

ATTACHMENT B
Updated Traffic Assessment



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August 2, 2024

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LLG Reference: 2.19.4219.1

Subject: **Updated Traffic Assessment for the
Proposed Paseo De Colinas 24-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 1.50-acre portion of a 2.47-acre parcel of land owned by the Capistrano Unified School District (CUSD) 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 intersection and addressed at 29001 Paseo de Colinas.

This revised analysis evaluates the traffic implications associated with an update to the proposed Project's development tabulation and site plan, 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. This analysis also addresses comments provided by City staff on October 13, 2023 related to the traffic implications associated with pedestrian (student) activity of the nearby Niguel Hills Middle School as well as the potential effect of Project-related traffic on the operating conditions on the key study intersections within the vicinity of the project. The site plan has modified the northernmost project driveway to egress only to address comments by the City provided in January 2024.

In addition, based on discussions during a Planning Commission Workshop conducted in April 2024 supplemental count data was collected and has been included. **Appendix A** includes the Limited Scope LOS Traffic Impact Study

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(TIS) Scope of Work for this Project that was developed in collaboration with City planning and engineering staff

PROJECT LOCATION AND DESCRIPTION

The Project site is a 1.50-acre portion of a 2.47-acre parcel of land owned by the Capistrano Unified School District that is a part of the Niguel Hills Middle School Campus. The remaining 0.97-acre will be offered in dedication to the City of Laguna Niguel as a future park site. The project site was previously visited by LLG to document existing conditions. The Project site, which is now vacant, was previously used for other CUSD uses with modular buildings and associated surface parking (71± parking spaces). Previous CUSD related uses included alternative middle school for grades 7 & 8; independent study program (Fresh Start) for grades 9 – 12; college and career planning center; CUSD Music Department Offices; and home-schooling center (CHOOSE) for grades K – 8. The Project site is located along the west side of Paseo De Colinas, just northwest of the Del Cerro/Paseo De Colinas intersection. 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** presents a Vicinity Map that illustrates the general location of the Project and surrounding street system. **Figure 2** presents the existing aerial of the Project site.

The proposed Paseo De Colinas residential project includes the construction of a 24-unit townhome community consisting of eight (8) two-bedroom/two-bath units, twelve (12) three-bedroom/two and ½ bath units and four (4) four-bedroom/two and ½ bath units within five (5), three-story buildings. Parking for the Project includes 48 garage spaces (2 per unit) and 25 open spaces. **Table 1** summarizes the development totals for the proposed Project.

From review of the proposed site plan, access to the Project site is proposed to be provided via two unsignalized driveways located along Paseo De Colinas. The southernmost project driveway is proposed as a right turn in/out only driveway with the northernmost project driveway proposed as a right turn out (exit only) driveway. The northernmost project driveway will include “project design features” such as curb enhancements and signage that would restrict vehicles from entering via Paseo De Colinas. Vehicular circulation internal to the site will be provided by local drive aisles/streets which measure 24-feet wide. **Figure 3** presents the site plan for the Project, prepared by Fuscoe Engineering, the Project Civil Engineers.

As shown on **Figure 3**, the design of the driveway configuration in combination with the installation of a “STOP” sign and stop bar at Project’s northernmost driveway on Paseo Del Colinas, plus a “No Right Turn (R3-1)” sign facing southbound traffic will deter motorists from entering at this “exit only” driveway.

Additionally, there are two staircases that are adjacent to the Project site that are property of Niguel Hills Middle School (NHMS) and not a part of the proposed Project. Per CUSD, the northern stairs are closed and will remain closed. The southern staircase provided pedestrian (student) connectivity between the school campus and Paseo De Colinas until it was recently closed in June 2024 by Niguel Hills Middle School. It is expected that with this closure, some pedestrian activity associated with the school, inclusive of student drop-off/pick-up, that occurs at the Paseo De Colinas and Del Cerro intersection will be re-routed to the school's main access at Golden Lantern and Shark Bay, via the Paseo De Colinas at Golden Lantern intersections and that some will be re-routed to other nearby public streets which permit parking.

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 are based on the most current information found in the 11th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington, D.C., 2021].

