



HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: November 16, 2018
To: Eilbret Mirzapour, City of San Jose
From: Robert Del Rio, T.E.
Subject: 270 West Santa Clara Street Hotel Development Traffic Operations Analysis

Hexagon Transportation Consultants, Inc. has completed a traffic operations analysis for the proposed 270 West Santa Clara Street Hotel Development in Downtown San Jose. The currently vacant site is bounded by W. Santa Clara Street on the south, Almaden Boulevard on the west, a residential building on the north and the Hotel De Anza to the east. The project proposes to construct a 330-room hotel. Figure 1 shows the project site location. All parking for the proposed hotel will be valet-only with vehicles parked at off-site locations. An on-street valet drop-off/pick-up zone will be located on the west project frontage along Almaden Boulevard. One driveway is proposed along Almaden Boulevard that will provide access to an off-street loading space.

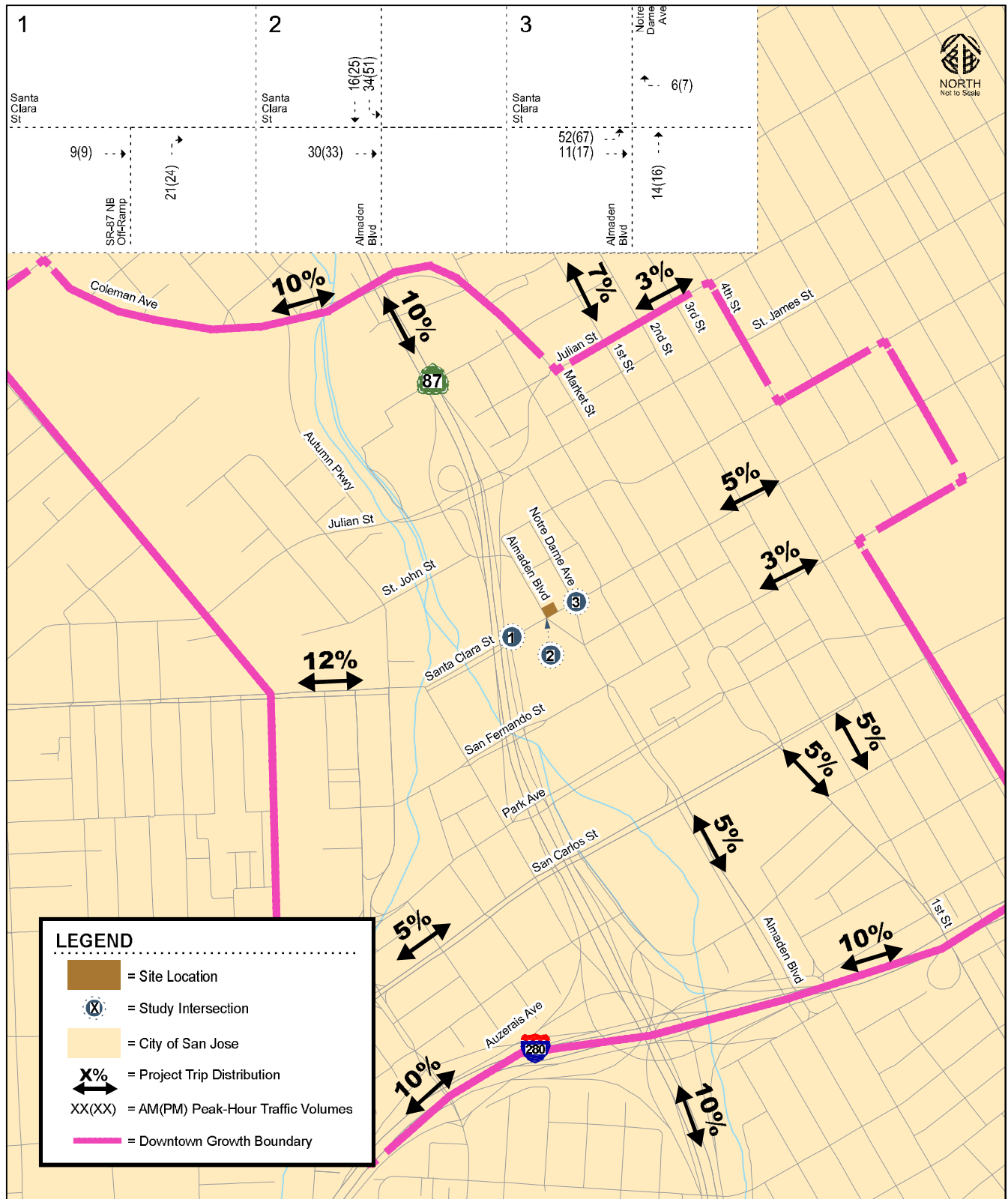
This project is in the Downtown Core, as defined in the San Jose Greater Downtown Strategy for Development (Strategy 2000). The Strategy 2000 EIR approved 11.2 million square feet office, 8,500 residential units, 1.4 million square feet retail and 3,600 hotel rooms in 4 phases of development. The project is proposing hotel rooms that exceed the remaining allocation in Phase I.

The City is currently updating Strategy 2000 land-use capacity and policy assumptions consistent with the Envision San Jose 2040 General Plan. Strategy 2040 (the updated Strategy 2000) will evaluate additional residential units and is planned for City Council approval this Fall 2018. With adoption of Strategy 2040, this project will be covered under Strategy 2040 and no CEQA transportation analysis will be required. The project, however, must perform a traffic operations analysis to identify operational issues. This traffic analysis is intended to satisfy the City's request. analysis to identify operational issues. This traffic analysis is intended to satisfy the City's request.

Scope of Study

The purpose of the traffic operations study was to identify any potential operational issues that could occur as a result of the project and to recommend necessary improvements to ensure adequate access to the site is provided. Based on the proposed project size, site-generated traffic was estimated. Vehicular site access was evaluated based on the proposed driveway locations. Truck access, including trash pickup and loading activities, was evaluated. Parking and on-site vehicular circulation also was analyzed. Lastly, bicycle and pedestrian access and safety were evaluated.

Figure 1
Site Location, Study Intersections, Project Trip Distributions, and Project Trip Assignments



Existing Conditions

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

Existing Roadway Network

Regional access to the project site is provided by State Route 87. Local site access is provided by W. Santa Clara Street, Almaden Boulevard, and Notre Dame Avenue. The SR-87 freeway and local roadways are described below.

SR 87 is primarily a six-lane freeway (four mixed-flow lanes and two HOV lanes) that is aligned in a north-south orientation within the project vicinity. SR 87 begins at its interchange with SR 85 and extends northward, terminating at its junction with US 101. SR 87 provides access to US 101 and I-280/I-680. Access to and from the site is provided via ramps at W. Julian Street and W. Santa Clara Street.

Santa Clara Street is an east-west four-lane street that runs along the south frontage of the project site. It extends as West Santa Clara Street from First Street westward to Stockton Avenue where it transitions into The Alameda. East of First Street, it extends eastward as East Santa Clara Street to US-101 where it transitions into Alum Rock Avenue.

Almaden Boulevard is a north-south one-lane, southbound street between W. Julian Street and W. Santa Clara Street and transitions to a four-lane two-way street south of W. Santa Clara Street. The northbound direction transitions to Notre Dame Avenue north of W. Santa Clara Street. The project proposes a valet drop-off/pick-up area and one loading area driveway along Almaden Boulevard.

Notre Dame Avenue is a north-south two-lane, northbound street between W. Santa Clara Street and W. Julian Street. Notre Dame Avenue provides access to the project site via Carlisle Street and Almaden Boulevard.

St. John Street is an east-west two-lane street located north of the project site. It extends east from Montgomery Street, merges with Almaden Boulevard underneath SR-87, and continues east through Downtown San Jose. St. John Street provides access to the project site via Almaden Boulevard.

Carlisle Street is an east-west two-lane street located north of the project site. It extends from Almaden Avenue from the east to Almaden Boulevard to the west. Carlisle Street provides access to the project site via Almaden Boulevard.

Existing Bicycle and Pedestrian Facilities

Pedestrian facilities in the study area consist mostly of sidewalks along all of the surrounding streets, including the project frontages along W. Santa Clara Street and Almaden Boulevard. Crosswalks and pedestrian signal heads are available at the intersections of W. Santa Clara Street with Almaden Boulevard and Notre Dame Avenue. Overall, the existing sidewalks have good connectivity and provide pedestrians with safe routes to the surrounding pedestrian destinations in the area. In addition, Ford GoBike and Zipcar stations are provided throughout the downtown area. A bike share station is located directly across from the south project frontage, along the south side of W. Santa Clara Street. The nearest Zipcar location is located just 500 feet east of the project site at the southwest corner of the Almaden Avenue/W. Santa Clara Street intersection.

Class II bicycle facilities (striped bike lanes) are provided on Santa Clara Street west of Notre Dame Avenue (along the south project frontage), the extent of San Fernando Street, Park Avenue west of S. Market Street, and Almaden Boulevard south of W. St. John Street (along the west project frontage). First Street and Second Street, south of St. John Street, are designated Class III bike paths and provide “sharrow” or shared-lane markings. St. John Street east of Autumn Street and San Carlos Street east of Woz Way are also designated Class III bikeways and provide “sharrow” or shared lane markings.

The existing bicycle facilities are shown on Figure 2.

Guadalupe River Park Trail

The Guadalupe River multi-use trail system runs through the City of San Jose along the Guadalupe River and is shared between pedestrians and bicyclists and separated from motor vehicle traffic. The Guadalupe River trail is an 11-mile continuous Class I bikeway from Curtner Avenue in the south to Alviso in the north. This trail system can be accessed west of W. Santa Clara Street and Almaden Boulevard, 750 feet west of the project site.

Ford GoBike Bike Share

The City of San Jose participates in the Ford GoBike bike share program that allows users to rent and return bicycles at various locations. Bike share bikes can only be rented and returned at designated stations throughout the downtown area. A bike share station is located directly across from the south project frontage, along the south side of W. Santa Clara Street.

Zipcar

Zipcar provides vehicles to individuals for hourly or daily use. This program places vehicles at designated Zipcar locations throughout the downtown area for use by individuals who have Zipcar accounts. This car sharing service allows drivers’ access to an automobile without the need to own their own. The nearest Zipcar location is located just 500 feet east of the project site at the southwest corner of the Almaden Avenue/W. Santa Clara Street intersection. Figure 2 shows the existing bicycle facilities and Zipcar stations in the project vicinity.

Existing Transit Services

Existing transit services in the study area are provided by the Santa Clara Valley Transportation Authority VTA, Caltrain, Altamont Commuter Express (ACE), and Amtrak. The project site is located approximately ½-mile from the Diridon Transit Center located on Cahill Street to the west of the project site. Connections between local and regional bus routes, light rail lines, and commuter rail lines are provided within the Diridon Transit Center. Figure 3 shows the existing transit facilities.

Bus Service

The downtown area is served by many local bus lines. The bus lines that run along Santa Clara Street are listed in Table 1, including their route descriptions and commute hour headways. The nearest bus stops are located at the northwest and southeast corners of the Almaden Boulevard/W. Santa Clara Street intersection.

The VTA also provides a shuttle service within the downtown area. The downtown area shuttle (DASH) provides shuttle service from the San Jose Diridon Caltrain station to San Jose State University, and the Paseo De San Antonio and Convention Center LRT stations via E. San Fernando and E. San Carlos Streets. The nearest DASH bus stop is located 1000 feet south of the project site at the intersection of E. San Fernando Street and S. Almaden Boulevard.

