



August 7, 2018

1st Place Village, LLC
389 First Street
Los Altos, CA 94022
(transmitted via email)

**RE: *Los Altos 389 First Street – Traffic Assessment
Final Letter***

Dear Mr. Johnson:

A redevelopment of an existing 3,163-square foot commercial site to a new 2,890-square foot commercial project and up to 10 2-bedroom residential units is being proposed in Los Altos, CA. The City of Los Altos (City) is requesting that a traffic study be completed for this project given that it is estimated to generate more than 50 daily trips. In addition, the City is concerned with the on-site circulation and project access to the site via the alleyway on the rear of the building. The following discusses the methodology, analysis, and results of the traffic assessment.

PROJECT DESCRIPTION

It is proposed that a new 2,890-square foot commercial project and 10-residential unit project be constructed at the existing 3,163-square foot fully occupied commercial project in Los Altos, CA. The building would be three floors tall with commercial and residential space on the bottom floor. Vehicular access to the project site would remain on the alley to the rear of the site between 1st Street and 2nd Street. This existing alley is approximately 16 feet wide.

CITY OF LOS ALTOS REQUIREMENTS

The City of Los Altos General Plan¹ requires in its circulation element that a transportation analysis for all development projects resulting in 50 or more net new daily trips be completed. Therefore, this traffic assessment is being completed to satisfy this requirement. However, after discussions with the City Planner, it was determined that this project would likely generate an insignificant number of net new peak hour trips, which is typically the time period analyzed to determine significant impacts. Based on the project's new peak hour trips based on the Institute of Transportation Engineers (ITE) Trip Generation Manual average trip generation rates, and in consideration of the Santa Clara Valley Transportation Authority (VTA) traffic study standards, Kimley-Horn believes a full traffic study is not required. Specifically, since the project is expected to generate fewer than 50 daily trips and minimal peak hour trips, the project is not required to have a comprehensive traffic impact analysis completed.

¹ *Los Altos General Plan 2002-2020*, City of Los Altos, November 2002.

However, a qualitative assessment of the adjacent intersections was completed to determine if the project would significantly impact the adjacent roadway.

It is proposed that a new 2,890-square foot commercial project and 10-unit residential project be constructed at the existing 3,163-square foot fully-occupied commercial project in Los Altos, CA. Vehicular access to the project site would remain on the alley to the rear of the site between 1st Street and 2nd Street. This existing alley is approximately 16 feet wide. The City has concerns with this being the primary access for the project. Therefore, a site access analysis was performed.

TRIP GENERATION

To establish the project's potential impact on the adjacent roadway network, the number of project vehicle trips generated was estimated. Trip generation is typically estimated by using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition². This is the standard reference in the industry for determining trip generation for potential projects. The land use that best represents the proposed residential development is Multifamily Housing (Low-rise) (Land Use 220) and Small Office Building (Land Use 712) for the office building. It should be noted that the Small Office Building is for a single tenant and the proposed project includes multiple tenants. However, given the small size of the office space, this represents the best land use for the project.

For the existing use, which includes a mixture of fully-occupied businesses including retail services and office space, it was determined that a small office building would be the most conservative land use for trip generation purposes. Since the square footage for each use is unknown, the uses were combined as either a Small Office Building (Land Use 712) or a Shopping Center (Land Use 820). The Shopping Center land use (Daily rate = 37.75 trips per 1,000 square feet, AM peak hour rate = 0.94 trips per 1,000 square feet, and PM peak hour rate = 3.81 trips per 1,000 square feet) has a higher daily trip generation rate and PM peak hour rate compared to that of a Small Office Building (Daily rate = 16.19 trips per 1,000 square feet, AM peak hour rate = 1.92 trips per 1,000 square feet, and PM peak hour rate = 2.45 trips per 1,000 square feet). Therefore, to be conservative, the lower trip generation rates from the Small Office Building were used since it would provide a lower existing trip credit.

For Land Use 220, an average rate and a fitted curve equation are provided for the sample data. For Land Use 712, only an average rate is provided. ITE methodology dictates that the fitted curve equation should be used if there are 20 or more data points, or if the R² value is greater than 0.75 (the R² value shows how close the data is to the fitted curve, with 1.0 being the best fit, and 0.0 showing no fit). **Table 1** shows the trip generation information for Land Use 220.

