APPENDIX G
Traffic Assessment

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September 21, 2021

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LLG Reference: 2.19.4219.1

Subject: **Updated Traffic Assessment for the Proposed Paseo De Colinas 38-DU Residential Development**
Laguna Niguel, California

Dear Mr. Conk,

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the findings of this Updated Traffic Assessment associated with the development of a multi-family residential community (herein after referred to as Project) on a 2.471±-acre parcel of land owned by the Capistrano Unified School District in the City of Laguna Niguel, California. The Project site is a part of the Niguel Hills Middle School Campus and was used to house modular buildings and associated surface parking. The subject property, which is now vacant, is located along the west side of Paseo De Colinas, just northwest of the Del Cerro/Paseo De Colinas intersections. This analysis evaluates the traffic implications associated with the proposed Project, inclusive of the Project's trip generation potential, a VMT Screening Assessment, and an evaluation of the Project's site access from Paseo De Colinas.

PROJECT LOCATION AND DESCRIPTION

The Project site is a 2.471±-acre parcel of land owned by the Capistrano Unified School District that is a part of the Niguel Hills Middle School Campus. The project site was visited by LLG in December to document existing conditions. The subject property, which is now vacant, was used to house modular buildings and associated surface parking. The Project site is located along the west side of Paseo De Colinas, just northwest of the Del Cerro/Paseo De Colinas intersections. Access to the Project site is now provided via an existing unsignalized "right-turn only"

driveway that is located midpoint of the site. ***Figure 1-1*** presents a Vicinity Map that illustrates the general location of the Project and surrounding street system. ***Figure 2-1*** presents the existing aerial of the Project site.

The proposed Paseo De Colinas residential project includes the construction of up to 38-unit townhome community consisting of twelve (12) two-bedroom units, two (2) two-bedroom affordable units, eighteen (18) three-bedroom units and six (6) four-bedroom units. Parking for the Project, as now envisioned, include 76 garages spaces (2 per unit) and 35 open spaces. ***Table 2-1*** summarizes the development totals for the proposed Project.

From review of the conceptual site plan, access to the Project site is proposed to be provided via two unsignalized "right-turn only" driveways located along Paseo De Colinas, which enter and exit from southbound Paseo De Colinas. ***Figure 2-2*** presents the site plan for the Project, prepared by MJS Landscape Architecture provided via email in September 2021.

PROJECT TRAFFIC CHARACTERISTICS

Trip Generation Forecast

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation factors and equations used in this analysis are based on information found in the 10th Edition of *Trip Generation,* published by the Institute of Transportation Engineers (ITE) [Washington, D.C., 2017].

The proposed Project includes a mixture of two to four level building, as a result the trip generation potential of the Project would either be forecast using trip rates for ITE Land Use 220: Multifamily Housing (Low Rise)[1] or ITE Land Use 221: Multifamily Housing (Mid Rise)[2]. To provide a conservative forecast, ITE Land Use 220: Multifamily Housing (Low Rise) trip rates were utilized in this traffic assessment. It should be noted that the trips rates utilized are based on the General Urban/Suburban land use setting.

Table 1, located at the rear of this letter, summarizes the trip generation rates and forecast for the Project. As shown, the proposed Project is forecast to generate 278 weekday daily trips, with 17 trips (4 inbound, 13 outbound) during the weekday AM peak hour and 21 trips (13 inbound, 8 outbound) occurring during the weekday PM peak hour.

[1] Low Rise residential units consist of 1-2 levels.
[2] Mid Rise residential units consist of 3-10 levels.

VMT SCREENING ASSESSMENT

The purpose of a VMT assessment is to evaluate the Project based on Senate Bill 743 (SB 743) requirements consistent with *Technical Advisory on Evaluating Transportation Impacts in California Environmental Quality Act* (CEQA), December 2018 prepared by State of California Governor's Office of Planning and Research (OPR) and the CEQA VMT Analysis guidelines identified within the *City of Laguna Niguel Transportation Assessment Guidelines*.

The City's VMT Guidelines provides guidance for analysis of VMT assessments under SB743. The City documents provides screening thresholds to assess whether further VMT analysis is required based on project location, size, or consistency with the SCAG Regional Transportation Plan/Sustainable Communities Strategy.