Figure 2
Existing Bicycle Facilities and Zipcar Locations

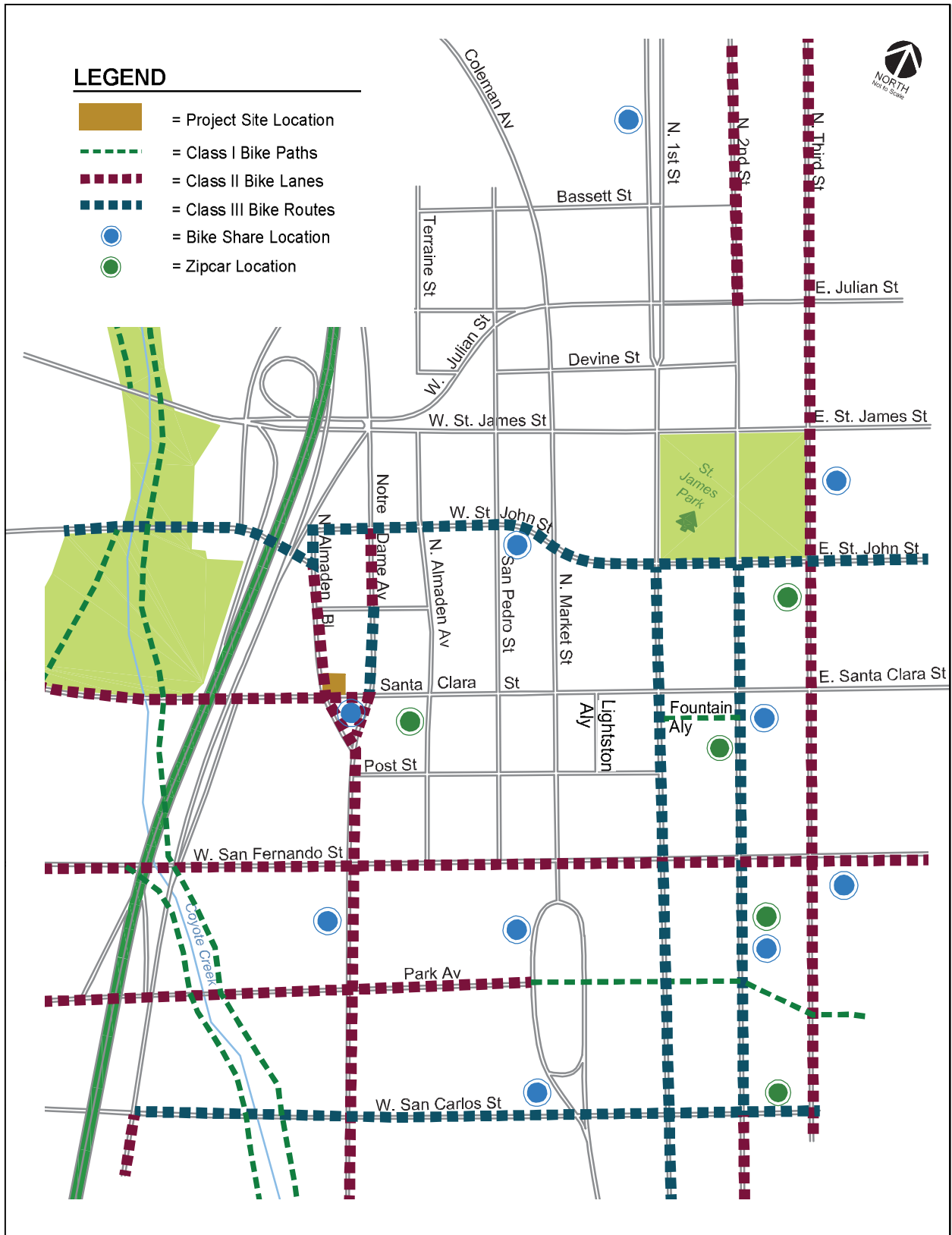


Figure 3
Existing Transit Facilities

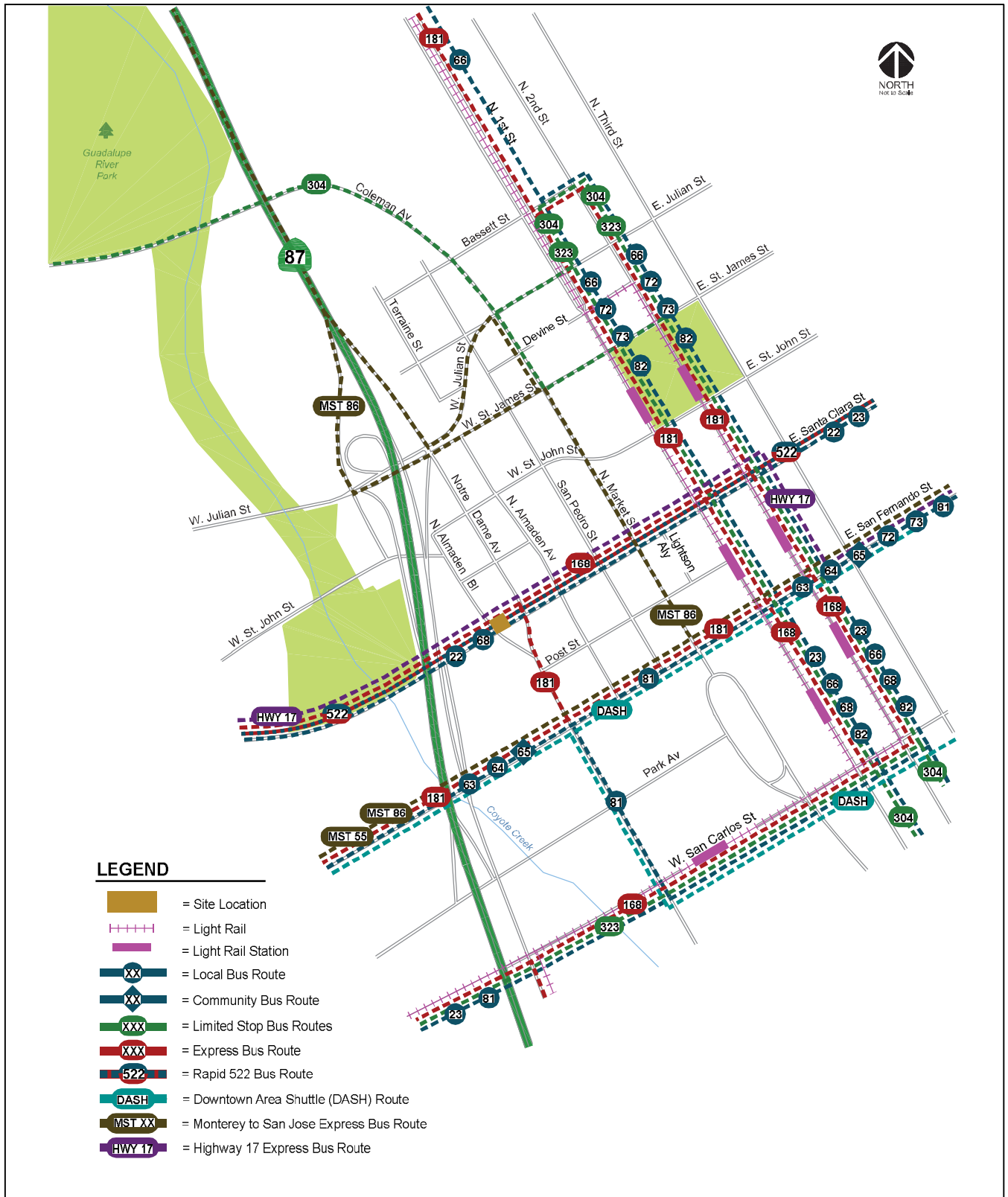


Table 1
Existing Bus Service Near the Project Site

Bus Route	Route Description	Hours of Operation	Headway ¹
Local Route 22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	3:20 AM - 4:15 AM	15 min
Local Route 68	Gilroy Transit Center to San Jose Diridon Station	4:00 AM - 1:25 AM	15-20 min
Express Route 168	Gilroy Transit Center to San Jose Diridon Station	5:30 - 8:55 AM, 3:40 - 7:05 PM	20 - 30 min
Rapid Route 522	Palo Alto Transit Center to Eastridge Transit Center	4:40 AM - 11:45 PM	12 min
Hwy 17 Express	Downtown Santa Cruz / Scotts Valley to Downtown San Jose	4:40 AM - 11:40 PM	15 - 30 min

Notes:
¹ Approximate headways during peak commute periods.

Limited, Express, and Rapid bus lines operated by VTA and regional bus services operated by other transit agencies are accessible from bus stops within walking distance from the project. The Rapid 522 Bus Line which provides limited-stop rapid transit service between Palo Alto and King Road in San Jose runs along Santa Clara Street and serves the bus stops located at the Almaden Boulevard/W. Santa Clara Street intersection. The bus stops are also served by the Highway 17 Express, a weekday commuter service that runs between San Jose and Santa Cruz via SR-17.

VTA Light Rail Transit (LRT) Service

The Santa Clara Valley Transportation Authority (VTA) currently operates the 42.2-mile VTA light rail line system extending from south San Jose through downtown to the northern areas of San Jose, Santa Clara, Milpitas, Mountain View and Sunnyvale. The service operates nearly 24-hours a day with 15-minute headways during much of the day. The Mountain View–Winchester and Alum Rock–Santa Teresa LRT lines operate along First and Second Streets, north of San Carlos Street. The Santa Clara LRT station platforms on both First and Second Streets are located within walking distance, less than 0.3-mile, of the project site. The San Jose Diridon station is located along the Mountain View–Winchester LRT line and serves as a transfer point to Caltrain, ACE, and Amtrak services.

Caltrain Service

Commuter rail service between San Francisco and Gilroy is provided by Caltrain, which currently operates 92 weekday trains that carry approximately 47,000 riders on an average weekday. The project site is located about 3/4-mile from the San Jose Diridon station. The Diridon station provides 581 parking spaces, as well as 16 bike racks, 48 bike lockers, and 27 Ford GoBike bike share docks. Trains stop frequently at the Diridon station between 4:28 AM and 10:30 PM in the northbound direction, and between 6:31 AM and 1:38 AM in the southbound direction. Caltrain provides passenger train service seven days a week and provides extended service to Morgan Hill and Gilroy during commute hours.

Altamont Commuter Express Service (ACE)

ACE provides commuter rail service between Stockton, Tracy, Pleasanton, and San Jose during commute hours, Monday through Friday. Service is limited to four westbound trips in the morning and four eastbound trips in the afternoon and evening with headways averaging 60 minutes. ACE trains stop at the Diridon Station between 6:32 AM and 9:17 AM in the westbound direction, and between 3:35 PM and 6:38 PM in the eastbound direction.

Amtrak Service

Amtrak provides daily commuter passenger train service along the 170-mile Capitol Corridor between

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

Project Trip Generation

The trip generation analysis estimates the number of external vehicle-trips generated by the proposed project. Baseline (or gross) vehicle-trips were estimated by using average vehicle-trip rates from the *ITE Trip Generation Manual, 10th Edition* for the Hotel land use. The baseline trip estimates were reduced to account for the predicted vehicle mode share of the project based on its location and surrounding transportation system and land uses.