² *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, Washington, D.C., 2017.

Table 1 – Trip Generation for Multifamily Housing (Low-Rise)

Land Use	ITE Land Use Code	Variable	Time Period	# of Data Points	Average Rate	Standard Deviation	Fitted Curve Equation	R ²
Multifamily Housing (Low-Rise)	220	Dwelling Units	Weekday Daily	29	7.32	1.31	$T = 7.56(X) - 40.86$	0.96
			Weekday AM Peak	42	0.46	0.12	$\ln(T) = 0.95$ $\ln(X) - 0.51$	0.90
			Weekday PM Peak	50	0.56	0.16	$\ln(T) = 0.89$ $\ln(X) - 0.02$	0.86

For each of the time periods, the following criteria for a fitted curve equation is met:

- Number of data points exceeds 20
- The R² value exceeds 0.75

Table 2 shows the expected vehicle trips for the proposed project. Other trip generation considerations were reviewed. Internal capture reductions, which account for the interaction among different uses in a multi-use development, were determined to be insignificant given the small size of the project. Pass-by trip reductions, which account for trips already on the roadway network and stop as they pass the project site along to another destination, were determined to not be relevant for this project because the residential apartment use and the office use are classified as primary sources and destinations for vehicle trips.

Table 2 – Project Trip Generation

TIME PERIOD		LAND USE	Trips		
			In	Out	Total
Daily	Existing	Small Office Building (3.163 KSF)	(26)	(26)	(52)
		Small Office Building (2.89 KSF)	24	24	48
	Project	Multi-Family Housing (10 Dwelling Units)	18	18	36
		Total Proposed Trips	42	42	84
		Net New Trips	16	16	32
AM Peak	Existing	Small Office Building (3.163 KSF)	(5)	(1)	(6)
		Small Office Building (2.89 KSF)	5	1	6
	Project	Multi-Family Housing (10 Dwelling Units)	2	7	9
		Total Proposed Trips	7	8	15
		Net New Trips	2	7	9
PM Peak	Existing	Small Office Building (3.163 KSF)	(3)	(5)	(8)
		Small Office Building (2.89 KSF)	2	5	7
	Project	Multi-Family Housing (10 Dwelling Units)	5	3	8
		Total Proposed Trips	7	8	15
		Net New Trips	4	3	7

As shown in **Table 2**, the trip generation, the project is anticipated to generate a net new 32 daily trips, nine (9) AM peak hour trips, and seven (7) PM peak hour trips. Since the project is expected to generate fewer than 50 daily trips and minimal peak hour trips, the project is not required to have a comprehensive traffic impact analysis completed. However, a qualitative assessment of the adjacent intersections was completed to determine if the project would significantly impact the adjacent roadway.

TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution for the proposed project was estimated based on the existing traffic distribution, locations of complementary uses, and other traffic studies with similar land uses. The following is the anticipated trip distribution for the proposed project.

- North via Foothill Expressway = 30%
- Northeast via San Antonio Road = 25%
- East via Cuesta Drive = 5%
- South via Foothill Expressway = 40%

The project trips were assigned via the quickest path to and from each of these destinations to the alley behind project site.

STUDY INTERSECTION ASSESSMENT

After consideration of the anticipated routes that vehicles going to and coming from the proposed project, the following study intersections were selected for the assessment:

- 1) Foothill Expressway / Main Street
- 2) First Street / Main Street
- 3) Foothill Expressway / San Antonio Road
- 4) First Street/Cuesta Drive / San Antonio Road

To determine the potential impacts of the project, the following scenarios were assessed:

- Existing Condition
- Existing plus Project Condition
- Background Condition
- Background plus Project Condition

- Cumulative Condition
- Cumulative plus Project Condition

The baseline conditions, or the without project conditions, are from the *First Street Office Development Traffic Impact Analysis Report* prepared by Hexagon on August 25, 2017.

