking space (at least 40 feet) for two vehicles between the gate and sidewalk or keep the garage entry gates open during the time period of the day when most inbound vehicle trips are likely to occur (typically from 3:00 PM to 7:00 PM).

Some minor on-site vehicle queuing could occur due to the security gate, a combination of the inherent unpredictability of vehicle arrivals at the driveway, and the random occurrence of gaps in traffic along Albany Drive. However, given the estimated 30 AM outbound trips at the driveway, which calculates to about one outbound trip every 120 seconds, the probability of two or more outbound vehicles exiting the site at the same time would be low. The maximum queue is not expected to affect on-site circulation.

Building C Lopina Way Driveway

The estimated trips expected to occur at the Building C driveway on Lopina Way are 5 inbound trips and 37 outbound trips during the AM peak hour and 12 inbound trips and 19 outbound trips during the PM peak hour. The estimated 12 AM inbound trips calculate to approximately one trip every 5 minutes.

Due to the relatively low number of project-generated trips at the driveway and low traffic volumes on Lopina Way, operational issues related to vehicle queueing and/or vehicle delay are not expected to occur at the driveway. However, the project would provide a security gate at the driveway, which could potentially create queuing on the driveway that could spill out into the street. The security gate to the parking garage is shown to be 25 feet from the sidewalk. This would provide enough room for one inbound vehicle. The security gate should be moved farther into the garage to provide inbound stacking space (at least 40 feet) for two vehicles between the gate and sidewalk or keep the garage entry gates open during the time period of the day when most inbound vehicle trips are likely to occur (typically from 3:00 PM to 7:00 PM).

Some minor on-site vehicle queuing could occur due to the security gate, a combination of the inherent unpredictability of vehicle arrivals at the driveways, and the random occurrence of gaps in traffic along Albany Drive. However, given the estimated 55 AM outbound trips at the driveways, which calculates to about one outbound trip every minute between two driveways, the probability of two or more outbound vehicles exiting the site at the same time would be low. The maximum queue is not expected to affect the on-site circulation.

Recommendation: The project should provide adequate stacking space for at least two inbound vehicle (40 to 50 feet) at Buildings A, B, and C between the sidewalk and the garage entry gates on Albany Drive and Lopina Way or keep the garage entry gates open during the time period of the day when most inbound vehicle trips are likely to occur (typically from 3:00 PM to 7:00 PM).

Hotel/Retail Driveways

The estimated trips occurred at the hotel/retail driveways are 68 inbound trips and 59 outbound trips during the AM peak hour and 73 inbound trips and 61 outbound trips during the PM peak hour. Of the total trips occurring at the driveways, 58 inbound and 53 outbound trips during the AM peak hour and 50 inbound and 40 outbound trips during the PM peak hour would be for the hotel. All hotel and retail trips would enter the inbound only driveway on Lopina Way. It is expected that most trips would go straight to the parking garage with some hotel guests checking in or loading in front of the lobby entrance. The porte cochere could accommodate approximately four vehicles (one in front of the lobby entrance and three along the drive aisle following the entry driveway) without blocking the sidewalk on Lopina Way. Following check-in, guests who are parking on-site would exit the check-in/porte-cochere area and immediately turn right to access the hotel parking garage. Upon check-out, hotel guests would exit the parking garage and turn right onto the internal road. Taxi cabs and ride-sharing services would enter the inbound only driveway on Lopina Way, drop off hotel guests, and exit the site via the outbound only driveway on the internal road.

Due to the relatively low number of project-generated trips at the driveways and low traffic volumes on Lopina Way, operational issues related to vehicle queueing and/or vehicle delay are not expected to occur at the project driveways.

On-Site Vehicle Queuing

On-site vehicle queuing within the porte-cochere area for the hotel was estimated using the Poisson probability distribution method. For the purpose of the queuing estimates, it is assumed that approximately one third of the inbound vehicle trips for the hotel occurring during the weekday AM and PM peak hours would be attributable to new hotel guests checking into the hotel for the first time and who have driven their own vehicle and, thus, would need to temporarily park within the porte-cochere/check-in area. An average check-in time of 5 minutes was also assumed. Based on these assumptions, it is estimated that a maximum on-site queue of 4 vehicles would occur during the weekday AM and PM peak hours of traffic. The current site design shows adequate loading space for 4 vehicles in front of the lobby entrance and along the drive aisle following the entry driveway.

Alternatively, passenger pick-up/drop-off operations could occur on Lopina Way, which would free up some capacity within the porte-cochere for vehicle queuing during hotel check-ins. Timed (short-term) parking would need to be added on Lopina Way. Providing adequate on-site queuing space would be necessary to prevent vehicles from backing up onto Lopina Way. Note that the average on-site vehicle queue is estimated to be approximately 2 vehicles, which could easily be accommodated with the current site design.

Recommendation: Add a timed (short-term) parking zone between the inbound only driveway to the hotel/retail building and the driveway to the internal road on Lopina Way for pick-up/drop-off of hotel guests. The curb would need to be painted the appropriate color and the time limit specified via signage and/or on the curb.

On-Site Circulation

Buildings A, B, and C

Building A would provide one level of parking on the ground floor of the building. Buildings B and C would provide two levels of above ground parking. Access to each garage would be provided by two driveways (see Figures 15 to 17). The parking garages would provide 90-degree parking throughout the garage. Parking stalls would be accessed via a 26-foot two-way drive aisle, which meets the City's standard minimum width for two-way drive aisles where 90-degree parking is provided. Buildings A, B, and C would provide adequate circulation for drivers with no dead-end aisles.

Hotel/Retail

The hotel would provide some surface parking spaces and additional parking spaces within two above ground levels for the hotel and retail uses. Access to the parking spaces would be provided by two driveways (see Figure 18). The parking garages would provide 90-degree parking throughout the garage. Parking stalls would be accessed via a 26-foot two-way drive aisle, which meets the City's standard minimum width for two-way drive aisles where 90-degree parking is provided. The garage would provide adequate circulation for drivers with no dead-end aisles.