Section 3.2 of the *City of Laguna Niguel Transportation Assessment Guidelines dated November 2020* indicate that projects generating less than 500 vehicle trips per day based on the latest ITE Trip Generation Manual are presumed to be less than significant. Given the results of the proposed Project's trip generation forecast, the proposed Project trips are expected to generate less than 500 daily trips during the weekday. Therefore, LLG concludes that the Project would be screened out from a VMT assessment and its VMT impact are presumed to be less than significant.

SITE ACCESS EVALUATION

Sight Distance Analysis

In support of evaluating the Project's proposed access on Paseo De Colinas, a sight line assessment was prepared to validate the adequacy of sight lines at the Project's "right-turn only" access driveways. As noted earlier, access to the Project site is proposed to be provided via two unsignalized "right-turn only" driveways located along Paseo De Colinas, which enter and exit from southbound Paseo de Colinas.

The line of sight evaluation was prepared according to the general engineering practices for stopping sight distance analysis as documented in the State of California Department of Transportation (Caltrans) *Highway Design Manual (HDM).*

This assessment is based on the intersection sight distance requirements, as published in the Caltrans *HDM,* and focuses on the sight distance requirements for the proposed Project's "right-turn only" driveways located on Paseo De Colinas. The Sight Distance Evaluation prepared for the proposed driveways was based on the criteria and procedures set forth by the California Department of Transportation (Caltrans) in the State's *Highway Design Manual* for "Private Road Intersections".

The *Highway Design Manual (HDM),* in Section 405.1(2)(c), page 400-27, indicates that for Private Road Intersections, "The minimum corner sight distance shall be equal to the stopping sight distance as given in Table 201.1...", where stopping sight distance is defined as the distance required by the driver of a vehicle, traveling at a given speed, to bring his vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eyes, which are assumed to be 3.5 feet above the pavement surface, to an object 0.5-foot high on the roadway. The speed used in determining stopping sight distance is defined as the "critical speed" or 85th percentile speed which is the speed at which 85% of the vehicles are traveling at or less. The critical speed is the single most important factor in determining stopping sight distance. Table 201.1 in the HDM is used in determining stopping sight distance based on the critical speed of vehicles on the affected roadway. Paseo De Colinas has a posted speed limit of 45 miles per hour (mph), however, per the City of Laguna Niguel Circulation Element, Paseo De Colinas is classified as a primary arterial highway which typically has a design speed of 55 mph. Therefore, a design speed of 55 mph for Paseo De Colinas has been utilized to provide a conservative assessment.

Using Table 201.1, titled *Sight Distance Standards,* in the State's *HDM* for stopping, a minimum stopping sight distance of 500 feet is required.

To provide a conservative assessment, the "corner sight distance" criteria in Section 405.1(2)(b) of the *HDM* was also utilized. Based on the criteria set forth in Table 405.1A of the *HDM* and a design speed limit of 55 mph on Paseo De Colinas, a corner sight distance of 526 feet[3] is required for the right-turn.

Figures 3 and ***4*** illustrate a schematic of the sight distance evaluation for project driveways 1 and 2 along Paseo De La Colinas for stopping sight distance and corner sight distance, respectively. The figure illustrates the limited use areas. Review of *Figures 3* and *4* indicates that sight distances at the Project Driveways are expected to be adequate if obstructions within the sight triangles are minimized. Adequate sight lines gives the motorist the ability to see gaps in traffic to help with egress from the site. Due to these sight lines, an acceleration lane is not required.

Internal Circulation Evaluation

The on-site circulation was evaluated in terms of vehicle-pedestrian conflicts. Based on our review of the preliminary site plan, the overall layout does not create any unsafe vehicle-pedestrian conflict points and the driveway throating is sufficient such that access to parking spaces is not impacted by internal vehicle queuing/stacking.

[3] Per the Caltrans *HDM*, corner sight distance is calculated based on the following equation: $1.47V_mT_g$, where
- V_m = 55 mph (Design speed of the major road)
- T_g = 6.5 seconds (Time gap for the minor road vehicle to enter the major road per Table 405.1A)

Our evaluation of the on-site circulation for the Project was also performed using the *Turning Vehicle Templates*, developed by Jack E. Leisch & Associates and *AutoTURN for AutoCAD* computer software that simulates turning maneuvers for various types of vehicles. A passenger vehicle, trash truck, and fire truck turning templates were utilized in this evaluation.