Level of Service Comparison

The level of service (LOS) criteria for the City of Los Altos is LOS D per the Los Altos General Plan. The level of service criteria for Caltrans and County controlled facilities is LOS E per the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program (CMP).

Table 3 shows the LOS for each of the study intersections without the project.

Table 3 – Level of Service Comparison Summary

Intersection	LOS Standard	Existing		Background		Cumulative	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Foothill Expwy/Main St	E	B	C	B	C	B	C
First St/Main St	D	C	C	C	C	C	C
Foothill Expwy/San Antonio Rd	E	B	D	B	D	B	E
First St/Cuesta Dr/San Antonio Rd	D	C	C	C	C	C	C

Based on the LOS results presented in **Table 3**, the only intersection and scenario where the LOS is close to exceeding the LOS standard is the intersection of Foothill Expressway and San Antonio Road in the Cumulative PM peak hour. In this scenario, the level of service is LOS E in the PM peak hour and the LOS standard is LOS E. However, the delay for this scenario is 60.5 seconds, which is much less than the delay of 80 seconds for the transition from LOS E to LOS F. Therefore, it is not anticipated that the three (3) peak hour trips generated by the proposed project through this intersection (7 PM peak hour trips multiplied by 40% going south on Foothill Expressway) would increase the delay by 19.5 seconds to worsen to LOS F. In addition, the inbound trips would make a free right turn from Foothill Expressway onto San Antonio Road, which would not increase the delay to the intersection. Therefore, it is not expected that the propose project would result in any significant impacts to the adjacent roadway.

PARKING ANALYSIS

The City of Los Altos has parking requirements for developments listed in the City Municipal Code based on the zoning. The project site is zoned as Commercial Downtown/Multiple Family or CD/R3. The parking requirements for this zoning are:

- Residential:

- Two (2) spaces for each dwelling unit in a multiple-family dwelling or apartment house having two rooms or more in addition to the kitchens and bathrooms
- 1.5 spaces for each dwelling unit in a multiple-family dwelling or apartment house having less than two rooms in addition to the kitchens and bathrooms
- One (1) on-site visitor space for every four multiple-family residential dwelling units or fraction thereof. Mixed use project may substitute nonresidential parking spaces for visitor use in-lieu of providing dedicated visitor parking spaces, subject to approval of the commission and council
- Office:
 - One (1) parking space for each 300 square feet of net floor area

In addition, since the residential portion of the project is providing Below Market Rate units, the project is eligible for a parking reduction based on California Government Code 65915(p)(1). This reduction states that upon the request of the developer, a city, county, or city and county shall not require a vehicular parking ratio, inclusive of handicapped and guest parking, of a development meeting that exceeds the following ratios:

- Zero to one bedroom: one on-site parking space
- Two to three bedrooms: two on-site parking spaces
- Four and more bedrooms: two and one-half parking spaces

Based on these parking requirements, the proposed project is required to provide the following parking spaces summarized in **Table 4**.

Table 4 – Vehicle Parking Required Summary

Land Use Type	Size	Parking Rate	Parking Spaces Required
Below Market Rate (2-3 bedroom unit)	10 Units	2 per Unit	20
Office	2,890 Square Feet	1 per 300 Square Feet	9.63
Total			30

The project is proposing to provide 20 residential parking spaces and 10 office spaces for a total of 30 parking spaces. The project would not be providing any visitor parking spaces for guests of the residents, as allowed by the California Government Code for Below Market Rate Housing. Therefore, the project meets the parking requirements for the project.

Puzzle Lift Parking

The project is proposing to use a puzzle lift parking system in the underground parking lot. This system would provide 22 parking spaces via the puzzle lift parking system. For entering the parking

lot, vehicles would drive up to the puzzle lift, wait for the puzzle lift to open, drive into the empty parking slot, exit the vehicle, and then close the parking lift. Then the puzzle lift would store the parked vehicle until the driver returns. Upon returning, the driver would push a button to call for the vehicle, wait for the puzzle lift to open, enter the vehicle, and exit the parking garage. The estimated wait time is on average 30 seconds. The average system speed will be minimized by assigning users to parking spaces based upon peak load and usage frequency. Frequent users would be assigned parking spaces on the ground floor spaces.