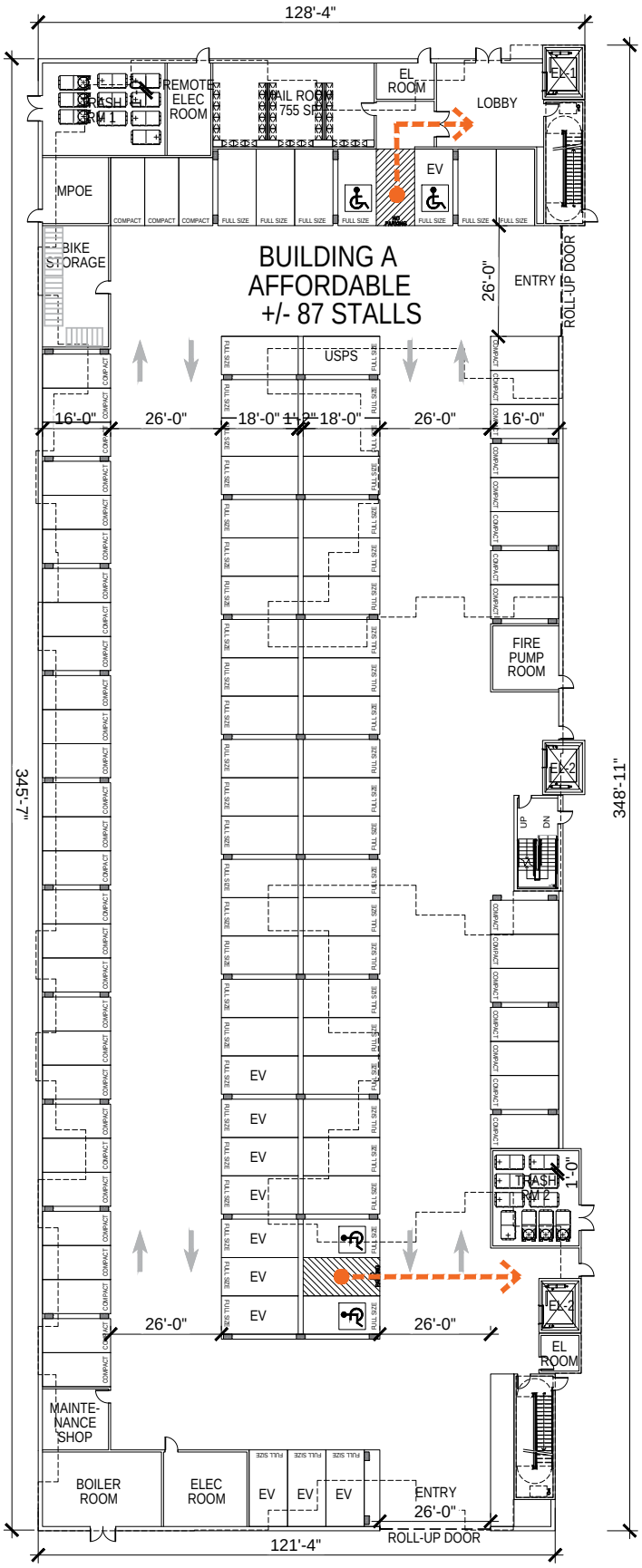
Parking Stall Dimensions

The City's off-street parking design standard is 8.5 feet wide by 17 feet long for 90-degree uniform parking stalls, 9 feet wide by 18 feet long for full-size parking stalls, and 8 feet wide by 16 feet long for compact parking stalls. The site plan shows all uniform/full size parking stalls to be 9 feet wide by 18 feet long. Compact stalls measure to be 9 feet wide by 16 feet long. The handicap stalls are shown to be 9 feet wide by 18 feet long and include access aisles of 7-9 feet for van accessibility, which meets the City's standards.

Passenger Loading

The site plan does not indicate passenger loading zones along the project frontages or within the site for the residential or retail uses, which would be inconvenient for people accessing the site using Uber/Lyft or other rideshare apps (e.g., Scoop, Waze Carpool). Passenger loading for the hotel would occur in the porte-cochere area at the hotel's front door. If the hotel provides valet operations, guests would also stop in the porte-cochere area for the valet operators to pick up the vehicles. In addition, it is recommended that a timed (short-term) parking zone be added between the inbound only driveway to the hotel/retail building and the driveway to the internal road on Lopina Way for pick-up/drop-off of hotel guests.

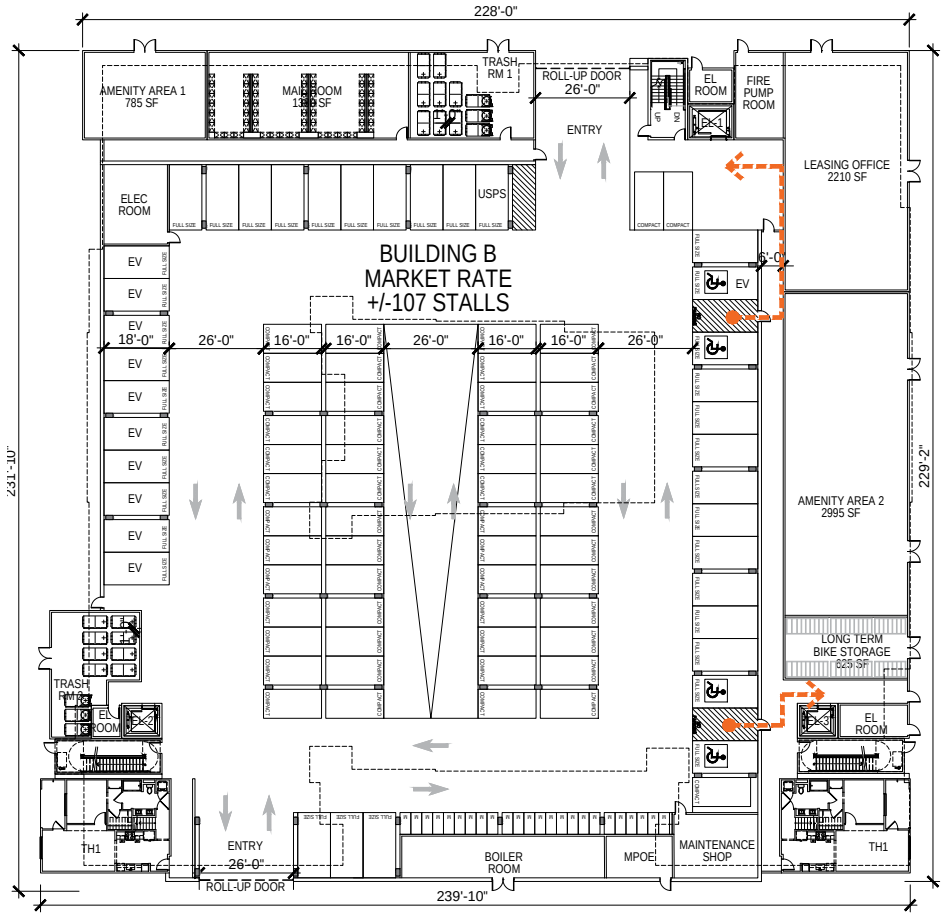
Recommendation: The project should designate curbside passenger loading zones on Stevens Creek Boulevard for the retail uses and on Albany Drive near the residential building entrances.