The proposed Project includes a development of five (5) multi-level townhome buildings, 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. However, 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 2, 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 162 weekday daily trips, with 10 trips (2 inbound, 8 outbound) during the weekday AM peak hour and 12 trips (8 inbound, 4 outbound) occurring during the weekday PM peak hour.

Traffic Impact Analysis Requirements

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

¹ Low Rise residential units consist of 1-2 levels.

² Mid Rise residential units consist of 3-10 levels.

analysis is required. Further, given these results, and based on the City’s guidelines, the Project would screen out and should not be required to prepare a traffic impact (Level of Service) analysis.

EXISTING NHMS SOUTHERN STAIRCASE OBSERVATIONS

In response to concerns brought up by City staff related to student drop-off/pick-up activity along Del Cerro at Paseo de Colinas, LLG visited the site and conducted observations to document this activity. During the morning drop-off period from 8:00 AM – 9:00 AM parents would enter Del Cerro, turn around, and park along the curb to drop-off students. Students would then proceed to the signalized intersection of Paseo De Colinas and Del Cerro to use the existing marked crosswalk and eventually make their way to NHMS via the use of the southern staircase. During the drop-off period, as shown in the table below, between 26-30 vehicles were observed to be parked along Del Cerro to drop off their students. Additionally, as shown in the table below, it should be noted that between 41-61 students used the staircase in the morning time which was a combination of students being dropped-off and/or students walking from the nearby residential community.

During the afternoon pick-up period from 3:00 PM – 4:00 PM parents would park along Del Cerro and wait for students to depart NHMS via the southern staircase, utilize the signalized crosswalk at Paseo De Colinas and Del Cerro, and then proceed to enter one of the waiting vehicles. As vehicles would leave, the vehicles at the end of the queue would move forward and take the place of the vehicle that had just departed. During the afternoon pick-up period, as shown in the table below, between 35-66 vehicles were observed to be parked along Del Cerro waiting for students to arrive. Additionally, as shown in the table below, it should be noted that between 84-100 students used the staircase in the afternoon time which was a combination of students being picked-up and/or students walking into the nearby residential community.

	Time Period	Wednesday May 24, 2023	Tuesday May 21, 2024	Wednesday May 22, 2024	Thursday May 23, 2024
Number of Vehicles Parked along Del Cerro	AM Drop-Off	27	29	26	30
	PM Pick-Up	66	44	35	44
Number of Students Utilizing Staircase	AM Drop-Off	52	46	41	61
	PM Pick-Up	100	87	94	84

The potential traffic impact associated with vehicular trips on the operating conditions of the key study intersections that will be rerouted due to the closure of this staircase are analyzed later in this report.

It should be noted that during the morning drop-off and afternoon pick-up periods, vehicles queue onto Shark Bay and Golden Lantern while waiting to drop-off or pick-up their student(s). When on-site queues back up onto Shark Bay, those vehicles queue in the travel lane, but they do not use the bus lane. When queues back up onto Golden Lantern the vehicles wait idling in the curb lane. During both the drop-off and pick-up times vehicles that queued along Shark Bay adhered to the “Keep Clear” pavement legend which allowed residents to enter and exit Via Estudio and Paseo Lomita. Additionally, when residents need to enter during peak drop-off and pick-up times, they are able to do so via the existing bus lane located along Shark Bay to bypass the queue when entering the community. However, this bypass movement using the bus lane was observed to occur infrequently. Due to the infrequency, it can be concluded that the community is aware of the peak congestion times related to the school and generally choose to avoid these times.

Figures 4 and 5 present the number of vehicles queued along Shark Bay and Golden Lantern waiting to enter the school driveway during the morning drop-off period and afternoon pick-up period, respectively. As shown in *Figure 4* with the blue bar, vehicles begin to queue past the Niguel Hills Middle School driveway onto Shark Bay about 30 minutes before the 1st bell rings. During the morning drop-off period, between 20-25 minutes before the bell rings for the school, vehicles begin to queue onto Golden Lantern. However, this queue quickly dissipates 2-3 minutes before the bell rings. During the morning drop-off period there is a peak queue of 10 vehicles along Golden Lantern. It should be noted that Golden Lantern can accommodate up to 21 vehicles. Bicycle observations were also conducted during the morning drop-off period and it was observed that 67 students rode bikes to the school. It should be noted that this number of bicyclists is due to the increased popularity of E-bikes, which has helped in decreasing the vehicular queues during the afternoon school departure period. These bicyclists were able to access the school via sidewalk and are instructed to walk their bikes when on school property and also along Shark Bay during the morning drop-off period. The school has a strict bike policy which allows the school to revoke bike privileges which helps to enforce student conduct with bikes. Observations showed that students did in fact walk their bikes along Shark Bay.