This parking system provides multiple safety devices including a security hook fall prevention device, operation warning device, emergency stop device, electrical overload protection device, operation interlock device, photoelectric safety device for entry, power brake, vehicle positioning device, power anti-phase protector, magic eye safety device, overrun protection switch, and loose/broken chain detection device. More details on the safety of the system can be provided by the vendor.

Bicycle Parking

The City Code does not have bicycle parking requirements, however VTA does provide guidance on bicycle parking in the VTA *Bicycle Technical Guidelines*³. These guidelines recommend one bicycle parking space per 6,000 square feet of office building be provided, of which 75 percent are long-term bicycle parking spaces and 25 percent are short-term bicycle parking spaces. For general multifamily residential uses, one (1) long-term bicycle parking space per three (3) residential units and one (1) short-term bicycle parking space per 15 units is recommended. It should be noted that the minimum number of short-term bicycle parking spaces is four (4), except when the code requires one (1) or less, in which case two (2) bicycle parking spaces should be provided.

Based on these parking requirements, the proposed project should provide the following number of bicycle parking spaces summarized in **Table 5**.

Table 5 – Bicycle Parking Required Summary

Land Use Type	Size	Bicycle Parking Rate	Bicycle Parking Spaces Required
Multifamily Housing – Long-term	10 Units	1 per 3 Units	3.67
Multifamily Housing – Short-term	10 Units	1 per 15 Units	0.73
Office – Long-term	2,890 Square Feet	0.75 per 6,000 Square Feet	0.36
Office – Short-term	2,890 Square Feet	0.25 per 6,000 Square Feet	0.12
Total – Long-term			4
Total – Short-term			2*

*The project should provide two (2) short-term spaces since the sum of the multifamily housing and office short-terms bicycle parking spaces results in less than one (1) bicycle parking space.

³ *Bicycle Technical Guidelines*, Santa Clara Valley Transportation Authority, December 2012.

The project is proposing to provide 10 long-term bicycle parking spaces. The site plan or project description does not show the number of short-term bicycle parking spaces being provided, but does show bicycle racks near the project entrance on First Street.

The Class I and Class 2 bicycle parking designs shall conform to the VTA *Bicycle Technical Guidelines*. This includes the clearance area surrounding the bicycle parking. The elevator will be the primary means for access to the lower level bicycle storage. Given that the dimensions of the elevator depth 74.5 inches exceed the recommended 72 inches, the elevator should be able to accommodate bicycles.

SITE CIRCULATION REVIEW

The site circulation was reviewed for pedestrians, bicyclists, and motorists accessing the project site. On the project site, pedestrians can enter the site on the first floor. There are stairs on the First Street side of the building and the alleyway side of the building, in addition to an elevator. The garage floor can be accessed via the stairs and the elevator. Pedestrians can use the vehicle ramp descending to the garage floor, however, this is not recommended because of the narrow width for two-way vehicular traffic on the ramp and the poor sight lines around the corners of the parking garage.

For bicyclists, there is a bicycle storage facility on the garage floor next to the resident storage room. Bicyclists can access this storage from the ground floor via the elevator. It is not recommended that bicyclists use the vehicle ramp due to the narrow width for two-way vehicular traffic and the poor sight lines around the corners of the parking garage.

For motorists, there are four parking spaces on the ground level, of which two are accessible parking spaces. There are an additional 26 parking spaces on the garage level, with 22 parking spaces utilizing the puzzle lift parking system. Vehicles can access the parking garage via the alleyway on the east side of the project site and descend down the vehicle ramp. The vehicle ramp is 18.5 feet wide for two-way traffic, which exceeds the City's 18-foot requirement. A vehicle turning evaluation was completed to determine where potential maneuvering issues may arise. **Attachment A** shows the expected turning path of outbound vehicles and **Attachment B** shows the expected turning path of inbound vehicles. **Attachment C** shows the maneuvering to use the parking lift system. Potential issues may include:

- There may be conflicts for opposing vehicles on the alley since the existing alley is only 16 feet wide for two-way traffic. It should be noted that this is an existing condition and the City is in the process of adding a 2-foot dedication for both sides of the public alley. This would result in a future 20-foot alley adjacent to the project site.
- The existing narrow alley results in vehicles making the left turn and right turn into the vehicle ramp to cross into the opposing traffic lane on the vehicle ramp as shown in **Attachment A** and **Attachment B**. However, this conflict would be a limited occurrence due to the low number of vehicle trips expected to be generated by the site. It also does not appear that the existing utility pole in the alleyway across from the ramp would conflict with either of these

two movements. If the City does have a concern with vehicles potentially damaging the existing utility pole, a protective barrier can be added to protect the pole.