Figure 5 presents the turning movements required for vehicles turning into the project site. The two project driveways have a 24-foot width and the curb return radii have been confirmed and are generally considered adequate. The design of the project driveways are an adequate width to accommodate both inbound and outbound vehicle movements at the same time without conflicts. As such, vehicles entering the site via Paseo De Colinas can do so unimpeded, as a result a deceleration lane into the site is not required.

Figures 6 and *7* present the turning movements required of a trash truck and fire truck to circulate throughout the project site, respectively. Overall, the turning maneuvers for both trash truck and fire truck are considered adequate.

CONCLUSION

As a result of the information above, the proposed Project would result in 278 daily trips, with 17 AM peak hour trips and 21 PM peak hour trips. When assessing the need for further analysis at study intersections, a "50 peak hour trip" threshold is applied based on the *City of Laguna Niguel Transportation Assessment Guidelines*. Given the results of the trip generation forecast we conclude that the added Project trips would have minimal impacts and that no additional analysis is required. Given these results, we conclude that a traffic impact study would not be necessary.

In addition, the proposed Project trips are expected to generate less than 500 daily trips during the weekday, and therefore, it can also be concluded that the Project would be screened out from a VMT assessment and its VMT impact are presumed to be less than significant.

Additionally, sight lines at the project driveway have been reviewed and are considered adequate. Adequate sight lines gives the motorist the ability to see gaps in traffic to help with egress from the site. Due to these sight lines, an acceleration lane is not required. Ingress to the site can be done comfortably without the need of a deceleration lane.

* * * * * * * * * *

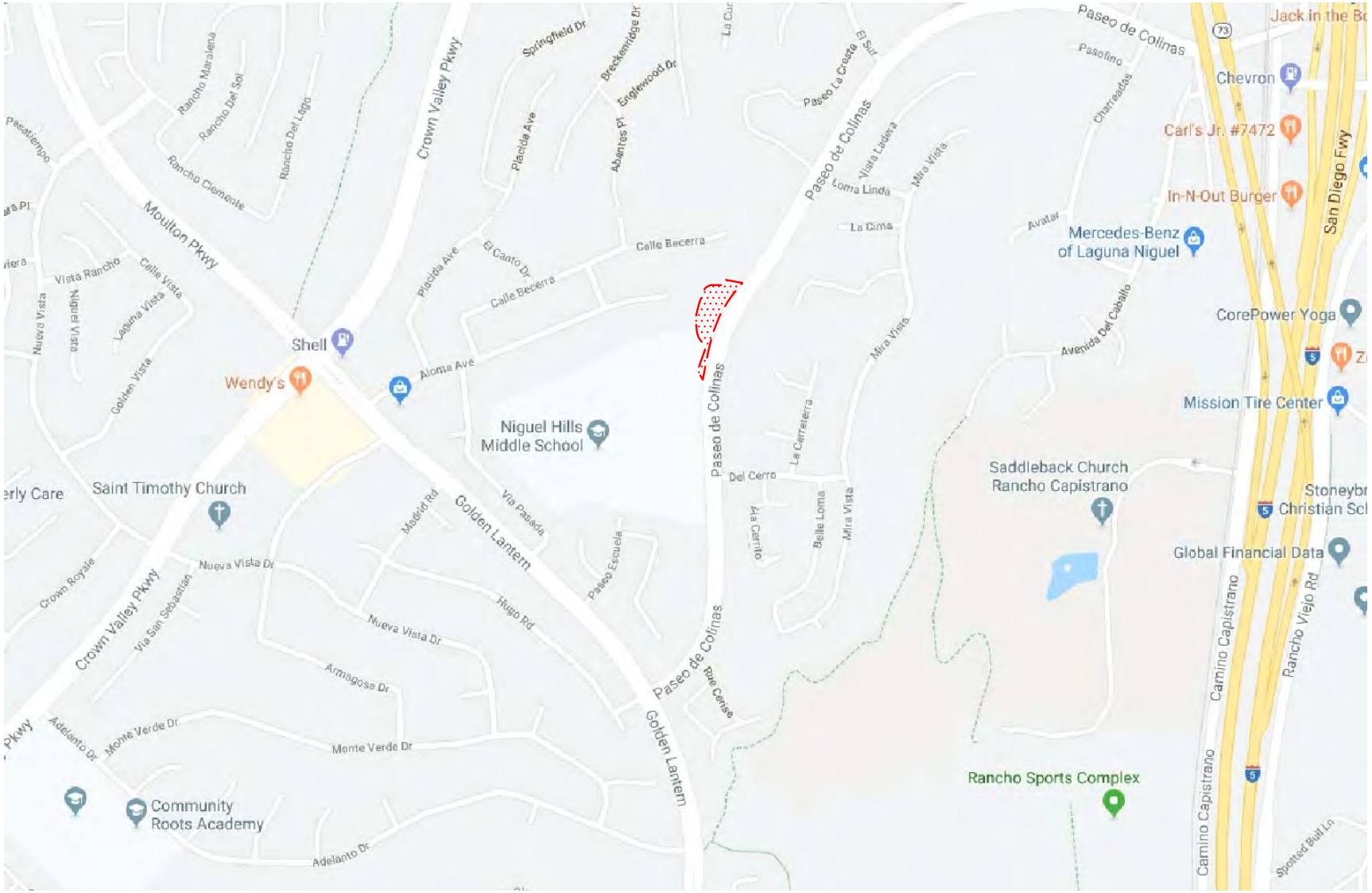
We appreciate the opportunity to be of service on this Project. Should you need further assistance, or have any questions regarding this analysis, please call us at (949) 825-6175.