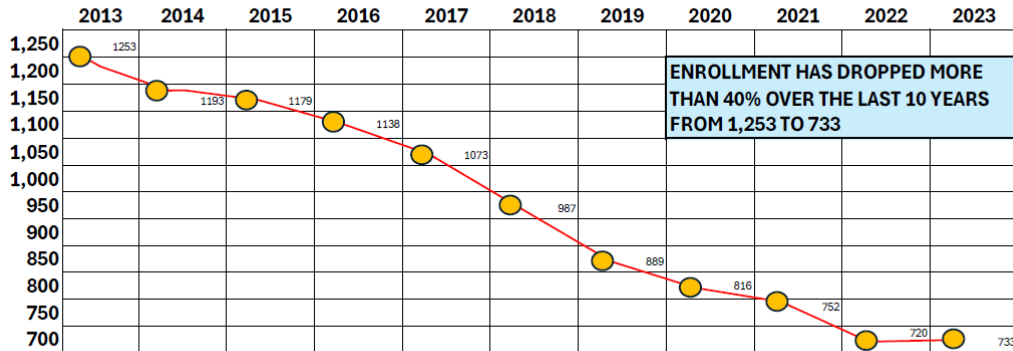
Similarly, as shown in *Figure 5* with the blue bar, vehicles begin to queue past the Niguel Hills Middle School driveway onto Shark Bay about 25 minutes before the dismissal bell rings. During the afternoon pick-up period, in the 20 minutes leading up to the dismissal bell ringing as well as the 8 minutes following the bell, vehicles queue on Golden Lantern. However, this queue dissipates about 8-10 minutes after the bell rings. During the afternoon pick-up period there is a peak queue of 16 vehicles along Golden Lantern. It should be noted that Golden Lantern can

accommodate up to 21 vehicles. Bicycle observations were also conducted during the afternoon pick-up period and it was observed that 68 students rode bikes from the school. These bicyclists were able to access the school via sidewalk and are instructed to walk their bikes when on school property and also along Shark Bay during the afternoon drop-off period. Similar to the morning drop-off period, the school's strict bike policy has resulted in students walking their bikes along Shark Bay as observations would indicate.

Figures 4 and 5 also indicate the number of vehicles that are forecasted to be rerouted from Del Cerro to Shark Bay/Golden Lantern with the closure of the southern staircase during the morning drop-off period and afternoon pick-up period, respectively. As shown in *Figure 4* denoted in orange, during the morning drop-off period, the queue on Shark Bay/Golden Lantern is not forecast to extend to Paseo De Colinas. However, as shown in *Figure 5* denoted in orange, during the afternoon pick-up period, the queue on Shark Bay/Golden Lantern are forecast to exceed the maximum queue capacity of 39 vehicles by 6-13 vehicles, depending on the day of the week. Further review of *Figure 5* shows that the anticipated queue that would extend past Paseo De Colinas would only occur during a brief 6 to 12 minute period and forecast to start as early as 3:14 PM before the afternoon school dismissal at 3:25 PM. This vehicular queue on to Golden Lantern is forecast to dissipate approximately 10 minutes after school dismissal at 3:36 PM. As a result, the afternoon pick-up period could queue onto Paseo De Colinas or continue along Golden Lantern past Paseo De Colinas with rerouted traffic from Del Cerro if current arrival/departure patterns remain the same. However, it is not anticipated that 100% of the previous Del Cerro traffic will re-route to the Shark Bay entrance. Many parents/drivers may continue to utilize neighborhood public streets which permit parking. It should be noted that this would occur during non-commuter times when less traffic is on the roadway.