- Based on the original site plan, there were sight line issues for vehicles entering and exiting the vehicle ramp since the ramp walls extend to the alleyway. The project has revised the site plan to pull back the walls to the alleyway by 9 feet 4.5 inches. In addition, the project is proposing to install convex mirrors for additional visibility around corners and detector loops in the ground that connect to a “Vehicle Coming” sign to warn motorists of oncoming vehicles.
- Based on the original site plan, a comment regarding sight line issues for vehicles at the bottom of the vehicle ramp due to the ramp walls and proposed drive aisles was included. The project has revised the site plan to show the wall at the bottom of the ramp opening for additional visibility, a convex mirror for additional visibility has been proposed, and the “Vehicle Coming” sign has been proposed.
- Based on the original site plan, it will be difficult for entering vehicles to park in the parking space closest to the elevator. The project has revised the site plan to show one fewer parking space and therefore this turn is more manageable.
- Based on the original site plan, it will be difficult for the vehicle parking in the parking space furthest from the bike storage to enter and exit the parking space due to the 1-foot clearance between the parking space and the wall. The project has revised the site plan to show a 2-foot clearance from the wall.
- Based on the original site plan, it is recommended that the columns adjacent to parking spaces be relocated 2-3 feet inset from the drive aisle. The project has revised the site plan to show a 2-foot setback.

Based on the current site plan, the trash room appears to be accessed from the alleyway. If so, garbage trucks would use the alley way to gain access. This location may create a potential issue with the existing 16-foot wide alley and the larger width of garbage trucks. However, this is an existing issue.

Based on the current site plan, it is unclear where deliveries will be made to the project site. There is no loading dock shown. It is recommended that deliveries be made from First Street to avoid the narrow alleyway. A marked loading zone in front of the proposed project site on First Street would help to facilitate deliveries in and out of the project site.

CONCLUSIONS

The proposed 2,890-square foot office project and 10-unit residential development to be constructed in Los Altos, CA is anticipated to generate 32 daily trips, nine (9) AM peak hour trips, and seven (7) PM peak hour trips using the ITE Trip Generation Manual. This also includes a trip credit for the existing 3,163-square foot office use. The expected number of daily trips are below the City’s 50-daily trip threshold for requiring a traffic impact analysis and therefore does not necessitate a


comprehensive traffic study. However, potential traffic impacts were reviewed using baseline conditions from the *First Street Office Development Traffic Impact Analysis Report*. After incorporating the estimated number of peak hour trips by the project, it was determined that the project is unlikely to result in any significant impacts to adjacent intersections.

Parking was also reviewed for this site and it was determined that the project meets the vehicular parking required. It should be noted that no parking spaces would be provided specifically for guests of the residents, which is allowed based on the California Government Code for Below Market Rate housing. To achieve the desired number of parking spaces, the project is also proposing a puzzle lift parking system on the garage floor. This system would average a 30-second wait time, but can be optimized by having frequent users assigned to the ground floor parking spaces.

Site circulation was also reviewed and the Project has addressed them.

Kimley-Horn appreciates the opportunity to review the project and provides comments and recommendations to improve the project. Please do not hesitate to contact me if you have any questions or comments.