Very truly yours,
Linscott, Law & Greenspan, Engineers

Richard E. Barretto, P.E.
Principal

cc: Shane S. Green, P.E. LLG

Attachments



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N NO SCALE

SOURCE: GOOGLE

KEY

= PROJECT SITE

FIGURE 1-1

VICINITY MAP

CUSD 30-DU PASEO DE COLINAS, LAGUNA NIGUEL

KEY

= PROJECT SITE

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FIGURE 2-1

EXISTING AERIAL SITE PLAN

CUSD 30-DU PASEO DE COLINAS, LAGUNA NIGUEL

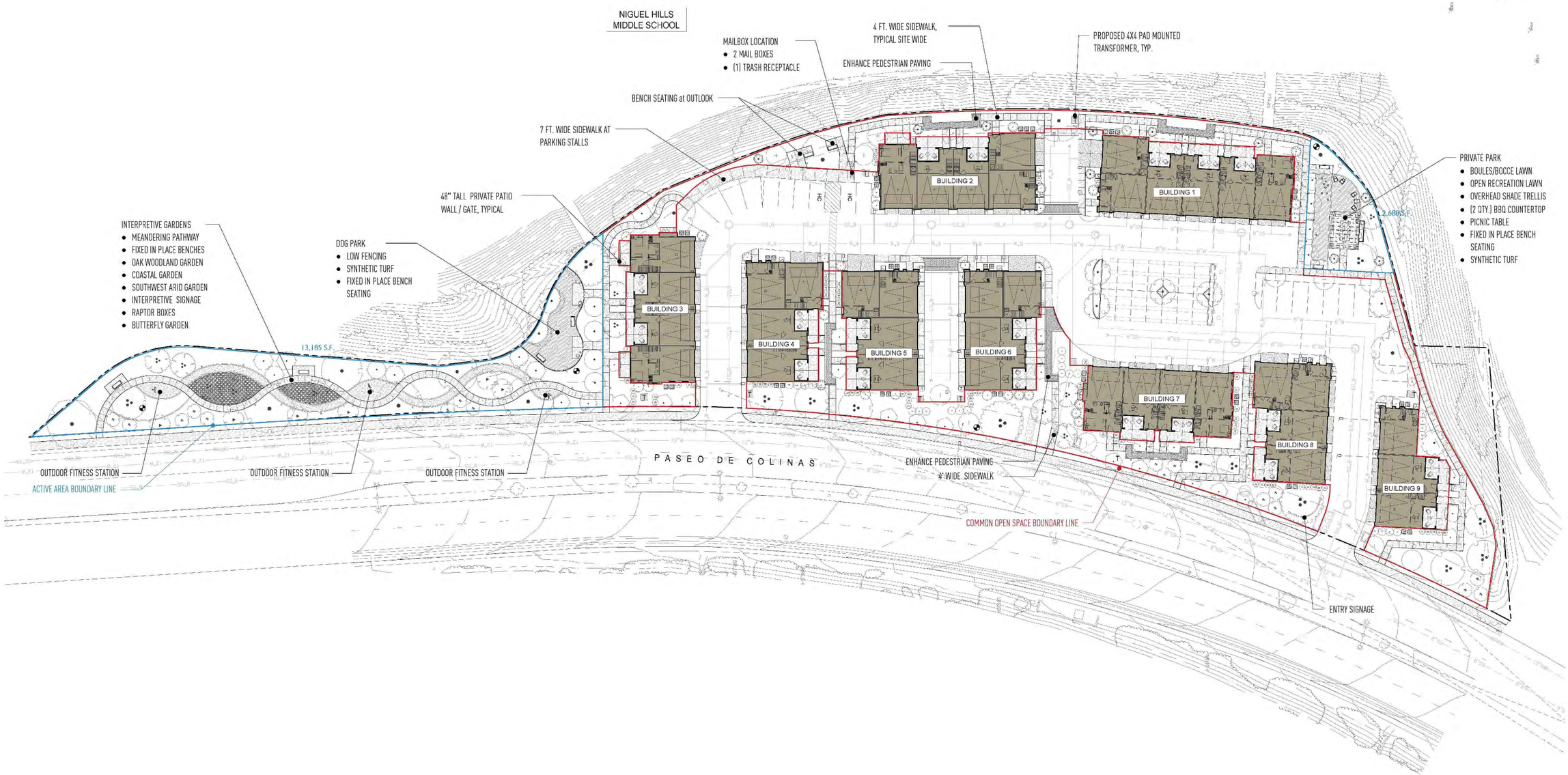

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FIGURE 2-2

PROPOSED SITE PLAN

CUSD 30-DU PASEO DE COLINAS, LAGUNA NIGUEL

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SCALE: 1=60'