Location-Based Adjustment

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 Tool, the project site is located within a designated urban high-transit area. Therefore, the baseline project trips were adjusted to reflect an urban high-transit mode share. Urban high-transit is characterized as an area with high density, good accessibility, high public transit access, low single-family homes, middle-aged and older housing stock. Hotel uses within urban low-transit areas have a vehicle mode share of 83 percent. Thus, a 17 percent reduction was applied to trips generated by the proposed project.

Net Project Trip Generation

Based on the trip generation rates, it is estimated that the proposed project would generate 2,290 daily trips, with 129 trips (76 inbound and 53 outbound) occurring during the AM peak hour and 165 trips (84 inbound and 81 outbound) occurring during the PM peak hour. The trip generation estimates for the proposed project are shown in Table 2.

It should be noted that the proposed project is located within the Downtown Growth Area. The Downtown Growth Area land use designation is characterized by mixed land uses and high-rise buildings that create opportunities for multi-modal travel and strong transit demand. In addition, the availability of bicycle lanes and sidewalks throughout downtown and the project's close proximity to major transit services will provide for and encourage the use of multi-modal travel options (bicycling and walking) and reduce the use of single-occupant automobile travel. Therefore, the estimates of trips to be generated by the proposed project as presented and evaluated within this study may represent an over-estimation of traffic and impacts associated with the proposed project. It is expected that the auto trips ultimately generated by the project would be less and any identified operational issues reduced with the use of the multi-modal transportation system within the Downtown area.

Project Trip Distribution and Trip Assignment

The trip distribution pattern for the project was based on previous traffic studies prepared for similar projects in downtown San Jose. The project trips were assigned to the roadway network based on the proposed project driveway locations, existing travel patterns in the area, freeway access, and the relative locations of complementary land uses. The project trip distribution patterns and trip assignments for the proposed hotel is shown on Figure 1.

Table 2
Project Trip Generation Estimates

Land Use	ITE Land Use Code	Trip Reduction %	Size	Daily		AM Peak Hour						PM Peak Hour					
				Rate	Trip	Split			Trip			Split			Trip		
						Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
Baseline Vehicle Trips																	
Hotel ¹	310		330 Rooms	8.360	2,759	0.470	59%	41%	91	64	155	0.600	51%	49%	101	97	198
Location-Based Adjustment																	
Urban High Transit ²		17%			-469				-15	-11	-26				-17	-16	-33
Net Project Trips					2,290				76	53	129				84	81	165
Notes:																	
¹ Source: ITE <i>Trip Generation Manual</i> , 10th Edition 2017																	
² The project site is located within an urban high-transit area based on the City of San Jose VMT Evaluation Tool (March 14, 2018). The trip reduction is based on the percent of mode share for all of the other modes of travel beside vehicle.																	

Vehicular Site Access

A review of the project site plans was performed to determine if adequate site access and on-site circulation is provided and to identify any access issues that should be improved. This review is based on a site plan provided to Hexagon, dated August 1, 2018, and in accordance with generally accepted traffic engineering standards and City of San Jose requirements. The street level site plan is shown on Figure 4. One driveway will provide access to an off-street loading space, to be discussed in the Truck Access section.

An on-street valet drop-off/pick-up zone is proposed to be located along the Almaden Boulevard project frontage. Access to the valet drop-off/pick-up zone will be constrained due to the one-way operations of streets that provide access to the project site. Inbound traffic from the south will utilize northbound-only Notre Dame Avenue and Carlisle Street to access Almaden Boulevard; from the north, inbound traffic will utilize W. St. John Street to access Almaden Boulevard.

The only outbound route from the valet drop-off/pick-up zone is via a southbound left-turn lane on Almaden Boulevard out to eastbound Santa Clara Street. An existing buffered bike lane that extends approximately 75 feet back from the Almaden Boulevard/Santa Clara Street intersection restricts project traffic from accessing the southbound right-turn lane. However, the bike lane buffer consists of only pavement markings and no physical barriers exist to prevent drivers from crossing over the bike lane.

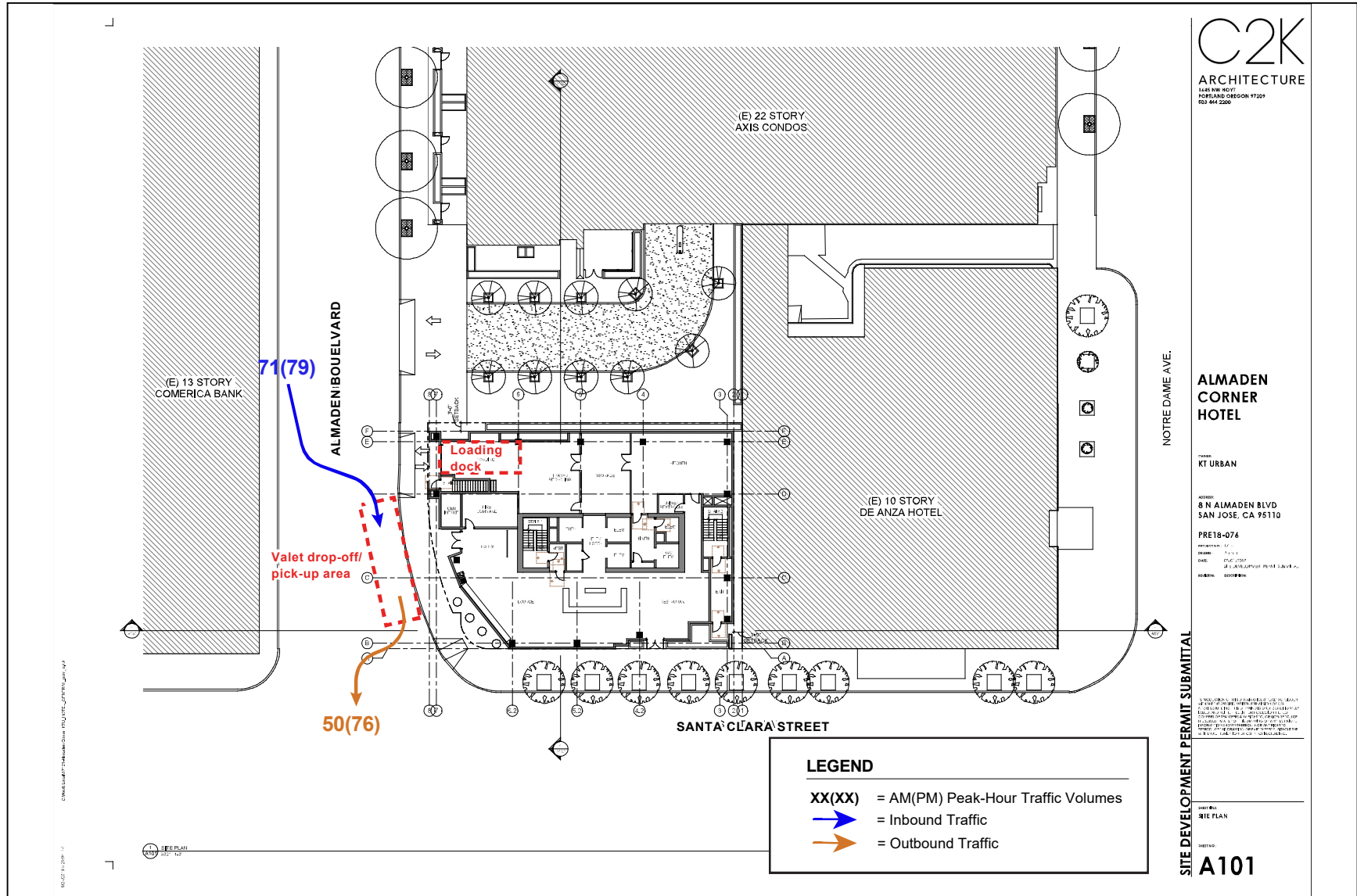
Recommendation: It is recommended that lane delineators be installed at the bike lane buffer to ensure that project traffic does not cross the bike lane to access the southbound right-turn lane.

Valet Drop-off/Pick-up Zone Operations

The proposed valet drop-off/pick-up zone is located along Almaden Boulevard. There are currently two on-street metered parking spaces on Almaden Boulevard that will need to be eliminated to accommodate the valet drop-off/pick-up area. Approximately 40 feet of space will be provided along the project's frontage with the parking removal. Thus, storage for no more than two vehicles will be provided. Also, since the valet drop-off/pick-up area will be located on a public street, the area will not be restricted to the use of only the hotel and may not be available for valet use at all times.

Based on the estimated trip generation, a maximum of 84 inbound trips would need to be served at the valet drop-off/pick-up zone during the PM peak-hour, or approximately three vehicles every two minutes. The number of vehicles that can be served at the valet drop-off/pick-up zone will depend on the proposed valet parking operations. However, it is recommended that a minimum of three to four valet staff be present during the peak arrival/departure periods for the hotel. In addition, vehicles should not be retrieved in advance of guests being present at the valet area. Given the limited storage space for valet operations along Almaden Boulevard, the valet area should not be used for transportation network companies (TMCs) such as Uber, Lyft, etc. while waiting for customers. The project trip assignment at the proposed valet drop-off/pick-up zone is shown in Figure 4.

Figure 4
Ground-Level Site Plan and Project Trips at Valet Drop-off/Pick-up Area



Truck Site Access

Based on the City of San Jose off-street loading standard for hotel developments in the Downtown Area (20.70.440), the project is required to provide at least one off-street loading space. The project proposes to provide one off-street loading space accessible from Almaden Boulevard located north of the valet drop-off/pick-up zone (shown on Figure 4). Therefore, the project will meet the requirement for the number off-street loading spaces. The project should work with City Staff to ensure that the loading space provided meets City standards for height and width. Additionally, the loading space does not provide space for vehicle turn-around; trucks will be required to back-in to the loading space from Almaden Boulevard or back-out of the loading space directly onto Almaden Boulevard. Appropriate visible and/or audible warning signals should be provided at the loading space driveway to alert pedestrians and bicyclists of vehicles exiting the driveway.

The site plan indicates that a trash enclosure will be located on the ground level adjacent to the loading space. Garbage trucks will not enter the loading space and waste bins should not be placed on Almaden Boulevard along the project frontage to avoid blockage of turn lanes. Therefore, waste bins should be wheeled out to the loading dock entrance for garbage truck pickup. It is recommended that truck access to the loading space be restricted during garbage pick-up days to provide space for waste bins at the loading dock entrance.