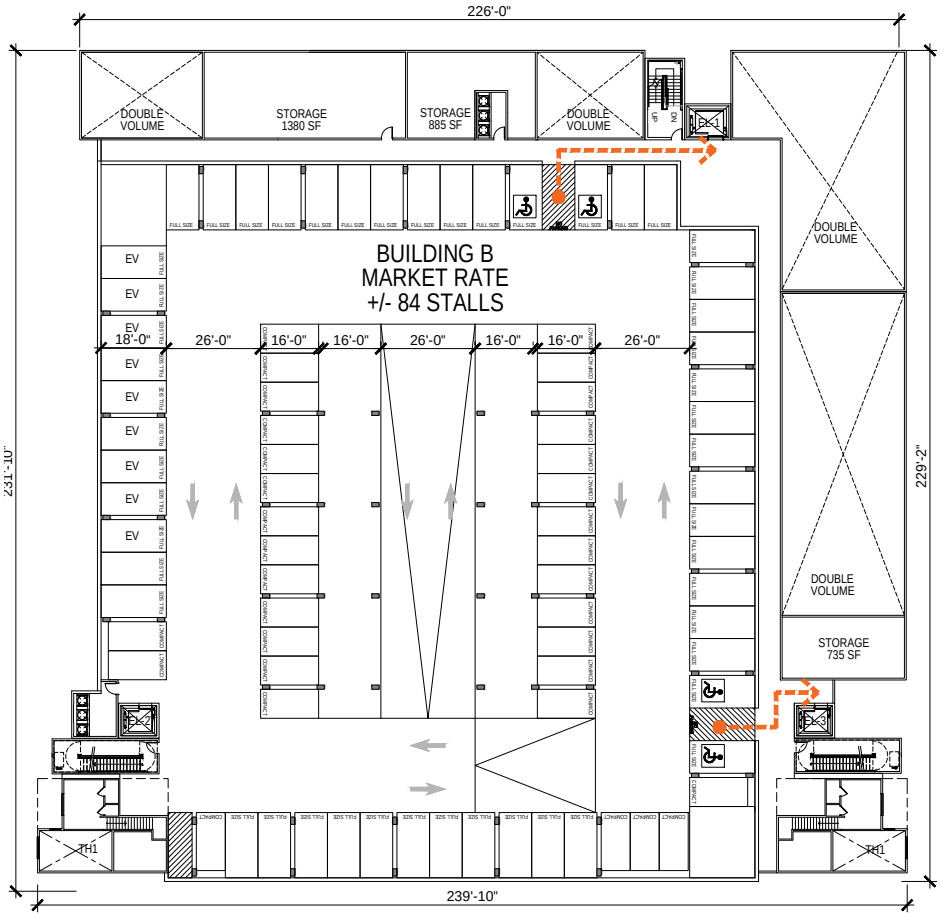
LEVEL 1

Figure 15
Building A Parking Garage

NORTH
Not to Scale

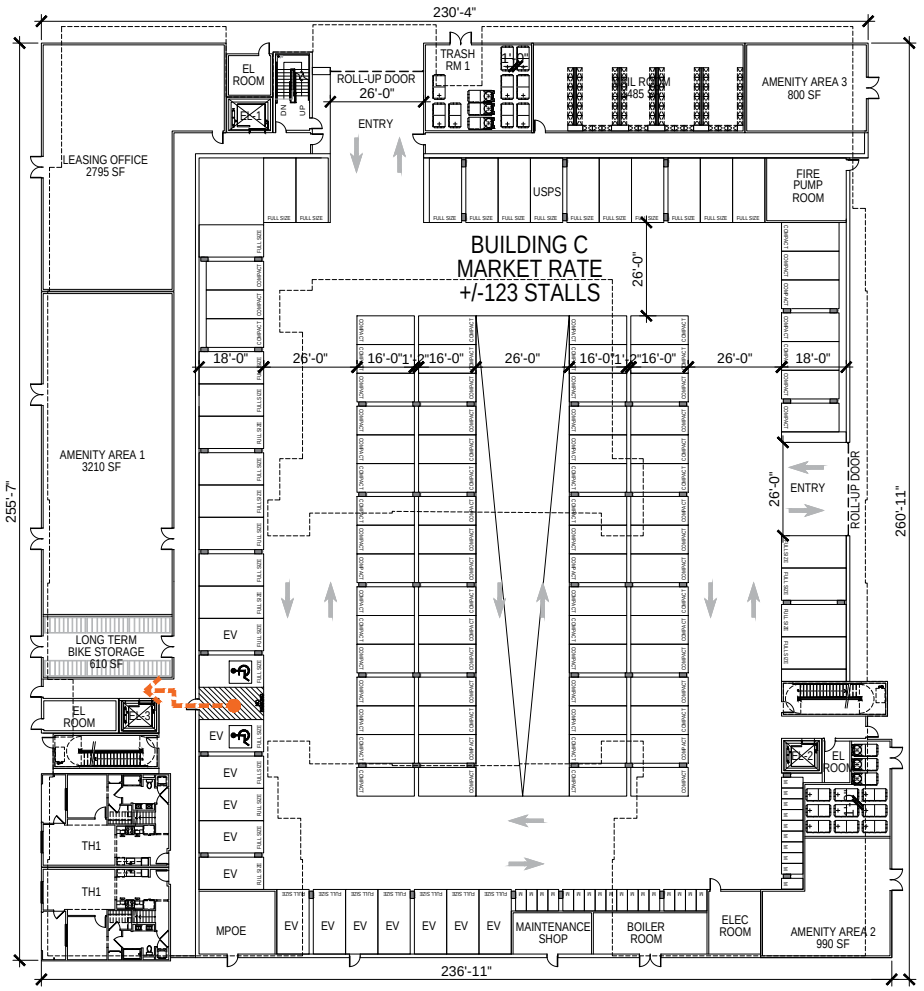


LEVEL 1



LEVEL 2

Figure 16
Building B Parking Garage Levels P1 and P2



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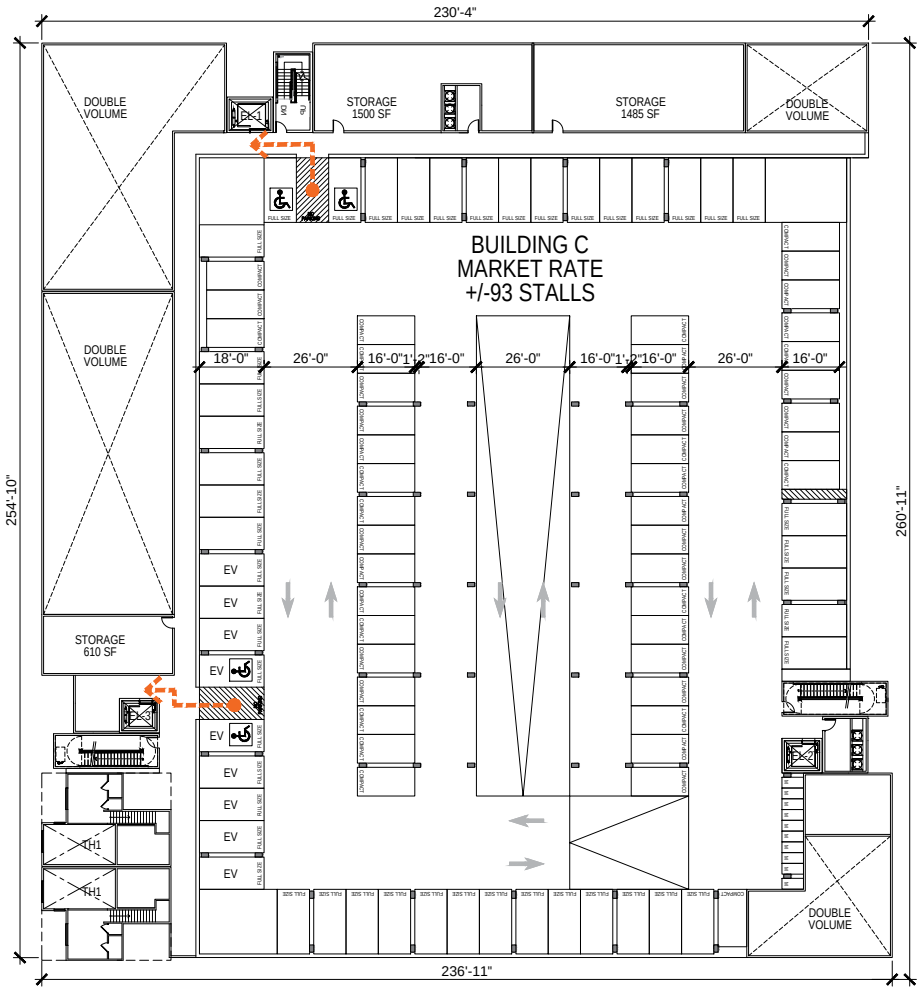
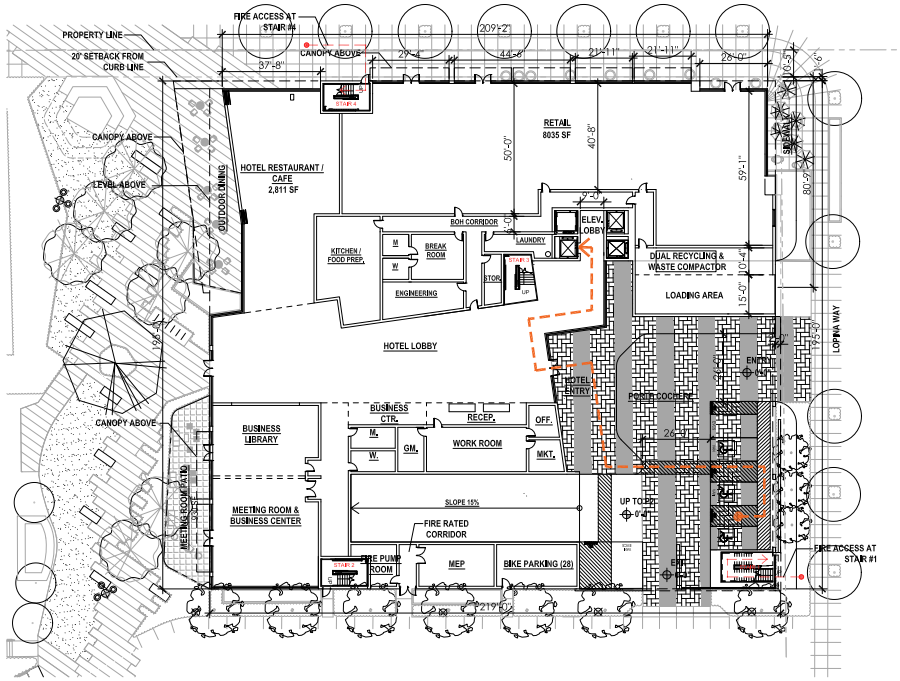
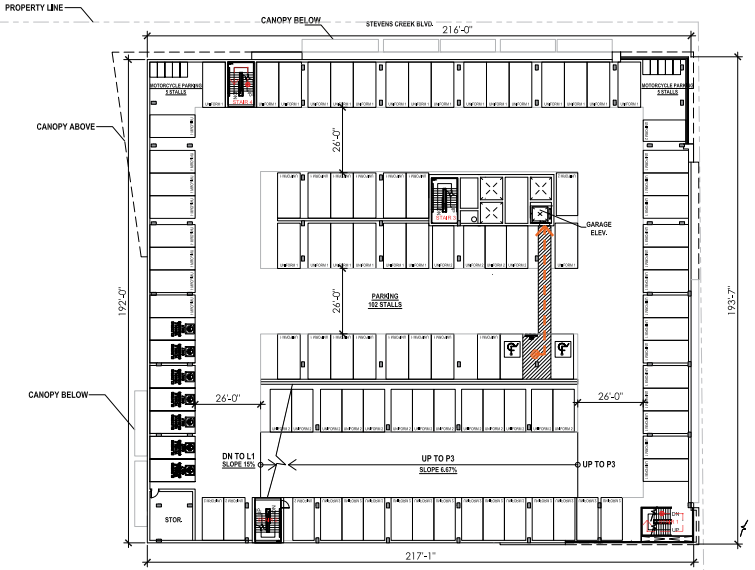