SIGHT DISTANCE

DESIGN SPEED LIMIT:	55 MPH
REQUIRED STOPPING SIGHT DISTANCE:	500 FEET
REQUIRED CORNER SIGHT DISTANCE:	526 FEET

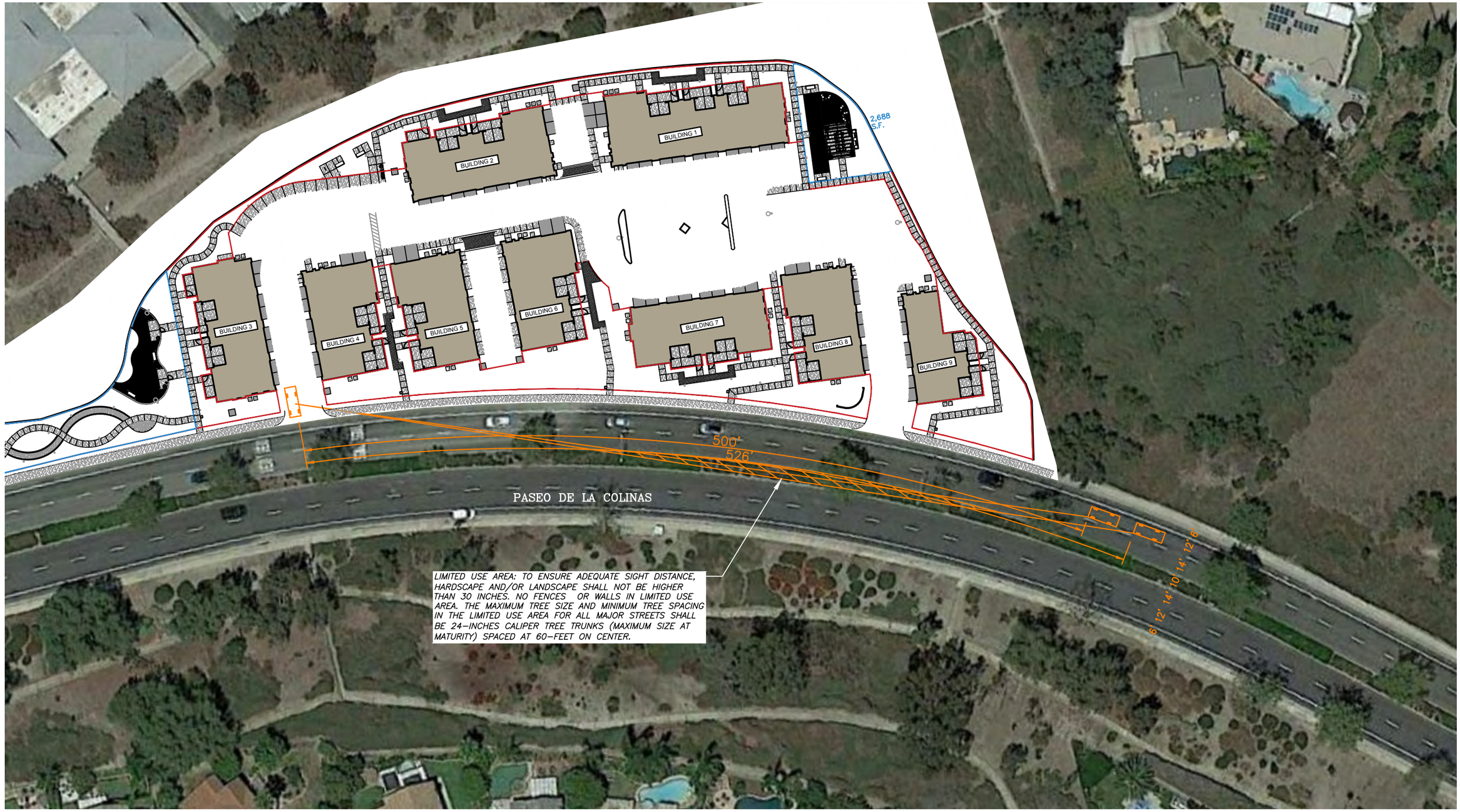
LEGEND

PUBLIC RIGHT-OF-WAY LIMITED USE AREA: TO ENSURE ADEQUATE SIGHT DISTANCE, HARDSCAPE AND/OR LANDSCAPE SHALL NOT BE HIGHER THAN 6 INCHES ABOVE THE CURB/SIDEWALK. NO FENCES OR WALLS IN LIMITED USE AREA.

FIGURE 3

SIGHT DISTANCE ANALYSIS – DRIVEWAY NO. 1

CUSD 30-DU PASEO DE COLINAS, LAGUNA NIGUEL



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SCALE: 1=60'