Pedestrian and Bicycle Access and Circulation

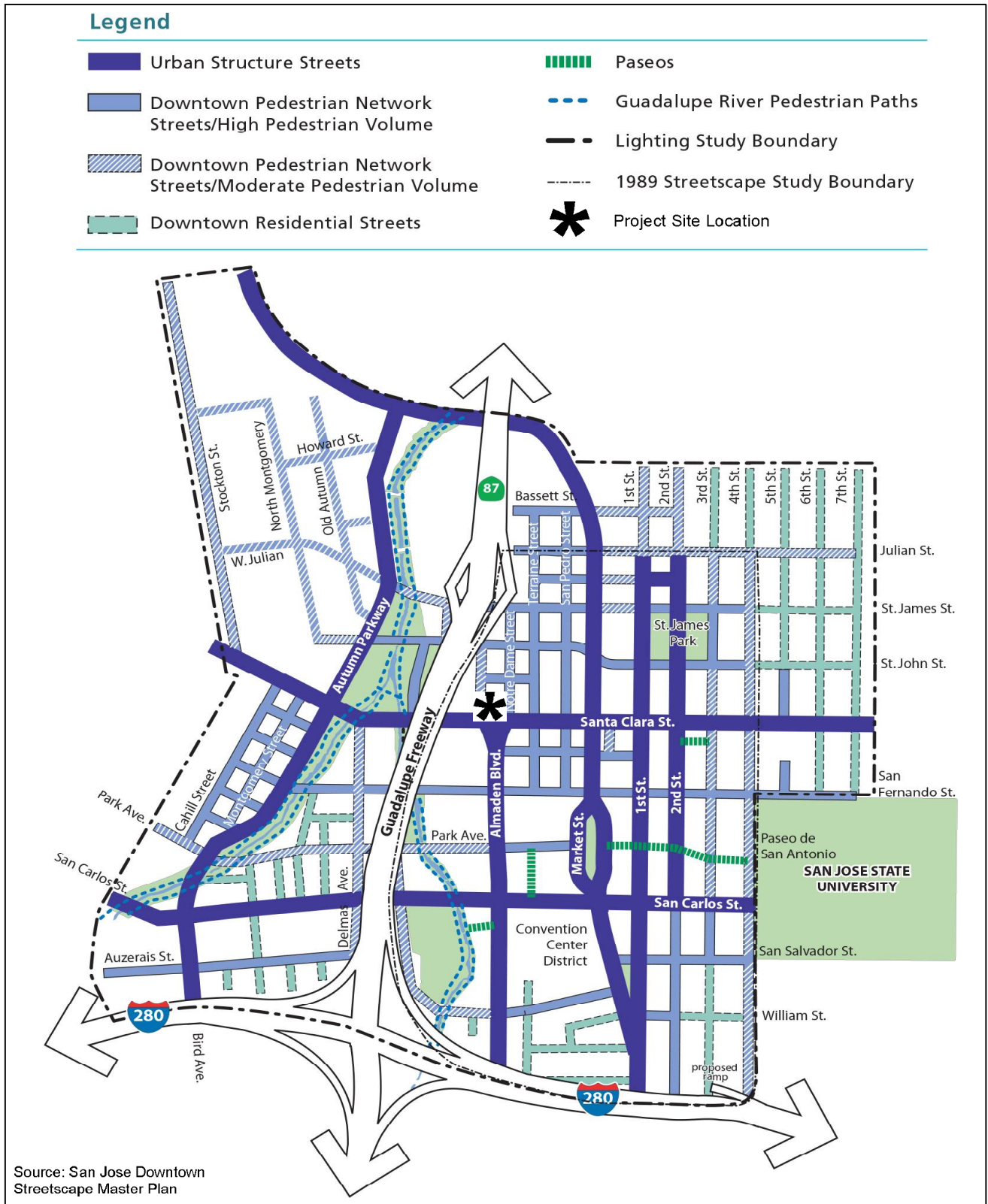
The Downtown Streetscape Master Plan (DSMP) provides design guidelines for existing and future development for the purpose of enhancing the pedestrian experience in the Greater Downtown Area. Per the DSMP and shown in Figure 5, Almaden Boulevard and Notre Dame Avenue are designated Downtown Pedestrian Network Streets (DPNS), which are intended to support a high level of pedestrian activity as well as retail and transit connections. The DPNS streets provide a seamless network throughout the downtown that is safe and comfortable for pedestrians and connects all major downtown destinations. Design features of a DPNS create an attractive and safe pedestrian environment to promote walking as the primary travel mode. The DSMP policies state that vehicles crossing the sidewalk are often a safety hazard for pedestrians and measures should be taken within the design for any new project to minimize the number of curb cuts and driveways.

Sidewalks are provided along the project frontages along W. Santa Clara Street and Almaden Boulevard. Crosswalks and pedestrian signal heads are available at the intersections of W. Santa Clara Street with Almaden Boulevard and Notre Dame Avenue. Overall, the existing sidewalks have good connectivity and provide pedestrians with safe routes to the surrounding pedestrian destinations in the area. In addition, Ford GoBike and Zipcar stations are provided throughout the downtown area. A bikeshare station is located directly across from the south project frontage, along the south side of W. Santa Clara Street. The nearest Zipcar location is located just 500 feet east of the project site at the southwest corner of the Almaden Avenue/W. Santa Clara Street intersection.

Class II bicycle facilities (striped bike lanes) are provided on Santa Clara Street west of Notre Dame Avenue (along the south project frontage), the extent of San Fernando Street, Park Avenue west of S. Market Street, and Almaden Boulevard south of W. St. John Street (along the west project frontage). First Street and Second Street, south of St. John Street, are designated Class III bike paths and provide “sharrow” or shared-lane markings. St. John Street east of Autumn Street and San Carlos Street east of Woz Way are also designated Class III bikeways and provide “sharrow” or shared lane markings.

Additionally, the Guadalupe River Park Trail, a Class I pedestrian and bicycle trail, is accessible west of W. Santa Clara Street and N. Almaden Boulevard just 750 feet west of the project site.

**Figure 5
Downtown Pedestrian Street Network**



Transit Facilities

The project is in close proximity to major transit services that will provide the opportunity for multi-modal travel to and from the project site. The Santa Clara LRT station is a major transit transfer point between VTA bus and light rail services. Northbound and southbound platforms located on S. First Street and S. Second Street, respectively, are connected by a pedestrian- and bike-only path (Fountain Alley) and are located within walking distance, less than 0.3-mile, of the project site. In addition, the San Jose Diridon Station is located along the Mountain View–Winchester LRT line and serves as a transfer point to Caltrain, ACE, and Amtrak services. The pedestrian and bicycle facilities located along streets adjacent to the project site provide access to major transit stations and provide for a balanced transportation system as outlined in the Envision 2040 General Plan goals and policies.

Parking

Projects in the downtown area are located in close proximity to offices, recreation, and retail services, allowing individuals to satisfy their daily needs for work or shop near the hotel. The availability of bicycle lanes and sidewalks throughout downtown and the project's close proximity to major transit services will provide for and encourage the use of multi-modal travel options (bicycling and walking) and reduce the use of single-occupant automobile travel and demand for on-site parking described below.

Vehicle Parking

According to the City of San Jose Downtown Zoning Regulations (20.70.100), the project is required to provide 0.35 off-street vehicle parking space per hotel room. Based on the City's off-street parking requirements, the project would be required to provide a total of 116 off-street parking spaces.

The project does not propose to provide any off-street parking spaces on site. The project proposes all valet parking to off-site parking areas. Guests may also choose to self-park in nearby public parking lots and garages. There are several parking facilities within approximately ¼-mile walking distance of the project site that could potentially serve as designated parking facilities for the project. Nearby publicly-accessible parking facilities and approximate capacity are listed in Table 3 and shown on Figure 6. However, several of the identified off-street parking facilities are proposed future development sites and their availability for use by the proposed hotel cannot be guaranteed. Therefore, the City will require that the project secure a 10-year lease for a minimum of 116 parking spaces at designated off-site parking facilities within walking distance of the project site.

Bicycle Parking

Based on the project's downtown location, it is likely that guests of the proposed hotel will be visiting locations in close proximity to the site or will be able to quickly access transit to reach their destination. Therefore, the project is required to meet the City's Bicycle Parking requirements. The City Municipal Code (Table 20-190) requires one bicycle parking space plus one parking space per ten guest rooms. Bicycle parking spaces shall consist of at least eighty percent short-term and at most twenty percent long-term spaces. Thus, the proposed project is required to provide a total of 34 bicycle parking spaces: 28 short-term bicycle parking spaces and 6 long-term bicycle parking spaces to meet the city standards.

Vehicular Queuing Analysis

A vehicle queuing analysis was completed for high-demand movements at the study intersections. The study locations were selected based on the number of projected project trips at utilizing left-turning lanes at surrounding intersections. The vehicle queuing analysis was estimated using a Poisson

Figure 6
Off-site Public Parking Locations



Table 3
Off-site Public Parking Facilities

#	Facility	Approx. Number of Parking Spaces (veh)
1	Sentry Parking Lot	50
2	Commonwealth/Comerica Garage	589
3	225 W. Santa Clara Garage	803
4	Market & San Pedro Square Garage *	1393
5	Victory Parking Lot	438
6	San Jose Water Company Lot #2	250
7	CityView Plaza III	1000
8	10 Almaden Garage	200
9	160 W. Santa Clara Garage	528
10	95 S. Market Garage	96
11	Adobe Systems Inc. Garage	244
12	CityView Plaza Garage	898

* Denotes parking facility operated by the City of San Jose

probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

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

Where:

P (x=n) = probability of “n” vehicles in queue per lane

n = number of vehicles in the queue per lane

λ = average number of vehicles in the queue per lane (vehicles per hour per lane/signal cycles per hour)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. The results of the queue analysis are summarized in Table 4.

The queuing analysis shows that the eastbound left-turn movement at the Notre Dame Avenue and Santa Clara Street intersection currently experiences a queue that exceeds the available storage capacity under existing conditions and would continue to do so under background conditions. The proposed project is projected to increase the queue for the eastbound left-turn movement by two vehicles during the AM and PM peak hours. Providing additional queue storage capacity for the described location is not feasible as the existing eastbound left-turn lane already extends to the

Table 4
Queueing Analysis Summary

Measurement	SR-87 NB Off-Ramp/ Santa Clara		Almaden Blvd/ Santa Clara		Notre Dame/ Santa Clara	
	NBR AM	NBR PM	SBL AM	SBL PM	EBL AM	EBL PM
Existing Conditions						
Cycle/Delay ¹ (sec)	100	100	100	100	100	100
Lanes	2	2	1	1	1	1
Volume (vph)	985	622	65	62	167	211
Volume (vphpl)	493	311	65	62	167	211
Avg. Queue (veh./ln.)	14	9	2	2	5	6
Avg. Queue ² (ft./ln)	342	216	45	43	116	147
95th % . Queue (veh./ln.)	20	14	4	4	8	10
95th % . Queue (ft./ln)	500	350	100	100	200	250
Storage (ft./ ln.)	800	800	350	350	130	130
Adequate (Y/N)	YES	YES	YES	YES	NO	NO
Background Conditions						
Cycle/Delay ¹ (sec)	100	100	100	100	100	100
Lanes	2	2	1	1	1	1
Volume (vph)	1105	671	67	82	180	235
Volume (vphpl)	553	336	67	82	180	235
Avg. Queue (veh./ln.)	15	9	2	2	5	7
Avg. Queue ² (ft./ln)	384	233	47	57	125	163
95th % . Queue (veh./ln.)	22	15	4	5	9	11
95th % . Queue (ft./ln)	550	375	100	125	225	275
Storage (ft./ ln.)	800	800	350	350	130	130
Adequate (Y/N)	YES	YES	YES	YES	NO	NO
Background Plus Project Conditions						
Cycle/Delay ¹ (sec)	100	100	100	100	100	100
Lanes	2	2	1	1	1	1
Volume (vph)	1126	695	101	133	232	302
Volume (vphpl)	563	348	101	133	232	302
Avg. Queue (veh./ln.)	16	10	3	4	6	8
Avg. Queue ² (ft./ln)	391	241	70	92	161	210
95th % . Queue (veh./ln.)	22	15	6	7	11	13
95th % . Queue (ft./ln)	550	375	150	175	275	325
Storage (ft./ ln.)	800	800	350	350	130	130
Adequate (Y/N)	YES	YES	YES	YES	NO	NO
¹ Vehicle queue calculations based on cycle length for signalized intersections and control delay for unsignalized intersections. ² Assumes 25 feet per vehicle in the queue. NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.						

upstream intersection at Almaden Boulevard/Santa Clara Street. Additionally, installing a third eastbound lane at the at the west leg of the Almaden Boulevard/Santa Clara Street intersection would require shortening of an upstream left-turn pocket along with narrowing of sidewalks and/or removal of bike lanes. The removal and/or alteration of improvements intended to encourage the use of multi-modal travel to accommodate vehicular demand is not consistent with General Plan goals. Therefore,

the extension of eastbound left turn-lane at the Notre Dame Avenue/Santa Clara Street intersection is not recommended.