The graph below displays Niguel Hills Middle School enrollment for the past 10 years. As shown in the graph, enrollment has decreased by more than 40% over the past 10 years. Therefore, it can be concluded that with the closure of the staircase and the rerouted Del Cerro volumes, the traffic conditions along Shark Bay/Golden Lantern would be similar to that of past years with higher enrollment.

NIGUEL HILLS MIDDLE SCHOOL ENROLLMENT HISTORY



Source: Predictive Enrollment Analytics - Capistrano Unified School District - Niguel Hills Middle School

Afternoon congestion on Shark Bay/Golden Lantern is exacerbated by parents arriving at the school as much as 30 minutes prior to school dismissal. To help alleviate congestion from the queue along Shark Bay/Golden Lantern with the closure of the southern staircase, the principal of Niguel Hills Middle School expects to encourage and provide parents with education regarding when to arrive to pick up students and to discourage parents from arriving early and creating an unnecessary queue of vehicles on the adjacent street system to manage the vehicular queues. This strategy is expected to be used by the principal for this coming school year, which starts on August 20, 2024, as the Niguel Hills Middle School southern staircase has already been closed and will continue to be closed during the 2024-2025 school year.

Modifications to the current on-site circulation were considered to increase on-site vehicular queuing capacity, inclusive of the use of the bus lane as supplemental queuing storage after all the buses have arrived. However, the buses that serve NHMS can sometimes run late during the afternoon pick-up period when vehicular queues have already stacked onto Shark Bay. Further, it is a requirement that the bus lane in front of the school must remain clear in case of an emergency. Therefore, the use of the bus lane and bus staging area in front of the school for drop-off and/or pick-up, including after the buses have departed during the afternoon pick-up period, is considered infeasible.

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 shown in the Project's updated site plan. As noted earlier, access to the Project site is proposed to be provided via two unsignalized driveways located along 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 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 is required for the right-turn.

Figures 6 and 7 illustrate a schematic of the sight distance evaluation for project driveways 1 (northerly access) and 2 (southerly access) along Paseo De La Colinas for stopping sight distance and corner sight distance, respectively. The figure illustrates the limited use areas. Review of *Figures 6 and 7* indicates that sight distances at the Project Driveways are expected to be adequate if obstructions within the sight triangles are minimized. Adequate sight lines give 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 Project's 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.

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 8 presents the turning movements required for a vehicle turning into the southernmost project driveway, as well as exiting the site from both this driveway as well as the northernmost driveway. The southernmost project driveway has a driveway width of 28-feet that transitions to an internal drive aisle width of 24-feet as required by the City. The design of the project driveway is an adequate width to accommodate both inbound and outbound vehicle movements at the same time without conflicts. This design, along the proposed curb return radii, have been reviewed and are generally considered adequate. 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.

The northernmost driveway has been designed with a 14-foot opening which is designed to allow for outbound right-turn movements but restrict inbound right-turn movements. This design, along the proposed curb return radii, have been reviewed and are considered adequate (See *Figure 8* for passenger vehicle exiting the project site).

Figures 9 and 10 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.

LEVEL OF SERVICE ANALYSIS

Although the anticipated trips related to the Project do not meet the requirements for the need for a traffic study, intersection level of service and queueing analysis have been completed to assess the Project's impact based on the Level of Service (LOS) standard and thresholds published in the *City of Laguna Niguel Transportation Assessment Guidelines*.

As part of this evaluation, the LOS analysis includes that traffic associated with student drop-off/pick-up activity that occurs at the Paseo De Colinas and Del Cerro intersection. Given Niguel Hills Middle School intends to close the southern stairs that now provides pedestrian (student) connectivity between the school campus and Paseo De Colinas, this traffic has been re-routed to the school's main access at Golden Lantern and Shark Bay, via the Paseo De Colinas at Golden Lantern intersection.

Analysis at four (4) study intersections have been performed within the vicinity of the Project during the weekday AM and PM peak hours as well as the morning drop-off and afternoon pick-up periods for existing traffic conditions without, then with the proposed Project. Below are the four (4) study intersections selected for analysis based on the direction and requirements of the City.