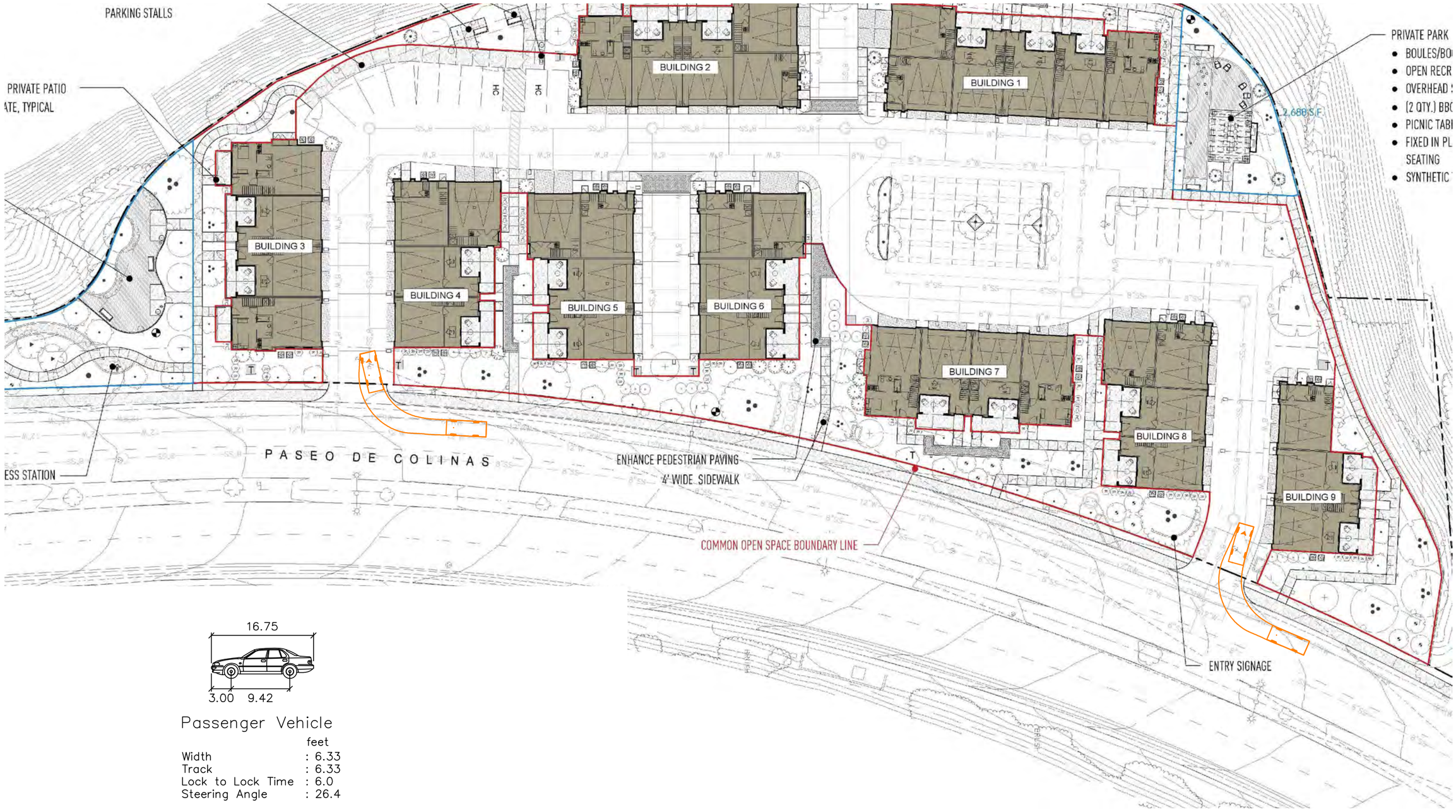
SIGHT DISTANCE

DESIGN SPEED LIMIT:	55 MPH
REQUIRED STOPPING SIGHT DISTANCE:	500 FEET
REQUIRED CORNER SIGHT DISTANCE:	526 FEET

FIGURE 4

SIGHT DISTANCE ANALYSIS – DRIVEWAY NO. 2