It is also important to note that the project's close proximity to major transit services and bicycle facilities along Santa Clara Street and Almaden Boulevard will provide for and encourage the use of multi-modal travel options and reduce the use of single-occupant automobile travel. It is expected that the auto trips ultimately generated by the project would be less than those estimated within this study and the identified operational deficiencies (queues at intersections) reduced as development and the planned enhancement of the multi-modal transportation system progresses within the downtown area.

Transportation Demand Management

The project should establish single-occupant auto trip reduction measures, via a travel demand management (TDM) program, that result in the reduction of vehicular trips to the project site and reduce the operational issues identified. The TDM program should encourage multimodal travel and use of the extensive transit system and pedestrian/bicycle facilities in the downtown area to the maximum extent possible. The applicant/property owner should manage the TDM program to ensure tenant participation. An effective TDM program that includes several of the measures identified below can easily achieve a 25% percent reduction in vehicle trips that will result in a significant reduction of the projected operational issues. However, the analysis contained in this report does not include reductions based on TDM measures. Therefore, the estimates of trips to be generated by the proposed project as presented and evaluated within this study may represent an over-estimation of traffic and impacts associated with the proposed project.

Implementation of a TDM Program has the potential to greatly reduce project generated traffic and the identified operational issues. The project TDM program may include, but would not be limited to, the following, or alternative equivalent, elements to reduce vehicle trips:

- *Free Guest Shuttle Services* to destinations throughout Downtown San Jose and Mineta International Airport
- *Shared on-site bicycles* for guest use
- *Eco Pass or Clipper Card* for all employees, providing free rides on Santa Clara County's local transit agency, the Santa Clara Valley Transportation Authority (VTA)
- *Centrally-Located Kiosks* with transit schedules, bike and transit maps, and other commute alternative information
- On-site TDM coordinator and services

Conclusions

The project, as proposed, consists of a 330-room hotel. All parking for the proposed hotel will be valet-only with vehicles parked at off-site locations. The City will require that the project secure a 10-year lease for a minimum of 116 parking spaces at designated off-site parking facilities within walking distance of the project site. An on-street valet drop-off/pick-up zone will be located on the west project frontage along Almaden Boulevard. One driveway is proposed along Almaden Boulevard that will provide access to an off-street loading space.

This project is in the Downtown Core, as defined in the San Jose Greater Downtown Strategy for Development (Strategy 2000). The Strategy 2000 EIR approved 11.2 million square feet office, 8,500 residential units, 1.4 million square feet retail and 3,600 hotel rooms in 4 phases of development. The

project is proposing hotel rooms that exceed the remaining allocation in Phase I. The City is currently updating Strategy 2000 land-use capacity and policy assumptions consistent with the Envision San Jose 2040 General Plan. Strategy 2040 (the updated Strategy 2000) will evaluate additional residential units and is planned for City Council approval this Fall 2018. With adoption of Strategy 2040, this project will be covered under Strategy 2040 and no CEQA transportation analysis will be required.

The availability of bicycle lanes and sidewalks throughout downtown and the project's proximity to major transit services will provide for and encourage the use of multi-modal travel options (bicycling and walking) and reduce the use of single-occupant automobile travel. Therefore, the estimates of trips to be generated by the proposed project as presented and evaluated within this study may represent an over-estimation of traffic and impacts associated with the proposed project. It is expected that the auto trips ultimately generated by the project would be less and the identified operational issues reduced with the use of the multi-modal transportation system within the Downtown area.

A summary of the site access and circulation review along with recommended adjustments is provided below.

Recommendations

- Since the valet drop-off/pick-up area will be located on a public street, the area will not be restricted to the use of only the hotel and may not be available for valet use at all times. It is recommended that lane delineators be installed at the bike lane buffer along Almaden Boulevard near the proposed valet drop-off/pick up area to ensure that project traffic does not cross the bike lane to access the southbound right-turn lane.
- It is recommended that a minimum of three to four valet staff be present during the peak arrival/departure periods for the hotel. In addition, vehicles should not be retrieved in advance of guests being present at the valet area.
- Given the limited storage space for valet operations along Almaden Boulevard, the valet area should not be used for transportation network companies (TMCs) such as Uber, Lyft, etc. while waiting for customers.
- Appropriate visible and/or audible warning signals should be provided at the loading space driveway to alert pedestrians and bicyclists of vehicles exiting the driveway.
- Waste bins should be wheeled out to the loading dock entrance for garbage truck pickup. It is recommended that truck access to the loading space be restricted during garbage pick-up days to provide space for waste bins at the loading dock entrance.
- The project should establish single-occupant auto trip reduction measures, via a travel demand management (TDM) program.



MEMORANDUM

To: Mark Tersini
KT Urban

From: Frederik Venter, P.E.
Elizabeth Chau, P.E.
Kimley-Horn and Associates, Inc.

Date: May 2, 2019

Subject: Almaden Corner Hotel Valet Area Analysis

Kimley-Horn and Associates, Inc. (Kimley-Horn) was retained by KT Urban to evaluate the valet area for the proposed Almaden Corner Hotel. The proposed hotel will consist of 272 guest rooms and will be located on the northeast corner of Almaden Boulevard and Santa Clara Street in the City of San Jose (City).

HOTEL VALET AREA

Figure 1 shows the site plan for the proposed hotel (dated March 2019). The City plans to provide a bulbout on the north-east corner to shorten the crosswalk distance on the northern leg. Two valet spaces can be provided along the hotel frontage on Almaden Avenue. The City of San Jose will also allow valet to operate on Santa Clara Street along the project frontage. Santa Clara Street will provide approximately three (3) additional valet spaces for a total of five (5) valet spaces. **Attachment A** provides a drawing with the proposed valet on Almaden Avenue and Santa Clara Street.

Amendment to San Jose Municipal Code

A proposed City ordinance (**Attachment B**) will amend Chapter 11 of the San Jose Municipal Code (SJMC) to establish Chapter 11.36 which provides regulations for on-street valet parking zones. Based on Chapter 11.36 of the SJMC, valet parking zone may utilize public right-of way at non-adjacent locations during specified hours of the day, with approval with the City.

Typical Weekday

To determine the number of spaces adequate for the valet area during a typical weekday, a Poisson's distribution was assumed to determine the likelihood a certain number of vehicles, X would arrive within a given time period, P .

The Poisson's distribution utilized the following equation:

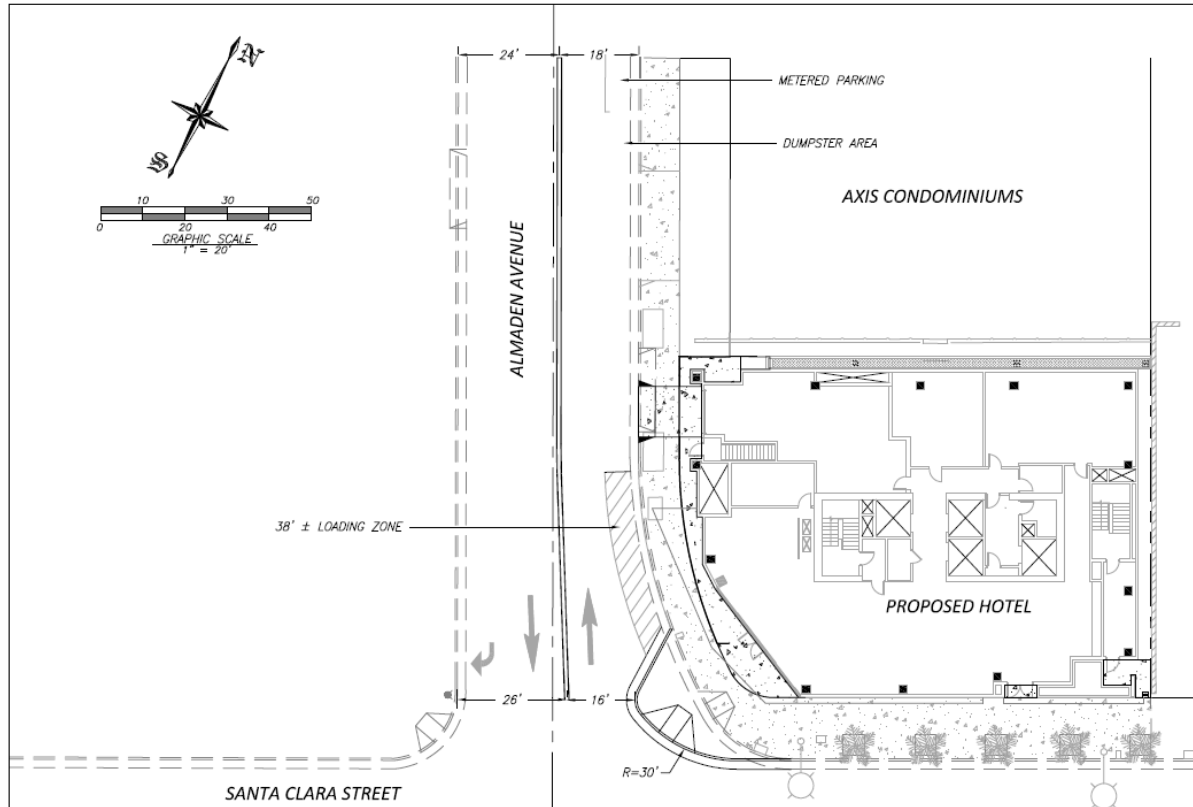
$$P(X = x) = e^{-m} \times \frac{m^x}{x!}$$

Where,

m = average arrival rate

x = total number of vehicles expected to arrive within a given time period

Figure 1: Proposed Site Plan



The average arrival rate was determined based on the peak hour trips calculated based on ITE *Trip Generation 10th Edition* average rates for Business Hotel land use. The trip generation rates were compared with the existing trip generation at Westin Hotel, which has a similar valet operation as the proposed hotel. The arrival time interval was determined based on average time the vehicles dwelled in the valet area at the Westin Hotel. It was observed that valets assisted guests with vehicle pick-up during the AM peak and assisted guest with vehicle drop-off during the PM peak. The field observation notes and trip generation are included in **Attachment C**.

Table 1 summarizes the number of arriving vehicles during the typical AM and PM peak period. The Poisson's distribution found that during the AM peak hour, there is a 99.5% cumulative probability that 5 or less vehicles would arrive at the hotel. During the PM peak hour there is a 98.3% cumulative probability that 3 or less vehicles would arrive at the hotel. The arrival probability worksheet is included in **Attachment D**.

Based on the Poisson's arrival rates, the hotel will need a total of five (5) valet spaces during the AM and PM peak.

Table 1: Typical Weekday Valet Arrival Summary

Peak Period	Arrival Time Period (P)	Number of arriving vehicles	Cumulative Probability
AM Peak	4 min	5	99.5%
PM Peak	1.65 min	3	98.3%

Hotel Event

It is not anticipated that the hotel will host special events that will increase the demand for valet service due to the lack of banquet and conference rooms; however, a 25-person event was included in this study as a conservative approach.