Key Study Intersections

1. Paseo De Colinas at Del Cerro
2. Cabot Road at Paseo De Colinas
3. Golden Lantern at Paseo De Colinas
4. Golden Lantern at Shark Bay

Volume Forecasting

Commuter Peak Period

Traffic counts were collected at the four (4) key study intersections in May and November 2023 while local area schools, including Niguel Hills Middle School, were still in session. During the time traffic counts were collected, the southern staircase for Niguel Hills Middle School was open and it was observed that traffic and pedestrian activity associated with student drop-off/pick-up occurs at the Paseo De Colinas and Del Cerro intersection. Existing AM and PM peak hour traffic counts were collected from 7:00 AM – 9:00 AM and from 4:00 PM – 6:00 PM which covers both the commuter peak hours and school drop-off/pick-up period.

Figures 11 and **12** present the existing AM and PM commuter peak hour counts, respectively. **Appendix A** contains the traffic count sheets for the key study intersections.

As a result of the proposed southern stairway closure, existing vehicles that utilize Del Cerro for drop-off/pick-up would alter their travel patterns and use Shark Bay. **Figures 13** and **14** present the anticipated distribution pattern related to the shift in traffic from Del Cerro to Shark Bay as a result of the southern staircase closure for the morning drop-off period and afternoon pick-up period, respectively.

The general, directional traffic distribution pattern for the proposed Project is graphically presented in **Figure 15**. The anticipated AM and PM peak hour Project only traffic volumes at these intersections are presented in **Figures 16** and **17**, respectively. The traffic volume assignments presented in **Figures 16** and **17** reflect the traffic distribution characteristics shown in **Figure 15** and the traffic generation forecast presented in **Table 2**.

Figures 18 and **19** present the existing plus project AM and PM peak hour traffic volumes at the four (4) key study intersections and two (2) project driveways with the addition of the trips generated by the proposed Project and shift related to the staircase closure.

School Peak Hour

Additional counts were collected during the school drop-off period (8:00 AM – 9:00 AM) and school pick-up period (3:00 PM – 4:00 PM) in May 2024 while local area schools, including Niguel Hills Middle School, were still in session. These counts included pedestrian utilization of the Niguel Hills Middle School staircase associated with student drop-off/pick-up that occurs at the Paseo De Colinas and Del Cerro intersection.

Figures 20 and **21** present the existing school peak hour counts for the morning drop-off and afternoon pick-up periods counts, respectively. **Appendix A** contains the traffic count sheets for the key study intersections.

Figures 22 and **23** present the existing plus project AM and PM peak hour traffic volumes at the four (4) key study intersections and two (2) project driveways with the addition of the trips generated by the proposed Project and shift related to the staircase closure.

City of Laguna Niguel Project Specific Threshold³

Signalized Intersections

A significant impact would occur at a study intersection when project-related traffic causes a signalized intersection to degrade from an acceptable LOS D or better to LOS E or LOS F; or the volume to capacity (V/C) ratio to increase by more than 0.01 at a signalized intersection operating at LOS E or LOS F.

Unsignalized Intersections

If an intersection is operating at LOS E or worse and a significant impact is anticipated (V/C ratio increase of more than 0.01), improvement is needed to improve intersection operations equal to the project-generated impact on the intersection. If an impact drops from LOS D or above to LOS E or F, improvement is required to bring the LOS back to the acceptable threshold level (LOS D) as a part of the project approval. No improvement is required for intersections operating at or above the acceptable threshold.

Existing With Project Peak Hour Intersection Capacity Analysis

Commuter Peak Period

Intersection level of service analysis has been performed at the key study intersections and two Project driveways for Existing and Existing With Project traffic conditions. **Table 3** summarizes the peak hour level of service results at the key study intersections for Existing With Project traffic conditions. The first column (1) of LOS values in **Table 3** presents a summary of existing AM and PM peak hour traffic conditions. The second column (2) lists Existing With Project traffic conditions. The third column (3) indicates whether the traffic associated with the Project will exceed the LOS standards of the City.

Review of column one (1) of **Table 3** indicates that the study intersections operate at LOS D or better during the existing traffic conditions for the AM and PM peak hours.

Review of column two (2) of **Table 3** indicates that the study intersections operate at LOS D or better during the existing plus project traffic conditions for the AM and PM peak hours.

Appendix B presents the ICU/HCM/LOS calculations for the AM and PM peak hours for the key study intersections.