CUSD 30-DU PASEO DE COLINAS, LAGUNA NIGUEL



Passenger Vehicle

	feet
Width	: 6.33
Track	: 6.33
Lock to Lock Time	: 6.0
Steering Angle	: 26.4

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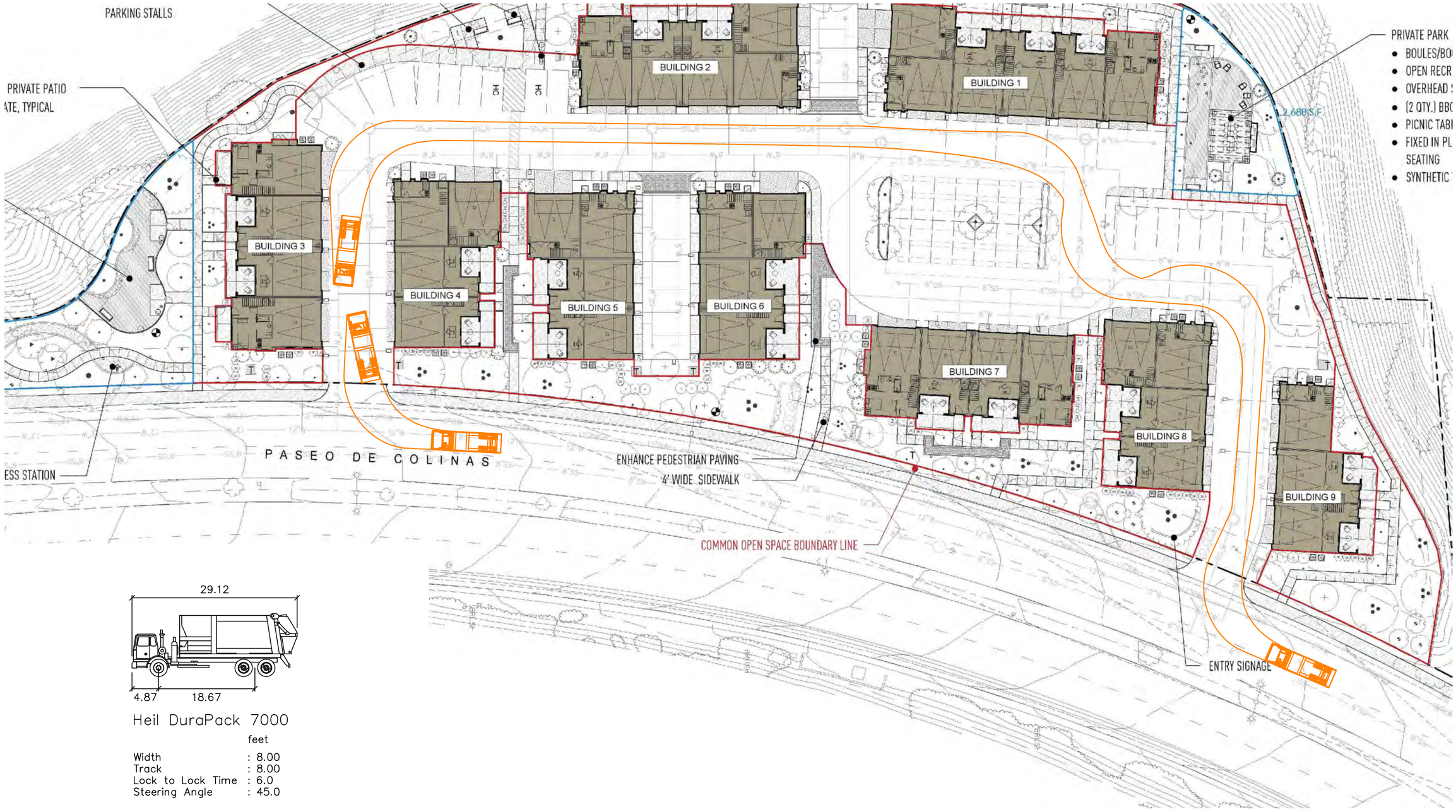
FIGURE 5