Similar to determine the number of valet spaces during a typical weekday, a Poisson’s distribution was developed to determine the number of valet spaces necessary for 25-person event. For each event, the Poisson’s distribution evaluated the beginning of the event, where attendees would be dropping off their vehicles. For a conservative approach, it was assumed that for each event that each attendee would arrive and need to park a separate vehicle. **Table 2** summarizes the number of arriving vehicles during a 25-person event. The arrival probability worksheet is included in **Attachment E**.

Table 2: Special Event Valet Arrival Summary

Event Size	Arrival Time Period (P)	Number of arriving vehicles	Cumulative Probability
25-person	4 min	5	99.3%

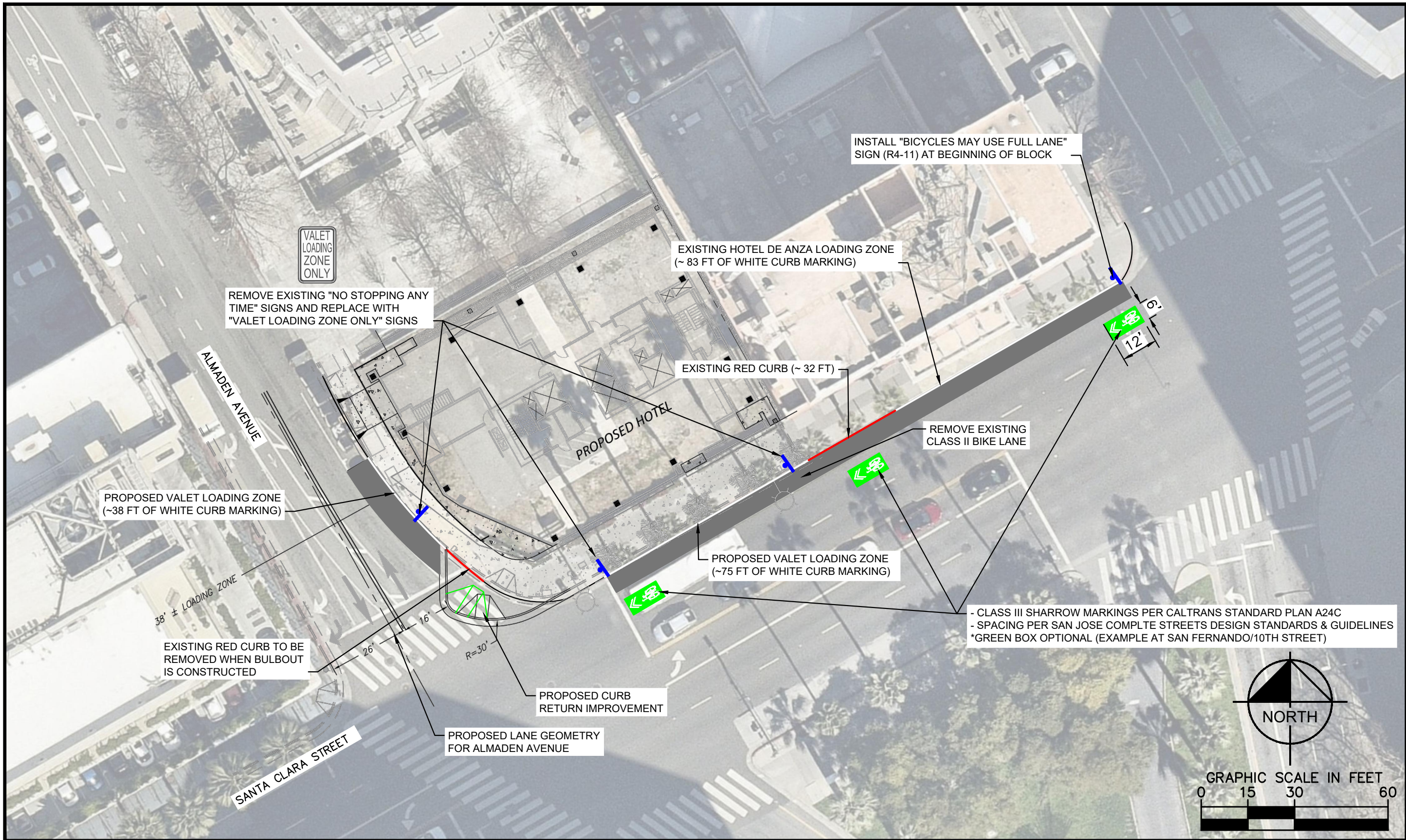
As shown in **Table 2**, hotel will need to have 5 spaces valet spaces to accommodate the demand of special events with attendance of 25 persons. It should be noted that the actual number of valet spaces maybe be less, since event attendees may already be a hotel guests or multiple guest would arrive in one vehicle.

CONCLUSION

The proposed Almaden Corner Hotel will be located at northeast corner of Almaden Boulevard and Santa Clara Avenue in San Jose, California. The proposed hotel will be able to provide a total of 5 valet spaces adjacent to the hotel. An evaluation was conducted to determine the total number of valet spaces would be needed during the typical weekday AM and PM peak periods and during special event. The evaluations found that the hotel will need to provide a total of five (5) valet spaces during the typical weekday AM and PM peak periods and will need to provide five (5) valet spaces during special events. Even though five (5) valet spaces are provided at the hotel, it is recommended to provide additional valet attendants during a special event to account for guests that arrive to the hotel that do not attend the event.

- Attachment A – Proposed Valet Improvements
- Attachment B – Valet Parking Zone City Ordinance
- Attachment C – Westin Hotel Field Observation and Trip Generation Comparison
- Attachment D – Almaden Corner Hotel Valet Arrival Probability (Typical Weekday)
- Attachment E – Almaden Corner Hotel Valet Arrival Probability (Hotel Event)

Attachment A



Attachment B

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF SAN JOSE AMENDING CHAPTER 11.36 OF TITLE 11 OF THE SAN JOSE MUNICIPAL CODE TO ESTABLISH ON-STREET VALET PARKING ZONES, AND MODIFICATIONS TO CHAPTER 11.51 OF TITLE 11 TO REGULATE CURB MARKINGS FOR ON-STREET VALET PARKING ZONES

WHEREAS, the City of San José (“City”) operates and maintains an on-street parking program; and

WHEREAS, the City’s Department of Transportation (“Department”) administers the on-street parking program; and

WHEREAS, the Department currently administers parking and loading zones throughout the City; and

WHEREAS, the Director of Planning, Building and Code Enforcement has determined that this project is “Exempt” under the California Environmental Quality Act (CEQA) on April 6, 2004, file No. PP04-03-076.

WHEREAS, the Council desires to amend the San José Municipal Code to establish regulations for the creation and maintenance of On-Street Valet Parking Zones.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF SAN JOSÉ:

SECTION 1. Title 11 of the San José Municipal Code is hereby amended to be numbered and entitled to read as follows:

CHAPTER 11.51
CURB MARKINGS

11.51.010 Curb Marking.

The City Traffic Engineer is hereby authorized and required, subject to the provisions and the limitations of this Chapter and Chapters 11.52 and 11.54, to place the following curb markings to indicate parking or standing regulations:

- A. Red shall mean no stopping, standing or parking at any time except as permitted by the California Vehicle Code, except that buses engaged as a common carrier in local transportation are exempted from this restriction.

- B. Yellow shall mean no stopping, standing or parking at any time between the hours indicated on the sign adjacent to said yellow zone, on every day except as indicated on said sign, for any purpose other than the pick up or drop off of passengers or the loading or unloading of freight.

- C. White shall mean no stopping, standing or parking for any purpose except for pick up or drop off of passengers, or the pick up or drop off of vehicles as part of an approved valet parking zone, or depositing mail in an adjacent mail box. Any of these activities are limited to a time period of not more than five (5) consecutive minutes.

- D. Green shall mean no standing or parking for longer than the time and days specified on the sign adjacent to such green zone. If no time limitation is specified on the sign, no vehicle shall stand or park for longer than twelve (12) consecutive minutes.

SECTION 2. Title 11 of the San José Municipal Code is hereby amended by adding a Chapter to be numbered and entitled and to read as follows:

CHAPTER 11.36
RESTRICTIONS IN CERTAIN LOCATIONS

11.36.600 Approved Valet Parking Zones.

A valet parking operation may be conducted on the public right-of-way only at a location and during hours approved by the Director. Each Valet Parking Zone shall be designated by official valet parking signs installed by the City demarcating the authorized location and hours of operation. A Valet Parking Zone shall only be established when the Director, at his/her discretion, determines that a zone is necessary to address the need necessity and/or convenience of the public.

11.36.610 Designation.

The Director shall identify Valet Parking Zones by painting a white line upon the top and face of the curb within such zones, and by signs installed by the City placed at the beginning and end of the zone.

11.36.620 Use Prohibition.

No person shall stop, stand or park a vehicle in a space designated for valet parking for any purpose other than those related to accepting vehicles for valet parking or retrieval of a vehicle as part of a valet parking service.

11.36.630 Time Limit Restriction.

No person shall stop, stand or park any vehicle in a space designated as a Valet Parking Zone for a time period of not more than five (5) consecutive minutes, regardless of whether the vehicle is part of an authorized valet parking service.

11.36.640 Day And Time Limitations.

The Director is authorized to determine day and time limitations for Valet Parking Zones, and may require posting of signs limiting the applicability of such restrictions to certain days and/or times.

11.36.670 Valet Parking Permit Standards.

All permits issued pursuant to this chapter shall conform to the following requirements and any additional regulations as may from time to time be issued by the Director:

- A. All permittees must submit a valet parking traffic plan for each location, to include any elements determined by the Director to adequately and reasonably address any concerns for the use of the public right-of-way. The permittee shall be responsible for securing adequate automobile storage to accommodate all valet parked vehicles, without using streets or any other part of the public right-of-way.
- B. Permittees must display a sign during their operating hours at each location where they take possession of vehicles. The sign must identify the name, address and telephone number of the operator, the rates charged and the hours of operation. The sign must be approved in advance by the Director.
- C. The operator shall, upon the receipt of each motor vehicle accepted for valet parking, give a claim check to the driver of the vehicle. The claim check shall

explicitly state the terms and conditions under which the vehicle is being accepted.

- D. Use, occupation and obstruction of the public right-of-way which is permitted under this chapter may be temporarily suspended, without prior notice or hearing, when, at the discretion of the Director, the Chief of Police, or the Fire Chief, any such use, occupation or obstruction may interfere with public safety efforts or programs, street improvement activities, special events, construction activities, cleaning efforts or other similar activities, or with the health, safety and welfare of the public.
- E. The Director may, at his or her sole discretion, place additional conditions upon the issuance of any Valet Parking Zone permit in order to ensure the protection of the public right-of-way, the rights of all adjoining property owners and/or the health, safety and welfare of the public.
- F. Permits for the use of the public right-of-way shall be considered temporary and non-permanent in nature, and permittee shall have neither property interest in nor any entitlement to the granting or continuation of any such Valet Parking Zone permit.
- G. Permits for the use of a portion of the public right-of-way as a Valet Parking Zone may be terminated by the City, with or without cause, regardless of the nature and scope of financial or other interest in, or on account of, the permit or the permitted use.