LEVEL 2

Figure 17
Building C Parking Garage Levels P1 and P2



LEVEL P1



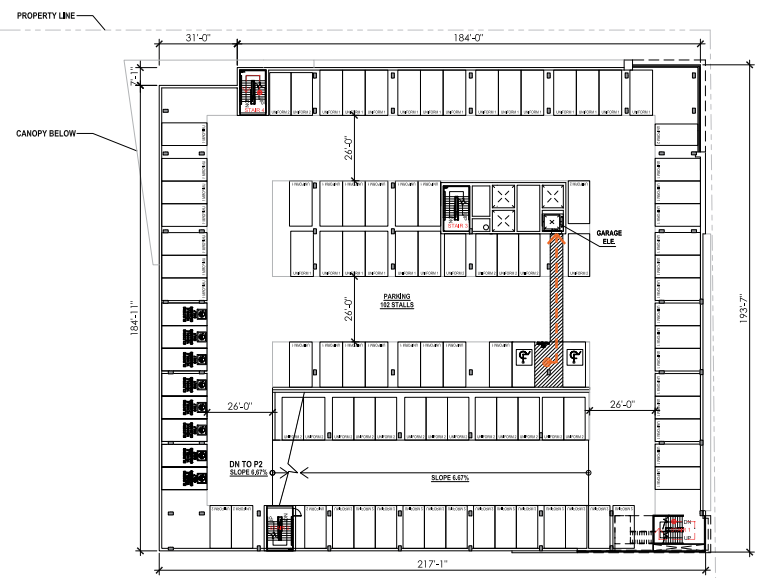


Figure 18
Hotel/Retail Garage Levels P1, P2 and P3

NORTH
Not to Scale

Truck Access and Circulation

The project site plan was reviewed for truck access using truck turning-movement templates for a SU-30 truck type (single unit trucks), which represents small emergency vehicles, garbage trucks, and small to medium delivery trucks (see Figure 19).

Loading Operations

According to the City of San Jose Zoning Code, hotel developments having a floor area of 10,000 square feet or more should provide at a minimum one off-street loading space, plus one additional loading space for each 20,000 square feet of floor area. The site plan shows one loading spaces for the hotel/retail building along the east edge of the building with access via Lopina Way.

Though the provided loading zone is less than what the City of San Jose Zoning Code requires, the Planning Director may authorize a reduction in the number of loading spaces in connection with the issuance of a development permit if the Director finds that one loading space would be sufficient to accommodate circulation and manipulation of freight. The project applicant should coordinate with City staff to determine if one loading space would be adequate to serve the entire project.

Recommendation: The project applicant should coordinate with City staff to determine if one loading space would be adequate to serve the hotel use of the project.

Garbage Collection

The site plan shows two trash enclosures within each of the residential buildings. Trash staging areas are designated along the internal road next to the Buildings A and C garage entrances. It is presumed that trash bins would be wheeled out from the trash enclosures to the staging areas for garbage truck pickup and returned to the trash enclosures immediately after garbage pick-up. Garbage trucks would enter the site via the Stevens Creek driveway, pick up garbage along the internal road, and exit the site via Lopina Way.

The site plan shows a trash enclosure next to the loading area for the hotel. Thus, garbage pickup would occur within the loading area, accessed by Lopina Way.

Emergency Vehicle Access

Stevens Creek Boulevard, Albany Drive, Lopina Way, and the internal road would provide emergency vehicle access to all sides of the project buildings. The City of San Jose Fire Department requires that all portions of the buildings be within 150 feet of a fire department access road and requires a minimum of 6 feet clearance from the property line along all sides of the buildings. According to the project site plan, the project would meet the 6-foot clearance requirement and the 150-foot fire access requirement.

Effects on Surrounding Streets

Neighborhood Streets in Project Proximity

Surrounding local street segments that would be affected by the proposed project are listed below:

- Albany Drive between the project site and Lopina Way
- Palace Drive between Albany Drive and Stevens Creek Boulevard
- Lopina Way between Albany Drive and Stevens Creek Boulevard