School Peak Hour Intersection Capacity Analysis

Intersection level of service analysis has been performed at the key study intersections and two Project driveways for Existing and Existing With Project traffic

³ Source: *City of Laguna Niguel Transportation Assessment Guidelines*.
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conditions during school peak drop-off and pick-up times (7AM-8AM and 3PM-4PM). **Table 4** summarizes the peak hour level of service results at the key study intersections for Existing With Project traffic conditions during school peak. The first column (1) of LOS values in *Table 4* presents a summary of existing morning drop-off and afternoon pick-up periods traffic conditions. The second column (2) lists Existing With Project traffic conditions. The third column (3) indicates whether the traffic associated with the Project will exceed the LOS standards of the City.

Review of column one (1) of *Table 4* indicates that the study intersections operate at LOS D or better during the existing traffic conditions for the existing morning drop-off and afternoon pick-up periods.

Review of column two (2) of *Table 4* indicates that the study intersections operate at LOS D or better during the existing plus project traffic conditions for the existing morning drop-off and afternoon pick-up periods.

It should be noted that although vehicles queue along Golden Lantern during peak school times the intersection still operates at good service levels. It was observed that through traffic along Golden Lantern would avoid using the curb lane and proceeds with nominal disruption.

Appendix C presents the ICU/HCM/LOS calculations for the morning drop-off and afternoon pick-up periods key study intersections.

Intersection Queuing Analysis

Commuter Peak Period

A “turn pocket” queuing evaluation was prepared for the key study intersections of Paseo De Colinas at Del Cerro for the southbound left-turn movement and Cabot Road at Paseo De Colinas for the eastbound left-turn movement. This evaluation utilized the *Highway Capacity Manual (HCM)* methodology. The queuing evaluation was conducted based on projected peak hour traffic volumes and utilizes the 95th percentile vehicle queue associated with the left-turn lanes. The queues are calculated using HCM 7th Edition 95th percentile methodology, which corresponds to a condition that is generally taken as the maximum queue for the indicated movement.

The aforementioned queuing analyses were based on the forecast weekday AM and PM intersection turning movement volumes utilized in the level of service analyses. The existing lane configurations and storage lengths were determined based on a review of aerial maps of the subject intersections obtained from Google Earth and on field reviews conducted by LLG Engineers. An average vehicle length of 25 feet is assumed for the purposes of this analysis.

Table 5 identifies the minimum required stacking/storage lengths for the aforementioned left-turn lanes based on Existing and Existing Plus Project traffic volumes in the AM and PM hours. Review of columns (1) and (2) of *Table 5* indicates that the Paseo De Colinas at Del Cerro southbound left-turn lane and Cabot Road at Paseo De Colinas eastbound left-turn lane have queues which can be accommodated within the existing storage.

School Peak Period

Table 6 identifies the minimum required stacking/storage lengths for the aforementioned left-turn lanes based on Existing and Existing Plus Project traffic volumes during the school peak period in the AM and PM hours. Review of columns (1) and (2) of *Table 6* indicates that the Paseo De Colinas at Del Cerro southbound left-turn lane and Cabot Road at Paseo De Colinas eastbound left-turn lane have queues which can be accommodated within the existing storage.

Appendix D presents the queueing calculation worksheets for the two (2) key study intersections.

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.

CONCLUSION

As a result of the information above, the proposed Project would result in 162 daily trips, with 10 AM peak hour trips and 12 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. Further, given these results, and based on the City’s guidelines, the Project would screen out and should not be required to prepare a traffic impact (Level of Service) analysis. Regardless, level of service and queuing analysis was completed at four (4) study intersections and two (2) project driveways. Both LOS and queues were considered to be adequate with the addition of Project traffic, including school related traffic that would be re-routed from the intersection of Paseo De Colinas at Del Cerro to the school’s main access at Golden Lantern and Shark Bay with the closure of the southern staircase that previously provided pedestrian (student) connectivity between the school campus and Paseo De Colinas.