11.36.590 Conformance with applicable laws.

- A. Nothing in this chapter is intended to authorize or authorizes the parking of motor vehicles by valet parking permittees in a manner contrary to, and all permittees shall comply with, applicable state laws and local parking and traffic regulations, including the San José Municipal Code.
- B. If a parking meter is present at the location designated as a Valet Parking Zone, the permittee, during the approved hours of valet parking operations at that location, is authorized to cover the parking meter in a manner approved by the Director.

11.36.630 Valet Parking Zone Fees

The City may charge fees for the use of city streets and public right-of-way designated as zones for valet parking operations, including, but not limited to the following, which shall be set by resolution of the City Council annually to reflect full cost recovery:

- A. For every parking space designated as a Valet Parking Zone on the public right-of-way, a fee shall be collected by the Director. This fee shall be paid annually in advance to the City.
- B. The City may charge a fee for parking meter covers utilized in an approved Valet Parking Zone, if applicable.

C. The City may charge a fee for the production and installation of valet parking-related signs, curb markings, and any other set-up activities associated with implementation of Valet Parking Zones.

PASSED FOR PUBLICATION OF TITLE this _____ day of _____, 2004, by the following vote:

AYES:

NOES:

ABSENT:

DISQUALIFIED:

RON GONZALES
Mayor

ATTEST:

PATRICIA L. O' HEARN
City Clerk

Attachment C

Westin Hotel Observed trips vs ITE Trip Generation Rate

	# Room	Vehicle Trips					
		AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Field Observation		15	15	30	10	10	20
ITE Trip Generation Rate (Hotel)	171	28	32	60	33	35	68
ITE Trip Generation Rate (Business Hotel)		15	14	29	21	11	32

Proposed Trip Generation

	# Room	Vehicle Trips					
		AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
ITE Trip Generation Rate (Business Hotel)	272	23	23	46	35	17	52

Westin Hotel Field Observations

AM Peak (7:45 AM - 8:45 AM)

Observation #	Arrival Time	Dwell Time	# Queued Vehicle in Pick-up/Drop-off Area
1	7:57	0:15	3
2	7:58	4:01	3
3	7:59	0:10	3
4	8:02	17:02	3
5	8:10	0:15	3
6	8:13	0:25	4
7	8:20	2:12	3
8	8:21	0:30	3
9	8:24	5:29	3
10	8:28	6:02	4
11	8:30	0:15	5
12	8:30	0:20	6
13	8:32	2:24	3
14	8:33	0:10	4
15	8:35	0:46	3

Average Dwell Time (Total) 1:40

Average Dwell time (Uber/Lyft) 0:17

Average Dwell Time (Valet) 3:29

NOTES:

- Uber/Lyft Observations are shaded.
- All AM interactions are pick up unless stated otherwise
- One car parked on valet corner for entire observation, this car is noted in valet queue. One car parked in Valet on Market St for entire observation, this is noted in valet queue. Valet is inside in the morning observations

PM Peak (5:00 PM - 6:00 PM)

Observation #	Arrival Time	Dwell Time	# Queued Vehicle in Pick-up/Drop-off Area
1	5:01	0:10	2
2	5:05	25:00	2
3	5:22	0:20	2
4	5:23	1:00	2
5	5:31	0:32	2
6	5:32	3:06	3
7	5:35	1:22	3
8	5:36	1:55	3
9	5:50	1:26	2
10	5:55	1:32	2

Average Dwell Time (Total) 1:16

Average Dwell time (Uber/Lyft) 0:43

Average Dwell Time (Valet) 1:42

NOTES:

- Uber/Lyft Observations are shaded.
- All PM interactions are drop off unless stated otherwise
- One car parked in Valet space on Market Street. Cars are stored on Market until Valet operators need more space. Observed 2 valet standing outside in PM.

Attachment D

Almaden Corner Hotel Valet Arrival Probability (Typical Weekday)

A Poisson's distribution was assumed to determine the likelihood X number of vehicles would arrive within a given time period, \underline{P} . For example

During AM peak hour, there is a 99.5% cumulative probability that 5 or less vehicles will arrive at the hotel.

During PM peak hour, there is a 98.3% cumulative probability that 3 or less vehicles will arrive at the hotel.

Poisson's Distribution

$$P(X = x) = e^{-m} \frac{m^x}{x!}$$

Where,

m = Average arrival rate

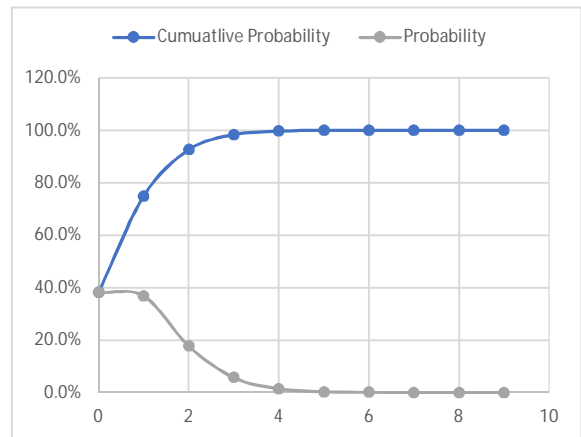
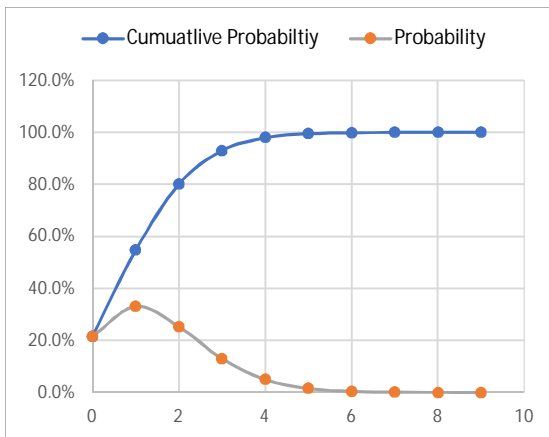
x = Total number of vehicles expected to arrive within time period

	AM Peak	
\underline{P} (average dwell time)	4	min
Peak Hour Trips	23	veh/hr
m	1.53	veh/4 min

	PM Peak	
\underline{P} (average dwell time)	1.65	min
Peak Hour Trips	35	veh/hr
m	0.96	veh /2 min

X (Total # cars arriving within a 4 min period)	Probability	Cumulative Probability
0	21.6%	21.6%
1	33.1%	54.7%
2	25.4%	80.0%
3	13.0%	93.0%
4	5.0%	98.0%
5	1.5%	99.5%
6	0.4%	99.9%
7	0.1%	100.0%
8	0.0%	100.0%
9	0.0%	100.0%

X (Total # cars arriving within a 1.65 min period)	Probability	Cumulative Probability
0	38.2%	38.2%
1	36.8%	75.0%
2	17.7%	92.6%
3	5.7%	98.3%
4	1.4%	99.7%
5	0.3%	100.0%
6	0.0%	100.0%
7	0.0%	100.0%
8	0.0%	100.0%
9	0.0%	100.0%



Attachment E

Almaden Corner Hotel Valet Arrival Probability (Hotel Event)

A Poisson's distribution was assumed to determine the likelihood X number of vehicles would arrive within a given time period, \underline{p} .

For example

During a 25-person event (assuming all 25 attendees arrive in separate vehicles), there is a 99.3% cumulative probability that 5 or less vehicles will arrive at the hotel.

Poisson's Distribution

$$P(X = x) = e^{-m} \frac{m^x}{x!}$$

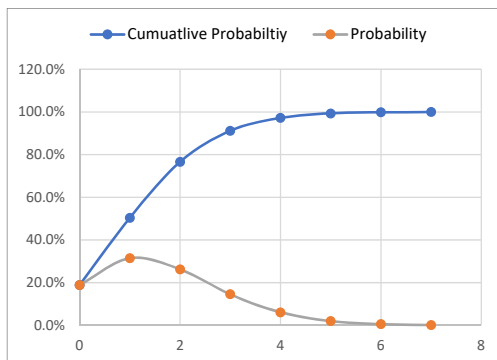
Where,

m = Average arrival rate

x = Total number of vehicles expected to arrive within time period

	25-person event	
\underline{p} (average dwell time)	4	min
Peak Hour Trips	25	veh/hr
m	1.67	veh/4 min

X (Total # cars arriving within a 4 min period)	Probability	Cumulative Probability
0	18.9%	18.9%
1	31.5%	50.4%
2	26.2%	76.6%
3	14.6%	91.2%
4	6.1%	97.2%
5	2.0%	99.3%
6	0.6%	99.8%
7	0.1%	100.0%





Memorandum

Date: July 22, 2019
To: Shannon George, David J. Powers, Inc.
From: Robert Del Rio, T.E.
Subject: Review of the 270 West Santa Clara Street Hotel Valet Analysis

This memo presents the results of Hexagon's review of the valet parking analysis prepared for the 270 West Santa Clara Street Hotel Development in downtown San Jose. The analysis was prepared by Kimley-Horn in May 2019. The purpose of the review is to ensure that the completed valet analysis is technically adequate and that the conclusions and recommendations presented are appropriate for the proposed hotel.

Project Description

The project site is bounded by W. Santa Clara Street on the south, Almaden Boulevard on the west, a residential building on the north and the Hotel De Anza to the east. A traffic operations study was completed by Hexagon in November 2018 for a proposed 330-room hotel. However, the Kimley Horn valet analysis was based on a 272-room hotel. The focus of the Kimley Horn analysis is the evaluation of the number of valet parking spaces required to serve the proposed hotel guests.

Review Results

The key findings of our review of the valet analysis are presented in the following sections.

Site Traffic Projections

The valet analysis is based on an estimate of peak hour trips for the proposed 272-room hotel. The study states that trip rates from the *Trip Generation Manual* 10th Edition were used to estimate trips for the project. However, the review of the trip estimates indicate that the peak hour trips presented in Appendix C and used in the valet analysis do not correspond to ITE trip rates and are significantly less than those calculated by Hexagon using ITE trip rates. Appendix C should provide the peak hour trip rates used to estimate the identified project trips and trip reductions used, if any. In addition, the trip estimates are based upon ITE trip rates for a Business Hotel (Land Use #312) rather than a General Hotel (Land Use #310). The general hotel trip rates are slightly greater than those for a business hotel and were used in the November 2018 traffic operations study. Table 1 below presents a comparison of trip estimates prepared by Hexagon using trip rates presented in the ITE Trip Generation 10th Edition and those presented in Appendix C.

Table 1
Trip Generation Estimate Comparison

Land Use	ITE Land Use Code	Trip Reduction %	Size	AM Peak Hour						PM Peak Hour						
				Rate	Split		Trip		Rate	Split		Trip				
					In	Out	In	Out		Total	In	Out	Total			
ITE 10th Edition Trip Rates																
Business Hotel ¹	312		272 Rooms	0.390	42%	58%	45	61	106	0.320	55%	45%	48	39	87	
Kimley Horn May 2019 Trip Estimates																
Business Hotel	312		272 Rooms	0.169	50%	50%	23	23	46	0.191	67%	33%	35	17	52	
Difference when compared to ITE Rates									-60							-35
									-57%							-40%
Trip Estimates Using Nov. 2018 Operations Study Rates																
Hotel ¹	310		272 Rooms	0.470	59%	41%	76	52	128	0.600	51%	49%	83	80	163	
Location Based Adjustment ²		17%					-13	-9	-21				-14	-14	-27	
Net Project Trips							63	43	107				69	66	136	
Notes:																
¹ Source: ITE <i>Trip Generation Manual</i> , 10th Edition 2017																
² The project site is located within an urban high-transit area based on the City of San Jose VMT Evaluation Tool (March 14, 2018). The trip reduction is based on the percent of mode share for all of the other modes of travel beside vehicle.																