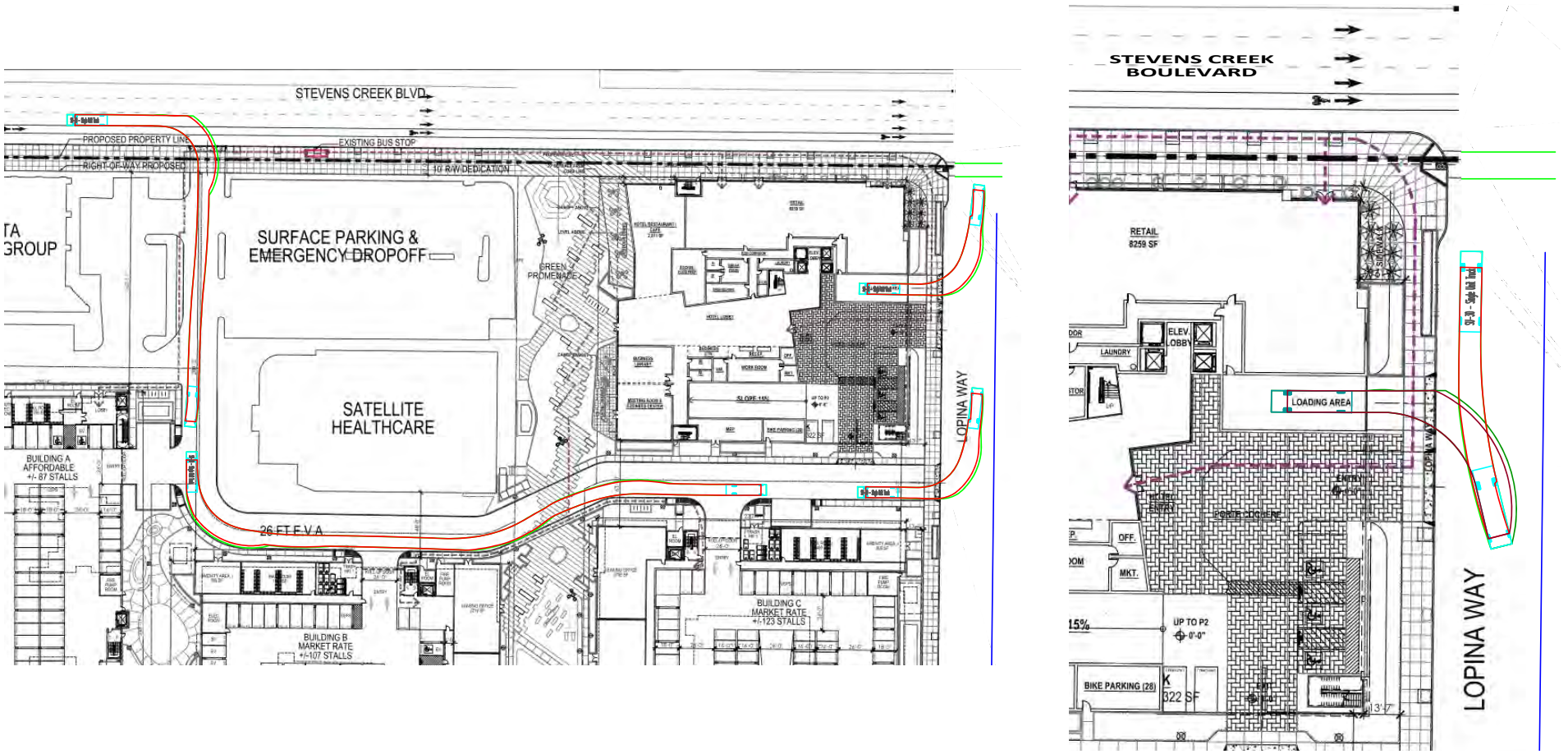


Figure 19
Truck Turning Templates for Site Access and On-Site Circulation

Albany Drive and Lopina Way would provide direct access to the project site via project driveways on these streets. Palace Drive would be utilized by some of the diverted traffic from the existing Lopina Way.

Existing and estimated project condition traffic volumes on the surrounding streets were analyzed based on the existing traffic counts conducted in 2017, estimated diverted traffic due to the Lopina Way relocation, and trip estimates for the project (see Table 13). The evaluation consists of a roadway segment analysis to quantify the potential change in traffic volumes along the study roadway segments as a result of the proposed project. For the evaluation, the existing and projected daily traffic volumes along the study roadway segments were compared to acceptable volume thresholds for each roadway segment to determine if the projected change in traffic volume would be significant. Since the City has not established any standards or significance thresholds regarding neighborhood streets, the information is presented for information only.

Table 13
Average Daily Traffic on Surrounding Streets

Street Segment	Dir	85th Percentile Speed (mph)	Existing ADT Counts[1]	Lopina Way Traffic[2]	Project Trips	Existing Plus Project	% Change
Albany Drive between Project Site and Lopina Wy	EB	29	2,121	-	329	2,450	
	WB	28	2,468	-	459	2,927	
	Total		**4,589**		**788**	**5,377**	**17%**
Palace Drive between Albany Dr and Stevens Creek Blvd	NB	24	943	138	-	1,081	
	SB	22	1,091	180	-	1,271	
	Total		**2,034**	**318**		**2,352**	**16%**
Lopina Way between Albany Dr and Stevens Creek Blvd[3]	NB	19	815	467	665	1,132	
	SB	22	1,029	269	866	1,135	
	Total		**1,844**	**736**	**1,531**	**2,267**	**23%**

Notes:
ADT = Average Daily Traffic.
1. 24-hour tube counts were conducted on January 12, 2017.
2. Traffic that would shift from the Existing Lopina Way to Palace Drive and the relocated Lopina Way.
3. Existing plus project traffic is the traffic on the relocated Lopina Way, which is the sum of the shifted Lopina Way traffic and project traffic.

The study roadway segments, although narrow, can be classified as local connector streets given that they serve commercial land uses and connect the surrounding residential land uses to Stevens Creek Boulevard and Kiely Boulevard. The City of San Jose 2040 General Plan describes local connector streets as roadways that have two traffic lanes and would accommodate low to moderate volumes of through traffic.

General guidelines regarding threshold volumes pertaining to connector streets have been recommended within several studies and reference materials, including the Highway Capacity Manual (HCM). There is variation in these accepted threshold volumes, but in general, connector (or collector) streets' general characteristics include low speeds (25 to 35 miles per hour), low to moderate traffic volumes, and emphasize balance between mobility and access. A connector street is defined by the City of San Jose with ADT volumes typically ranging from 2,000 to 16,000 vehicles.

The 24-hour tube counts conducted in January 2017 revealed that the study segments on Albany Drive, Palace Drive, and Lopina Way currently carry approximately 4,600, 2,000, and 1,800 vehicles per day,

respectively. It was estimated that the project would add 318 and 423 daily trips to Palace Drive and the new Lopina Way, respectively. The project would also add 788 new daily trips to Albany Drive between the project driveways and the new Lopina Way.

Although the projected ADTs are within the acceptable range for this type of street, the added project trips constitute a measurable increase from the existing volumes on Albany Drive and Lopina Way. However, it is important to note that the proposed project is similar to surrounding land uses along Albany Drive, and the proposed project traffic is not considered cut-through traffic given that each of the streets serve as primary access roads to the project site.

Speed surveys conducted along the study segments revealed that the 85th percentile speeds on Albany Drive, Palace Drive, and Lopina Way are 28-29, 22-24, and 19-22 miles per hour (mph), respectively. There is not a posted speed limit along the surveyed segments. However, it is presumed that the speed limit along the studied segments is 25 mph. Based on the collected data, the measured 85th percentile speeds along the street segments are within 4 mph of the speed limit. Speeds within 7 mph of the posted speed limits are considered reasonable. Therefore, based on the speed surveys, it can be concluded that there is not a speeding problem along the study segments.

Neighborhood Streets in Santa Clara

As shown in Figure 7, some of the project traffic (42 new AM peak-hour trips and 39 new PM peak-hour trips) is expected to travel on Lawrence Expressway to the north. Because Stevens Creek Boulevard provides direct access to Lawrence Expressway, these trips are expected to travel on Stevens Creek Boulevard between Lawrence Expressway and the project site. Some of these trips may access Lawrence Expressway via Woodhams Road and Pruneridge Avenue. However, the number of project trips traveling on these streets would be small and not expected affect traffic operations on these streets.

Effects on Pedestrian and Bicycle Facilities

A complete network of sidewalks is present along the streets in the vicinity of the project site, including Albany Drive, Lopina Way, Stevens Creek Boulevard, and Kiely Boulevard. The signalized intersections in the vicinity of the project site all have crosswalks. Crosswalks are missing across Albany Drive at Kiely Boulevard and at the unsignalized intersections along Stevens Creek Boulevard. Therefore, in the project vicinity, there is a 2,000-foot section of Stevens Creek Boulevard without a crosswalk. Residents of the site and in the apartments to the south of the site on Albany Drive would need to cross Stevens Creek Boulevard at Kiely Boulevard or at Woodhams Road to access the bus stops on westbound Stevens Creek Boulevard.

Recommendation: The project should coordinate with the Cities of San Jose and Santa Clara to provide a mid-block crossing on Stevens Creek Boulevard at the proposed green promenade. The pedestrian crossing should be designed to not conflict with the future streetscape of Stevens Creek Boulevard with protected bike lanes, as planned by the Stevens Creek Urban Village Plan.