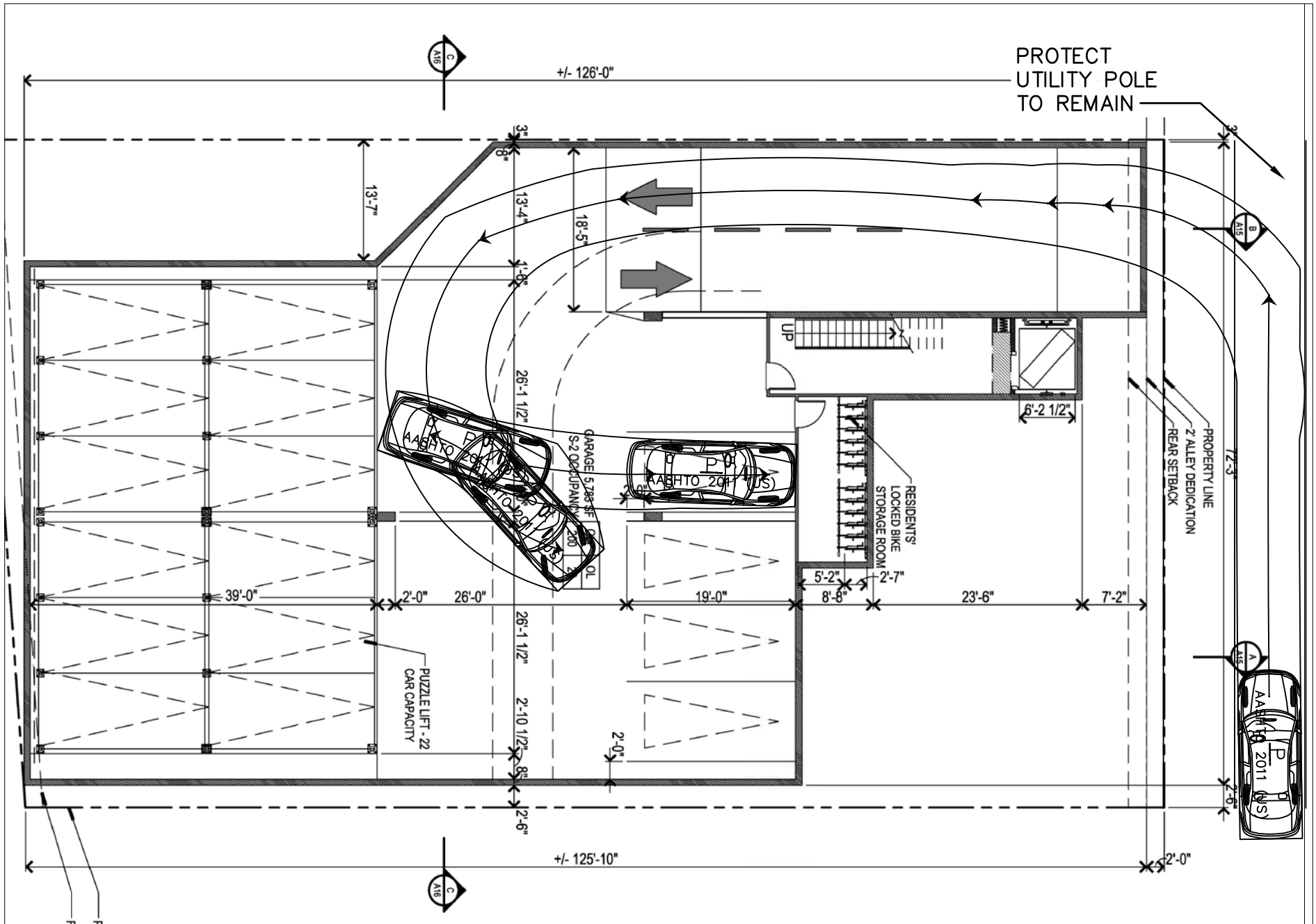
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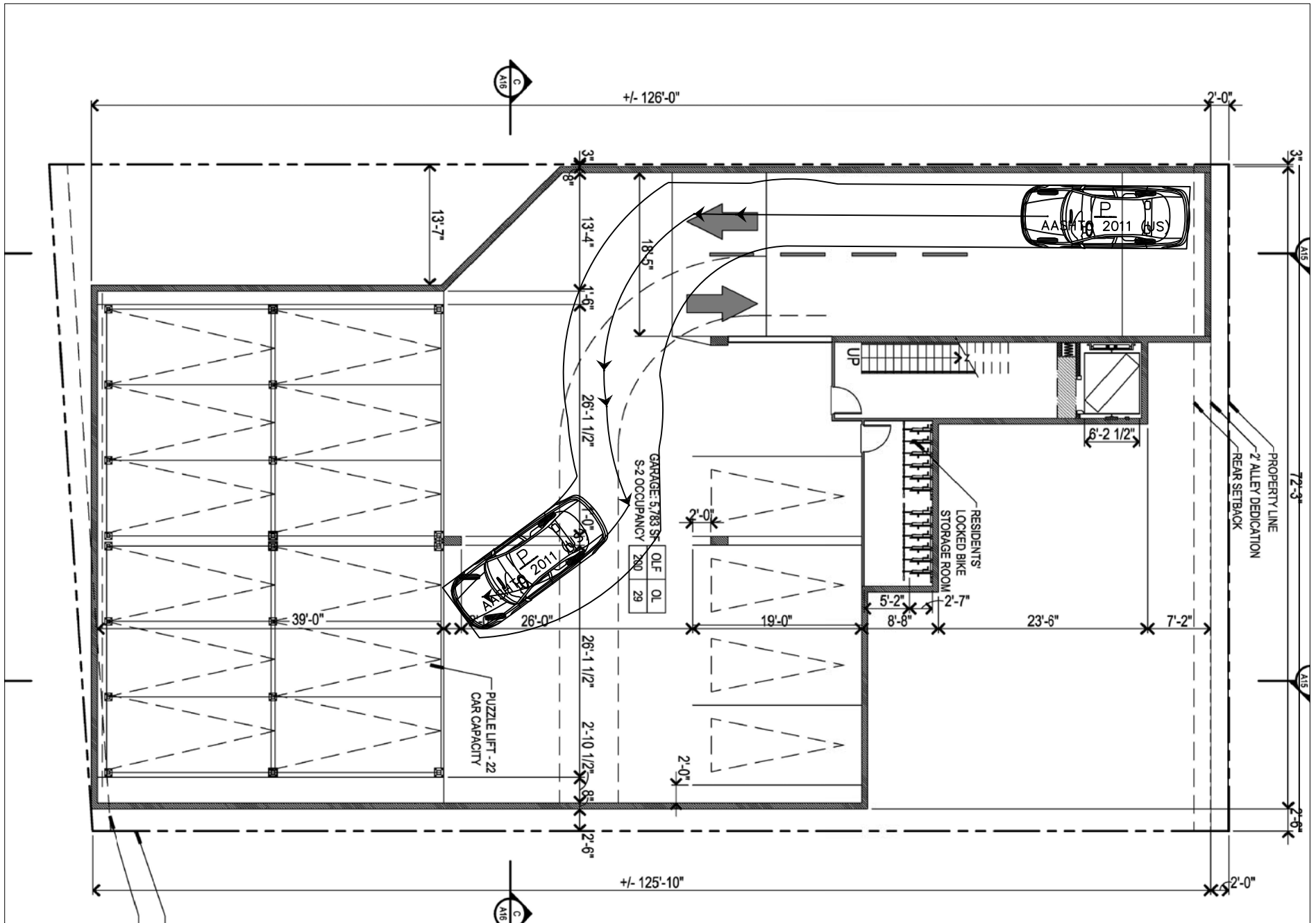
Ben Huie, P.E.
California Professional Engineer #C76682

Attachments:

- Attachment A – AutoTurn Exhibit Path 1 – Ground Floor (Outbound)
- Attachment B – AutoTurn Exhibit Path 2 – Ground Floor (Inbound)
- Attachment C – AutoTurn Exhibit Path 3 – Ground Floor (Inbound to Parking Lift System)



389 FIRST STREET DEVELOPMENT
 AUTOTURN EXHIBIT PATH 2 -
 GROUND FLOOR (INBOUND)
 AUGUST 2018



389 FIRST STREET DEVELOPMENT
 AUTOTURN EXHIBIT PATH 3 -
 GROUND FLOOR
 (INBOUND TO PARKING LIFT SYSTEM)
 AUGUST 2018