Valet Space Calculations

The analysis of the required valet spaces is based on two primary factors: (1) estimated peak hour trips, (2) peak hour arrival rates of hotel guests, and (3) dwell time of vehicles in the valet area. The estimated peak hour trips were discussed in the previous section. The peak hour arrival rates and dwell times were based on observations of another hotel's valet operations that are similar to those of the proposed hotel.

The arrival rate of vehicles is calculated using a Poisson distribution formula and the observed number and time interval of vehicle arrivals. The application of the Poisson distribution formula is accurate. However, the use of the estimated peak hour trip rates that were found to be significantly less than those of ITE as discussed in the previous section, likely results in an underestimation of required valet spaces. Based on calculations presented in Appendix C, a maximum of five (5) vehicles are projected to arrive at the hotel and provided valet area during the AM and PM peak hours. Therefore, the study identifies the need for a maximum of five valet spaces for the proposed hotel.

The application of the same Poisson distribution method utilizing the peak hour trip estimates presented in Table 1 for a general Hotel and using the same arrival rates, it was found that a maximum of eight (8) vehicles are projected to arrive at the hotel and provided valet area during the AM and PM peak hours. Thus, it is projected that as many as 8 valet spaces could be required to serve guests of the proposed hotel.

It should be noted that the estimation of the required valet spaces as described above is greatly affected by the valet operations including the number of valet staff and other requirements of guests when dropping off and retrieving their vehicles. The study notes that valet staff were observed to be inside during the AM peak hour and near the valet area during the PM peak hour at the observed hotel. It is likely that the required number of valet spaces could be reduced if adequate valet staff and valet dwell time restrictions were implemented in the valet space area.

Conclusions

Hexagon's review of the Kimley Horn valet analysis found that the identified five valet spaces is likely an under estimation of the spaces required to adequately serve the valet service demand for the proposed 272-room hotel. It is projected that as many as 10 valet spaces may be required. It is likely that the required number of valet spaces could be reduced if adequate valet staff and valet dwell time restrictions were implemented in the valet space area



Memorandum

TO: Patrick Kelly

FROM: Eilbret Mirzapour
Public Works

SUBJECT: SEE BELOW

DATE: 08/12/19

Approved

Date

8/12/19

SUBJECT: 270 WEST SANTA CLARA STREET HOTEL
PW NO. 3-24347 (H18-038)

This memo will supersede the Traffic Operations Analysis memo dated 2/22/2019 to address the increase of on-street valet parking spaces from two (2) to five (5) and decrease in the number of hotel rooms from 330 to 272. Hexagon Transportation Consultants issued a supplemental memo to address the increase in valet parking from two (2) to five (5).

We have completed the review of the Local Transportation Analysis for the subject project. The project consists of a 330-room hotel with no on-site parking. The proposed project is located at northeast corner of North Almaden Boulevard and West Santa Clara Street. The proposed project is projected to add 129 a.m. peak hour trips and 165 p.m. peak hour trips.

MULTI-MODAL ACCESS

Existing transit services in the project area are provided by the Santa Clara Valley Transportation Authority (VTA), Caltrain, Altamont Commuter Express (ACE), and Amtrak. Class II bicycle facilities are provided on Santa Clara Street west of Notre Dame Avenue (along the south project frontage) and Almaden Boulevard, south W. St. John Street (along the west project frontage). Pedestrian facilities consist mostly of sidewalks along all the surrounding streets, including the project frontages. Overall, the existing sidewalks have good connectivity and provide pedestrians with safe routes to transit and surrounding points of interest in the area.

All parking for the proposed hotel will be valet-only with vehicles parked at off-site locations. On-street valet drop-off/pick-up zone will be located along project frontages on Almaden Boulevard and Santa Clara Street. One driveway is proposed along Almaden Boulevard that will provide access to an off-street loading space.

ANALYSIS

This project is located within Downtown Strategy 2040 boundary. Therefore, this project can be covered under Downtown Strategy 2040 EIR and no CEQA Transportation analysis will be

required. The project, however, must perform a Local Transportation Analysis to identify effects on transportation, access and related safety elements in the proximate area of the project.

Trip Generation Estimate: The trip generation and trip assignment were not revised with the proposed decrease in hotel rooms from 330 to 272 as this will result in a decrease to the trip generation. Therefore, the analysis using the trips for the 330 room hotel is conservative.

Valet Drop-off/Pick-up Zone Operations: On-street valet drop-off/pick-up zones are proposed to be located along project frontages on Almaden Boulevard and Santa Clara Street.

Five (5) total valet on-street will be provided, two (2) on Almaden Boulevard and three (3) on Santa Clara Street. Approximately 40 feet long of on-street parking space will be provided along the project frontage on Almaden Boulevard with the removal of two (2) existing on-street metered parking spaces. On Santa Clara Street project frontage, approximately 75 feet (three (3) parking spaces) of on-street parking space will be provided with the conversion of the existing bike lane to sharrow. The valet drop-off/pick-up area will not be restricted to the use of only the hotel and may not be available for valet use at all times.

The traffic operations analysis completed in November 2018 provided an estimation of valet staffing needed to serve the valet demand of a proposed 330-room hotel with two (2) valet on-street parking spaces. The November 2018 study identified that three (3) to four (4) valet staff are needed to serve an estimated 84 vehicles during the PM peak period, which is the period with the greatest number of vehicles that may arrive to the hotel's valet area. The identified valet staff needed presumed that a valet staff member would be available to serve the arrival of an estimated three vehicles every two minutes. In addition, it was recommended that vehicles should not be retrieved in advance of guests being present at the valet area with the limited storage space for valet operations along Almaden Boulevard. The valet parking area should not be used for transportation network companies (TNCs) such as Uber, Lyft, etc. while waiting for customers.

The number of rooms of the proposed hotel has now been reduced from 330 to 272 rooms and the on-street valet spaces to be provided increased from two (2) to five (5) spaces. The reduction in rooms will result in a reduction in vehicles that would be served at the valet area to 69 vehicles or approximately one to two (2) vehicles each minute during the peak hours. Presuming three (3) to four (4) valet staff are present during the peak periods and arrival of no more than two vehicles per minute, the identified five valet spaces would provide adequate capacity for the storage and additional storage for two (2) to three (3) vehicles. However, it would still be recommended that vehicles should not be retrieved in advance of guests being present at the valet area given the limited storage space for valet operations along Almaden Boulevard and Santa Clara Street. The valet area also should not be used for transportation network companies (TNCs) such as Uber, Lyft, etc. while waiting for customers.

The additional three (3) valet space along Santa Clara would result in a change to the assignment of project traffic shown in the November 2018 LTA. However, it would be a minimal amount of trips and would not result in new or worsen any issues in the completed November 2018 LTA.

Truck-Site Access: The project proposes to provide one off-street loading space accessible from Almaden Boulevard located north of the valet drop-off/pick-up zone. The loading space

does not provide space for vehicle turn-around; trucks will be required to back-in to the loading space from Almaden Boulevard or back-out of the loading space directly onto Almaden Boulevard. Appropriate visible and/or audible warning signals should be provided at the loading space driveway to alert pedestrians and bicyclists of vehicles exiting the driveway.

The site plan indicates that a trash enclosure will be located on the ground level adjacent to the loading space. Waste bins should be wheeled out to the loading dock entrance for garbage pickup. It is recommended that truck access to the loading space be restricted during garbage pick-up days to provide space for waste bins at the loading dock entrance.

Parking: Based on the City's off-street parking requirements, the project is required to provide a total of 116 off-street parking spaces for the 330 room hotel. The number of hotel rooms of the proposed project has been reduced from 330 to 272 which reduced the parking requirement to 96 off-street parking spaces. The off-street parking requirement can be reduced with an establishment of a Travel Demand Management (TDM) program, the minimum parking spaces that can be provided is 41. The project does not propose to provide any off-street parking spaces on site. The City (Planning) will require that the project secure off-site parking facilities within walking distance of the project site.

Left-turn Storage Analysis: Left-turn lane storage analyses were performed at three (3) study intersections. The queuing analysis shows that the eastbound left-turn movement at the Notre Dame Avenue/Santa Clara Street intersection currently experiences a queue that exceeds the available storage capacity under existing condition and would continue to do so under background conditions. The project is projected to increase the queue by two vehicles during the AM and PM peak hours. Providing additional queue storage capacity is not feasible as the existing eastbound left-turn lane already extends to the upstream intersection at Almaden Boulevard/Santa Clara Street.

Almaden Boulevard Couplet Conversion: Almaden Boulevard/Notre Dame Avenue currently operate as one-way roadways between Santa Clara Street and Carlisle Street. The Department of Transportation is analyzing the possibility of converting Almaden Boulevard to a two-way operation. The study will include the effects of two-way operation on the following: access for all neighboring properties, site distances, circulation, and driveway operations.

Converting to two-way operations will alter inbound and outbound traffic routes to and from the project site. The curbside valet drop-off/pick-up zone on Almaden Boulevard will need to be re-oriented in the northbound direction. Therefore, all inbound project traffic will enter only from Santa Clara Street, with westbound project traffic making right-turns onto the proposed northbound travel lane on Almaden Boulevard and eastbound project traffic utilizing the proposed new eastbound left-turn pocket. Outbound project traffic will leave via northbound Almaden Boulevard.

This will allow for drop-zone along the project frontage and a bulb out along their project corner. The project will contribute a fair share contribution towards the couplet conversion. A separate analysis will need to be conducted by the City to determine the appropriate corrective measures as a result of the couplet conversion.

Recommendations for the On-Street Valet Parking:

- a) Provide three (3) to four (4) valet parking staff during PM peak period.

Project conditions:


- a) Install lane delineators at the bike lane buffer along Almaden Boulevard near the proposed valet drop-off/pick-up area to ensure that project traffic does not cross the bike lane to access the southbound right-turn lane.
- b) Remove existing parking meters on Almaden Boulevard project frontage and convert the two (2) metered parking stalls to loading/unloading zones. These improvements will be finalized during the street improvement stage.
- c) Convert the existing bike lane on Santa Clara project frontage to sharrow and delineate the area as loading/unloading zone. These improvements will be finalized during street improvement stage.
- d) Provide appropriate visible and/or audible warning signals at the loading space driveway to alert pedestrians and bicyclists of vehicles existing the driveway.
- e) Restrict truck access to the loading spaces during garbage pick-up days to provide space for waste bins at the loading dock entrance.
- f) Travel Demand Management (TDM) program to reduce the number of required off-street parking spaces has been submitted to the City and is under review.
- g) The project will provide voluntary contribution in the amount of \$250,000 to be used toward the future Almaden Boulevard couplet conversion and installing bike detection improvements at the intersection of Santa Clara Street/Notre Dame Avenue.

RECOMMENDATION:

With the inclusion of the above conditions, the subject project will be in conformance with the Downtown Strategy 2040 EIR.

If you have any questions, please contact me at Eilbret.Mirzapour@sanjoseca.gov or (408)793-5505. You may also reach the Senior Engineer overseeing the project, Elizabeth Koki at Elizabeth.Koki@sanjoseca.gov or (408) 535-8324 or Arlyn Villanueva, Transportation Management Section at Arlyn.Villanueva@sanjoseca.gov or (408) 793-4336.

Sincerely,


Eilbret Mirzapour
Project Engineer
Development Services Division

EM:km

C: Karen Mack
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