The nearby intersections have ADA curb ramps. The northeast corner of the Kiely Boulevard/Stevens Creek Boulevard intersection has an ADA curb ramps with truncated domes. Truncated domes are also provided on all corners of the Saratoga Avenue/Kiely Boulevard intersection and along the western corners of the Kiely Boulevard/Albany Drive intersection. However, there is no crosswalk across Albany Drive. Truncated domes are the standard design requirement for detectable warnings which enable people with visual disabilities to determine the boundary between the sidewalk and the street.

The site plan shows truncated domes on the southern corners of the relocated Lopina Way/Stevens Creek Boulevard intersection and at the northwest corner of the relocated Lopina Way/Albany Drive intersection with crosswalks across Lopina Way.

Pedestrian Site Access

The sidewalks on Stevens Creek Boulevard, Lopina Way, and Albany Drive would provide pedestrian access to the entire site. Because Stevens Creek Boulevard is a Grand Boulevard, the sidewalk along the project frontage should be at least 20 feet wide. The site plan shows that the sidewalk along the project site frontage would be 22 feet wide.

The project is located in the Stevens Creek Boulevard Urban Village, and therefore, the sidewalks along the project frontage on Lopina Way should be 12 to 15 feet wide. Additionally, sidewalks along the project frontage on Albany Drive should be 12 feet wide, and a 10-foot landscaped buffer should also be provided along the project frontage on Albany Drive. The site plan shows 12-foot sidewalks on Lopina Way and Albany Drive. A buffer of 6 to 10 feet is proposed along the project frontage on Albany Drive. In front of Building B, there would be a 6-foot buffer and a small section of Building C would have an 8-foot buffer. The project should provide 10 feet of buffer space to comply with the Stevens Creek Urban Village requirements.

A publicly accessible green promenade would be provided between Buildings B and C from Albany Drive and would continue to Stevens Creek Boulevard, along the west edge of the hotel. The green promenade would provide pedestrian walkways, bicycle parking, an outdoor fitness area, a fenced playground, and a fenced dog run. A paseo would also be provided between Buildings A and B between Albany Drive and the internal road. The paseo would provide pedestrian walkways and benches. The project would also provide sidewalks along the internal road. The green promenade, paseo, and sidewalks on the internal road would provide a short/direct pedestrian route for residents in the apartments to the south of the project site on Albany Drive to access the transit service and other destinations on Stevens Creek Boulevard.

Recommendation: The project should provide 10 feet of buffer space between the building and the 12-foot sidewalk along the project frontage on Albany Drive, per the Stevens Creek Urban Village requirement.

Buliding A Pedestrian Circulation

The front doors to the lobby would face the existing surface parking lot north of the building. From the parking garage, pedestrians would be able to access the units via stairways and elevators within the lobby and within the garage. Stairways and elevators would be provided in the northeast and southeast corners of Building A, and an additional stairway would be provided in the middle along eastern edge.

Building B Pedestrian Circulation

The front doors to the leasing office and amenity areas would face the green promenade and the internal road. From the parking garage, pedestrians would be able to access the units via elevators and stairways in the northeast, southeast, and southwest sections of the building.

Building C Pedestrian Circulation

The front doors to the leasing office and one of the amenity areas would face the green promenade. The doors of two of the amenity areas would face Lopina Way. From the parking garage, pedestrians would be able to access the units via elevators and stairways in the northwest, southeast, and southwest sections of the building.

Hotel/Retail Pedestrian Circulation

The front doors of the hotel building would face Lopina Way, and the front doors of the retail space would face Stevens Creek Boulevard. From the parking garage, pedestrians would be able to access the retail use and hotel lobby via a stairway and elevators located in the middle of the site. Additional

access from the garage would be provided via stairways in the northwest and southwest sections of the garage.

Bicycle Site Access

Class II striped bike lanes are present on Saratoga Avenue south of Stevens Creek Boulevard. There are no other designated bike lanes or bike routes on streets in the immediate vicinity of the project site. Albany Drive has relatively low traffic volume; therefore, the street is conducive to cyclists. However, Stevens Creek Boulevard, Kiely Boulevard, and Saratoga Avenue are arterial streets with high traffic volumes and vehicle speeds. Bicyclists need to ride with caution on these streets.

The site plan shows a proposed Class II bike lane along the project frontage on Stevens Creek Boulevard. However, the San Jose Better Bike Plan 2025 plans to implement a Class IV protected bike lane. Thus, the project should provide a fair-share contribution to the Class IV protected bike lanes along the project frontage. Additional improvements per the San Jose Better bike Plan 2025 in the project vicinity include the following:

- Protected bike lanes along Saratoga Avenue
- Protected bike lanes on Kiely Boulevard between Stevens Creek Boulevard and Boynton Avenue
- Bike boulevard along Albany Drive and Cronin Drive

A long-term bicycle parking storage room would be located within ground floor parking garage in each residential building. The hotel would provide one bicycle storage room along the south side of the building facing the internal road. Short term bicycle racks would be provided at various locations near building entrances within the site in the green promenade and paseo and along the internal road and Lopina Way. The project should provide bike racks near the front doors of the retail building along Stevens Creek Boulevard.

Recommendation: The project should provide a fair-share contribution to the planned Class IV protected bike lanes along the project frontage. The project should provide bike racks near the front doors of the retail building along Stevens Creek Boulevard.

Pedestrian and Bicycle Access to Schools

There are three public schools located within the project vicinity: Eisenhower Elementary School, Hyde Middle School, and Cupertino High School, located 1.1 miles northwest, 2.7 miles southwest, and 2.0 miles west, respectively. To access these schools from the project site, students would need to travel on Stevens Creek Boulevard. Because the distance to the schools is more than one mile and there are no bike lanes on Stevens Creek Boulevard, students are unlikely to walk or ride bicycles from the project to the schools.

Effects on Transit Services

The project site is served by Routes 23 and 523 on Stevens Creek Boulevard and Route 57 on Kiely Boulevard and Saratoga Avenue. The bus stop closest to the project site is located on Stevens Creek Boulevard, west of the proposed green promenade. The bus stop serves eastbound Route 23. The bus stops for the remaining routes are all within 800 feet from the project site (see Figure 4).

Due to the convenient location of the bus stops, it is assumed that some residents, employees, and guests of the project would utilize the existing transit services. Based on the trip generation estimates shown in Table 5, it was assumed that 15% of the non-vehicle mode share trips for residential, hotel, and retail trips and 15% of the project-specific vehicle trip reduction for residents would be made by transit, which equates to approximately 10 to 11 new transit riders during the AM and PM peak hours.

The increase in new riders could be accommodated by the currently available capacity of the bus services in the study area, and improvement of the existing transit service would not be necessary with the project.

The Grand Boulevard design principles include provision of enhanced shelters for transit stops, as described below.

Urban Village and Grand Boulevard Requirements

The project site is located within the Stevens Creek Boulevard Urban Village Boundary and fronts Stevens Creek Boulevard, which has been designated as a Grand Boulevard by the Envision San José 2040 General Plan. Grand Boulevards are intended to serve as major transportation corridors with priority given to public transit. Sites within an Urban Village and located along a Grand Boulevard must incorporate additional urban design and architectural elements that will facilitate a building with pedestrian orientated design and activate the pedestrian public right-of-way.The project would be required to implement the following Urban Village and Grand Boulevard design features to improve pedestrian and transit facilities:

- Provide a minimum 20-foot sidewalk width along the frontage on Stevens Creek Boulevard. The project plans to widen sidewalks along the frontage on Stevens Creek Boulevard to 22 feet.
- Provide 10 feet of buffer space between the building and the 12-foot sidewalk along the project frontage on Albany Drive. The project plans to widen sidewalks along the frontages on Albany Drive to 12 feet. The project will need to provide 10 feet of buffer space between the building and the sidewalks.
- Provide enhanced shelters for transit services. There is one bus stop along the project frontage on Stevens Creek Boulevard, and it already has a shelter. If the VTA would like an enhanced shelter, it would be appropriate for the project to share the cost of the improvement.
- Contribute a fair share to the Class IV protected bikeways on Stevens Creek Boulevard along the project frontage. The project will need to comply to the requirement.