Based on existing queuing observations along Shark Bay/Golden Lantern shows that there is adequate stacking available along both streets with minimal impacts to the users of the roadway. Stacking currently occurs along Shark Bay and Golden Lantern towards Paseo De Colinas. As a result of the closure to the staircase, parents using Del Cerro for drop-off and pick-up would be re-routed to the school’s main access at Golden Lantern and Shark Bay or other nearby public streets which allow parking. During the morning drop-off period the added demand to the queue are considered minimal. However, the afternoon pick-up period could result in forecasted queues to extent along Golden Lantern onto either Paseo De Colinas or continue along Golden Lantern past Paseo De Colinas. It should be noted that this would occur during non-commuter times when less traffic is on the roadway.

Additionally, sight lines at the project driveway have been reviewed and are considered adequate. Adequate sight lines give 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.

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.

As noted, site access and internal circulation was determined to be adequate. However, the following improvements are recommended in conjunction with the development of the proposed Project to facilitate ingress and egress to the project site:

- Northerly Project Driveway: To supplement the design of the proposed driveway, install a “STOP” sign and stop bar at Project’s northerly driveway on Paseo de Colinas plus a “No Right Turn (R3-1)” sign facing southbound traffic to deter motorists from entering at this “exit only” driveway.
- Southerly Project Driveway: Install a “STOP” sign and stop bar at Project’s southerly driveway on Paseo de Colinas.

As a result of concerns raised by the City and Community related to speeding along Paseo De Colinas near the project site, the Project is proposing to fund bicycle safety enhancement and traffic calming measures. **Figures 24A** through **24D**, and **25** present the proposed bicycle enhancements and traffic calming measures, respectively.

* * * * *

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

- Figure 1: Vicinity Map
- Figure 2: Existing Aerial Photograph
- Figure 3: Proposed Site Plan
- Figure 4A: Tuesday AM Drop-off Period Queuing along Shark Bay and Golden Lantern
- Figure 4B: Wednesday AM Drop-off Period Queuing along Shark Bay and Golden Lantern
- Figure 4C: Thursday AM Drop-off Period Queuing along Shark Bay and Golden Lantern

Figure 5A: Tuesday PM Pick-Up Period Queuing along Shark Bay and Golden Lantern

Figure 5B: Wednesday PM Pick-Up Period Queuing along Shark Bay and Golden Lantern