PASSENGER VEHICLE TURNING ANALYSIS

CUSD 30–DU PASEO DE COLINAS, LAGUNA NIGUEL



Heil DuraPack 7000

	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

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FIGURE 6

TRASH TRUCK TURNING ANALYSIS

CUSD 30–DU PASEO DE COLINAS, LAGUNA NIGUEL

PARKING STALLS

PRIVATE PATIO
ATE, TYPICAL

BUILDING 1
BUILDING 2
BUILDING 3
BUILDING 4
BUILDING 5
BUILDING 6
BUILDING 7
BUILDING 8
BUILDING 9

HC
HC

PRIVATE PARK
- BOULES/BO
- OPEN RECR
- OVERHEAD
- (2 QTY.) BB
- PICNIC TABI
- FIXED IN PL SEATING
- SYNTHETIC

2,688 S.F.

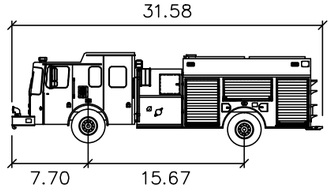
PASEO DE COLINAS

ESS STATION

ENHANCE PEDESTRIAN PAVING
4' WIDE SIDEWALK

COMMON OPEN SPACE BOUNDARY LINE

ENTRY SIGNAGE



OCFRD Pumper

	feet
Width	: 8.33
Track	: 8.33
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

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N NO SCALE

FIGURE 7

FIRE TRUCK TURNING ANALYSIS

CUSD 30-DU PASEO DE COLINAS, LAGUNA NIGUEL

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TABLE 1

PROJECT DEVELOPMENT SUMMARY[4]

Land Use / Project Description	Project Development Totals[5]
Paseo De Colinas Apartments	
❑ 2 Bedroom / 2 Bath Units (1,216 SF – 1,223 SF)	12 Units + 2 Affordable Units
❑ 3 Bedroom / 2.5 Bath Units (1,639 SF)	18 Units
❑ 4 Bedroom / 3.5 Bath Units (1,886 SF)	6 Units
Total Residential Units:	***38 Units***
Parking Supply	
❑ Parking	
o Garages (2 car / unit)	76 spaces
❑ Guest / Open Parking	
o Surface Parking	35 spaces
Total Parking Supply:	***111 spaces***

4 Source: *KTGY, Conceptual Design – 3-Story Townhomes SP.02C, dated October 15, 2019*

5 Source: Conceptual Site Plan, Schematic Design, prepared by KTGY, dated October 25, 2017.

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TABLE 2

PROJECT TRAFFIC GENERATION RATES AND FORECAST[6]

Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Rates:							
▪ 220: Multifamily Housing (Low-Rise[7]) (TE/DU)	7.32	23%	77%	0.46	63%	37%	0.56
▪ 221: Multifamily Housing (Mid-Rise[8]) (TE/DU)	5.44	26%	74%	0.36	61%	39%	0.44
Project Trip Generation:							
▪ 220: Paseo De Colinas 30-DU Residential Development (38 DU)	278	4	13	17	13	8	21

Notes:
TE/KSF = Trip End per 1,000 Square Feet
TE/DU = Trip End per Dwelling Unit

6 Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

7 Low-Rise Multifamily Housing consists of buildings that range between 1 and 2 levels.

8 Mid-Rise Multifamily Housing consists of buildings that range between 3 and 10 levels.