Parking

Vehicle Parking

The development would require a total of 262 parking spaces in Building B, 304 spaces in Building C, and 293 spaces in the hotel/retail building (see Table 14), based on the City's Zoning Code (Table 20-190) off-street parking requirements and prior to applying any relevant parking reductions. Assembly Bill (AB) 744 states that, upon request of the developer, a city should not impose a vehicular parking ratio, inclusive of handicapped and guest parking, for 100% affordable housing developments located within one-half mile of a major transit stop that exceeds 0.5 spaces per bedroom. Thus, Building A would require 87 parking spaces.

A parking reduction can be granted for developments within an Urban Village that provide bicycle parking spaces per City requirements. For residential and hotel uses, a 20 percent reduction can be granted for the market-rate housing, and for ground floor commercial uses, a 50 percent reduction can be granted. With the Urban Village reduction, the project would be required to provide 209 spaces in Building B, 242 spaces in Building C, and 227 spaces in the hotel/retail building.

The project proposes 18 fewer spaces in Building B, 26 fewer spaces in Building C, and 22 fewer spaces in the Hotel/Retail building than the required number of spaces with the Urban Village reduction.

The project may qualify for up to a 50 percent reduction if it conforms to the required bicycle parking spaces stated in Table 20-190 of the Zoning Code and implements a TDM plan.

Table 14
Vehicular Parking Requirements

	Size	Required Vehicle Parking Rate	Required Vehicle Parking Spaces	Required Parking with Urban Village Overlay Reduction	Required Parking with Urban Village Overlay Spaces
Residential Building A (Affordable)[1]					
All units	173 units	0.5/unit	87	--	--
	Residential Building A Required Parking		**87**		**--**
	Residential Building A Provided Parking				*87*
Residential Building B (Market Rate)					
1 bedroom	142 units	1.25/unit	178	20%	142
2 bedroom	47 units	1.7/unit	80	20%	64
Townhome	2 units	2.0/unit	4	20%	3
	Residential Building B Required Parking		**262**		**209**
	Residential Building B Provided Parking				*191*
Residential Building C (Market Rate)					
Studio	34 units	1.25/unit	43	20%	34
1 bedroom	110 units	1.25/unit	138	20%	110
2 bedroom	70 units	1.7/unit	119	20%	95
Townhome	2 units	2.0/unit	4	20%	3
	Residential Building C Required Parking		**304**		**242**
	Residential Building C Provided Parking				*216*
Hotel Building					
Hotel	250 units	1/guest room	250	20%	200
	17 employees	plus 1/employee	17	20%	14
Retail	8,259 gross s.f.[2]	1/200 s.f. of floor area[1]	35	50%	18
	Hotel Development Required Parking		**302**		**232**
	Hotel Development Provided Parking				*210*

Note:
1. The Urban Village parking reduction does not apply to affordable housing parking requirements.
2. As defined by City Code, "floor area" means 85% of the "total gross floor area" of the building. Therefore, 85% was applied to the gross floor area for retail and office space.

Recommendation: To qualify for an additional reduction in the required number of parking spaces, the project should implement a TDM plan to reduce parking demand and satisfy the parking reduction requirements as specified in Section 20.90.220 of the Zoning Code. The project requires City approval for any reduction in on-site parking spaces.

Bicycle Parking

The project would require 26 long-term spaces and 18 short-term spaces in Building A, 29 long-term spaces and 19 short-term spaces in Building B, 32 long-term spaces and 22 short-term spaces in Building C, and 5 long-term spaces and 23 short-term spaces in the hotel building (see Table 15). The project would require 82 total short-term spaces.

The project would provide adequate long-term bicycle parking for all buildings. The project would provide a total of 78 short-term parking spaces on site, which would not meet the requirement of 82 short-term spaces.

Recommendation: The project should provide 82 short-term bicycle parking spaces to meet City parking requirements.

Table 15
Bicycle Parking Requirements

Proposed Land Use	Size	Required Bicycle Parking[2] Rate	Total Spaces	Long Term	Short Term
Residential Building A (Affordable)					
	173 units	**1 per 4 units**	**44**	**26**	**18**
	Residential Building A Provided Parking		*44*	*26*	*18*
Residential Building B (Market Rate)					
	191 units	**1 per 4 units**	**48**	**29**	**19**
	Residential Building B Provided Parking		*70*	*50*	*20*
Residential Building C (Market Rate)					
	216 units	**1 per 4 units**	**54**	**32**	**22**
	Residential Building C Provided Parking		*82*	*54*	*28*
Hotel/Retail Building					
Hotel	250 units	1 plus 1/10	26	5	21
	17 employees	guest rooms	--	--	--
Retail	8,259 gross s.f.[1]	1/3,000 s.f. of floor area[1]	2	0	2
	Hotel Building Required Parking		**28**	**5**	**23**
	Hotel Provided Parking		*40*	*28*	*12*
Total Short Term Parking Required					***82***
Total Short Term Parking Provided					*78*

Note:
1. As defined by City Code, "floor area" means 85% of the "total gross floor area" of the building. Therefore, 85% was applied to the gross floor area for retail and office space.
2. At least 60% of bike parking spaces should be long-term and at most 40% of spaces should be short-term. for residential units. At least 80% of bike parking should be short-term for retail spaces.

Motorcycle Parking

The City requires one motorcycle parking space for every 4 residential units and one motorcycle parking space for every 20 code-required vehicle parking spaces for commercial uses (per Chapter 20.90, Table 20-250 of the City's Zoning Code). Based on the vehicle parking requirements, the project is required to provide 44 spaces in Building A, 48 spaces in Building B, 54 spaces in Building C, and 15 spaces in the hotel building. The project would provide 24 spaces in Building B, 37 spaces in Building C, and no spaces in the hotel building and Building A.

Recommendation: The project requires City approval for any reduction in on-site motorcycle parking spaces.

Construction Activities

Typical activities related to the construction of any development could include lane narrowing and/or lane closures, sidewalk and pedestrian crosswalk closures, and bike lane closures. In the event of any type of closure, clear signage (e.g., closure and detour signs) must be provided to ensure vehicles, pedestrians and bicyclists are able to adequately reach their intended destinations safely. Per City standard practice, the project would be required to submit a construction management plan for City approval that addresses the construction schedule, street closures and/or detours, construction staging areas and parking, and the planned truck routes.

5. Conclusions

This study was conducted for the purpose of identifying the potential transportation impacts related to the proposed development. The transportation impacts of the project were evaluated following the standards and methodologies established in the City of San Jose's *Transportation Analysis Handbook.* Based on the City of San Jose's Transportation Analysis Policy and *Transportation Analysis Handbook*, the transportation analysis report for the project includes a CEQA transportation analysis and a local transportation analysis (LTA). The CEQA transportation analysis comprises of an evaluation of Vehicle Miles Traveled (VMT) and cumulative impact analysis for the project's consistency with the Envision San Jose 2040 General Plan. The LTA includes an evaluation of weekday AM and PM peak-hour traffic conditions for 15 signalized intersections and one unsignalized intersection, an analysis of intersection queuing, freeway segment and ramp operations, site access, on-site circulation, parking, and effects to transit, bicycle, and pedestrian facilities. The LTA also includes an evaluation of potential effects of the Lopina Way relocation.

CEQA Transportation Analysis

VMT Impact

The VMT generated by the residential component of the project (10.33 daily VMT per capita) would exceed the threshold of 10.12 VMT per capita. Therefore, the project would result in a significant impact on VMT, and mitigation measures are required to reduce the VMT impact.

Mitigation Measures

The VMT evaluation tool was used to identify the possible mitigation measures. Based on the list of selected VMT reduction measures included in the VMT evaluation tool, it is recommended the project implement pedestrian network improvements and traffic calming measures beyond the development frontage to reduce the significant VMT impact. The following improvements require coordination with the Cities of San Jose and Santa Clara to implement.

- The project should remove the pork-chop island, eliminate the uncontrolled slip right-turn lane, and tighten the corner radius at the southwest and northeast corners of the Kiely Boulevard and Stevens Creek Boulevard intersection. The traffic signal at the intersection should be updated along with the geometry improvements.

The mitigation measures would reduce the project VMT per capita by 1.3 (or 11.6%) to 9.92, which would make the project impact less than significant.

Cumulative Impact

The project is consistent with the General Plan for the following reasons:

- The project would be a mixed-use development and would increase the supply of residential units for affordable and market-rate housing.
- The project would include ground floor-commercial spaces fronting Stevens Creek Boulevard.
- The project would provide a public accessible green promenade between Albany Drive and Stevens Creek Boulevard.
- The project would provide 20-foot sidewalks with planters and landscaping along Stevens Creek Boulevard. Wider sidewalks would improve pedestrian access to the transit stop and other destinations.
- The project would provide 12-foot sidewalks with planters along Lopina Way and Albany Drive along the project frontage.
- The project would be integrated with the City's transportation system, including transit, roads, and pedestrian facilities.
- The project would not negatively impact existing transit, bicycle, or pedestrian infrastructure, nor would it conflict with any adopted plans or policies for new transit, bicycle, or pedestrian facilities.
- The project would provide fewer vehicle parking spaces than the required parking and would implement a TDM plan to reduce parking demand.

Therefore, the project would be considered part of the cumulative solution to meet the General Plan's long-range transportation goals and would result in a less-than-significant cumulative impact.

Local Transportation Analysis

Project Trip Generation

Based on the ITE trip generation rates and applicable reductions, it is estimated that the proposed project would generate 2,480 new daily trips, including 208 new trips (29 inbound and 179 outbound) during the AM peak hour and 116 new trips (122 inbound and -6 outbound) during the PM peak hour.

Intersection Traffic Operations

Based on the City of San Jose intersection operations analysis criteria, the added project trips would not cause adverse operations effects at any of the signalized study intersections.

The results of the peak-hour signal warrant check indicates that the AM and PM peak-hour volumes at the unsignalized study intersection of Kiely Boulevard/Albany Drive would warrant signalization under background plus project conditions. However, installation of a signal is not recommended due to the short distance to the traffic signal at the Kiely Boulevard/Norwalk Drive intersection.

Freeway Segment Capacity Analysis

The results of the CMP freeway segment analysis show that the project is not projected to add traffic volumes representing one percent or more of the freeway capacity. Based on CMP freeway impact criteria, none of the freeway segments would be impacted by the project.

Freeway Ramp Operations Analysis

The I-280/Saratoga Avenue and I-280/Stevens Creek Boulevard interchanges provide access to I-280 from the project site.

Based on the on-ramp meter analysis, existing vehicle storage on these on-ramps is adequate to serve the existing vehicle queues and would continue to adequately serve the estimated vehicle queues that would develop with the addition of project-generated traffic. At the I-280 off-ramps to Saratoga Avenue and Stevens Creek Boulevard, the queues do not back up onto the freeway mainline. The queues clear within one signal cycle; therefore, the project is not expected to result in a noticeable increase in vehicle queuing or delay on the off-ramps.

Effect of Lopina Way Relocation

The project would relocate the existing Lopina Way to the eastern project boundary with a new two-lane street extended between Stevens Creek Boulevard and Albany Drive. The existing Lopina Way runs through the project site. It serves the commercial uses on the street and connects the residential uses to the south of the project site on Albany Drive to Stevens Creek Boulevard. It is expected that with the Lopina Way relocation, some of the existing through traffic would continue to use the new Lopina Way and some would divert to Palace Drive. The analysis evaluated traffic operations on Palace Drive at Albany Drive and Stevens Creek Boulevard intersections with the diverted traffic and traffic operations on the new Lopina Way at Albany Drive and Stevens Creek Boulevard intersections with the diverted and project traffic.

Recommendations for the Lopina Way Relocation

Hexagon has the following recommendations resulting from the Lopina Way relocation:

- The project should provide a westbound left-turn pocket with a length of at least 50 feet along Stevens Creek Boulevard at the new Lopina Way
- Red curbs should be painted next to Lopina Way on Stevens Creek Boulevard ensuring a minimum of 360 feet of clear sight distance from the street.
- The project should provide an all-way stop at Lopina Way and Albany Drive, as proposed.
- Street parking should be provided along both sides of the new Lopina Way.

Urban Village and Grand Boulevard Requirements

The project site is located within the Stevens Creek Boulevard Urban Village Boundary and fronts Stevens Creek Boulevard, which has been designated as a Grand Boulevard by the Envision San José 2040 General Plan. The project would be required to implement the following Urban Village and Grand Boulevard design features to improve pedestrian and transit facilities:

- Provide a minimum 20-foot sidewalk width along the frontage on Stevens Creek Boulevard. The project plans to widen sidewalks along the frontages on Stevens Creek Boulevard to 22 feet.
- Provide 10 feet of buffer space between the building and the 12-foot sidewalk along the project frontage on Albany Drive. The project plans to widen sidewalks along the frontages on Albany Drive to 12 feet. The project will need to provide 10 feet of buffer space between the building and the sidewalks.
- Provide enhanced shelters for transit services. There is one bus stop along the project frontage on Stevens Creek Boulevard and it already has a shelter. If the VTA would like an enhanced shelter, it would be appropriate for the project to share the cost of the improvement.

- Contribute a fair share to the Class IV protected bikeways on Stevens Creek Boulevard along the project frontage. The project will need to comply to the requirement.

Other Transportation Issues

The proposed site plan shows adequate site access and on-site circulation, and no adverse traffic operational issues are expected to occur at the project driveways as a result of the project. The project would not have an adverse effect on the existing pedestrian or bicycle facilities in the study area.

Hexagon has the following recommendations resulting from the site access, circulation, and parking evaluations.

Recommendations

- Red curbs should be painted next to the project driveways on Lopina Way and Albany Drive ensuring a minimum of 200 feet of clear sight distance from the street.
- The project should provide adequate stacking space for at least two inbound vehicles (40 to 50 feet) between the sidewalk and the garage entry gates at Buildings A, B, and C driveways on Albany Drive and Lopina Way or keep the garage entry gates open during the time period of the day when most inbound vehicle trips are likely to occur (typically from 3:00 PM to 7:00 PM).
- The project should designate curbside passenger loading zones on Stevens Creek Boulevard for the retail uses, on Albany Drive near the residential building entrances, and on Lopina Way between the inbound only driveway to the hotel building and the driveway to the internal road.
- The project applicant should coordinate with City staff to determine if one freight loading space would be adequate to serve the hotel use of the project.
- The project should coordinate with the Cities of San Jose and Santa Clara to provide a mid-block crossing on Stevens Creek Boulevard at the proposed green promenade. The pedestrian crossing should be designed to not conflict with the future streetscape of Stevens Creek Boulevard with protected bike lanes, as planned by the Stevens Creek Urban Village Plan.
- The project should provide bike racks near the front doors of the retail building along Stevens Creek Boulevard.
- To qualify for a reduction in the required number of parking spaces, the project should implement a TDM plan to reduce parking demand and satisfy the parking reduction requirements as specified in Section 20.90.220 of the Zoning Code.
- The project should provide an adequate number of bicycle and motorcycle parking spaces, in accordance with the City zoning code.