Figure 5C: Thursday PM Pick-Up Period Queuing along Shark Bay and Golden Lantern

Figure 6: Sight Distance Analysis – Driveway No. 1

Figure 7: Sight Distance Analysis – Driveway No. 2

Figure 8: Passenger Vehicle Turning Analysis

Figure 9: Trash Truck Turning Analysis

Figure 10: Fire Truck Turning Analysis

Figure 11: Existing AM Peak Hour Traffic Volumes

Figure 12: Existing PM Peak Hour Traffic Volumes

Figure 13: Volume Redistribution for Stairway Closure AM Peak Hour

Figure 14: Volume Redistribution for Stairway Closure PM Peak Hour

Figure 15: Project Distribution Pattern

Figure 16: AM Peak Hour Project Traffic Volumes

Figure 17: PM Peak Hour Project Traffic Volumes

Figure 18: Existing Plus Project AM Peak Hour Traffic Volumes

Figure 19: Existing Plus Project PM Peak Hour Traffic Volumes

Figure 20: Existing AM Drop-Off Period Traffic Volumes

Figure 21: Existing PM Pick-Up Period Hour Traffic Volumes

Figure 22: Existing Plus Project AM Drop-Off Period Traffic Volumes

Figure 23: Existing Plus Project PM Pick-Up Period Hour Traffic Volumes

Figure 24A: Green-Bike Improvements for Paseo De Colinas at Loma Linda

Figure 24B: Green-Bike Improvements for Paseo De Colinas at Project Driveways

Figure 24C: Green-Bike Improvements for Paseo De Colinas at Del Cerro

Figure 24D: Green-Bike Improvements for Paseo De Colinas at Golden Lantern

Figure 25: Potential Location of Vehicle Speed Feedback Sign

Table 1: Project Development Summary

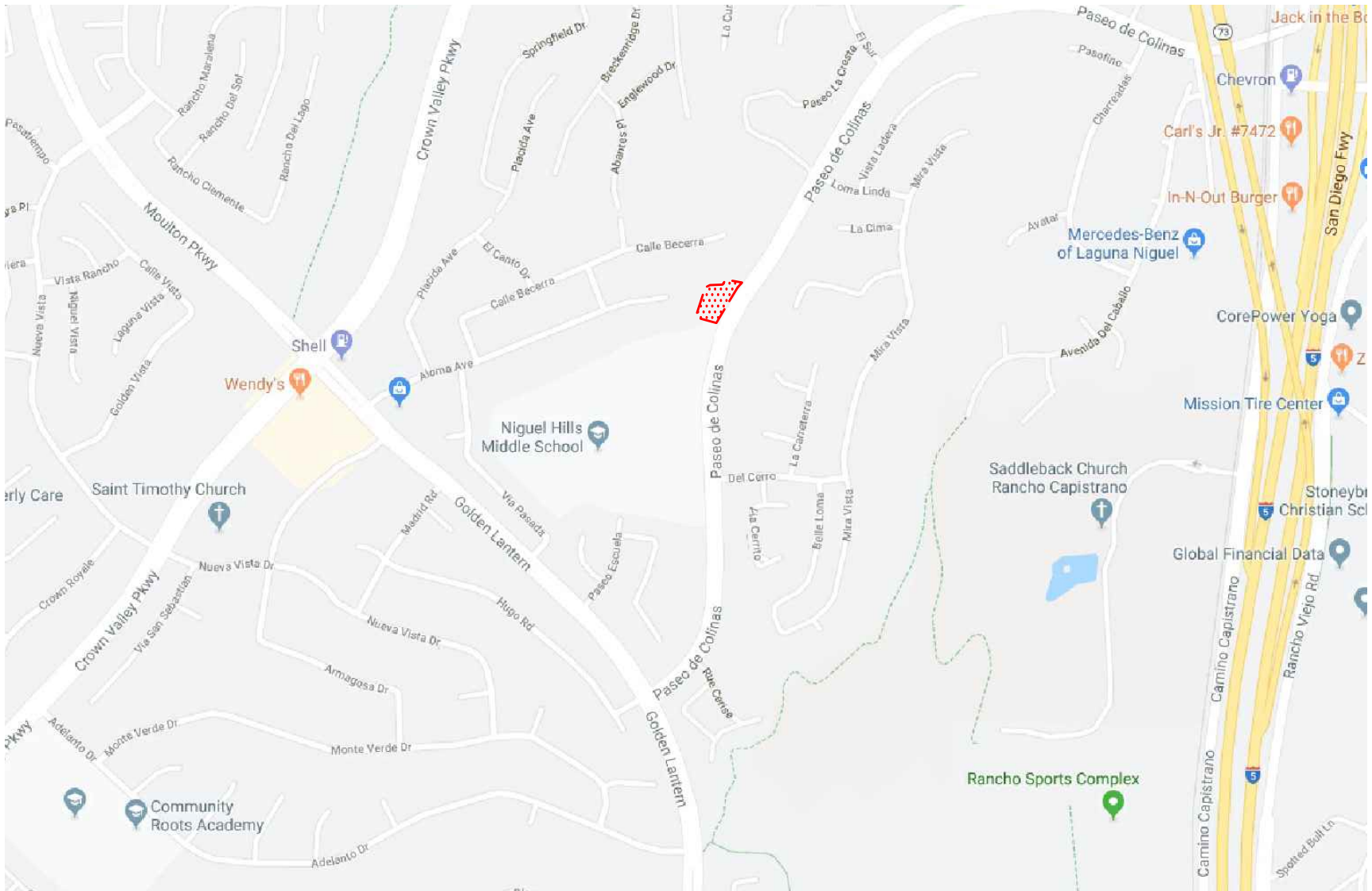
Table 2: Project Traffic Generation Rates and Forecast

Table 3: Existing with Project Peak Hour Intersection Capacity Analysis – During Weekday AM and PM Peak Commute Hours

Table 4: Existing with Project Peak Hour Intersection Capacity Analysis – During School Drop-off and Pick-Up Periods

Table 5: Existing with Project Peak Hour Intersection Queuing Analysis – During Weekday AM and PM Peak Commute Hours

Table 6: Existing with Project Peak Hour Intersection Queuing Analysis – During School Drop-off and Pick-Up Periods



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SOURCE: GOOGLE

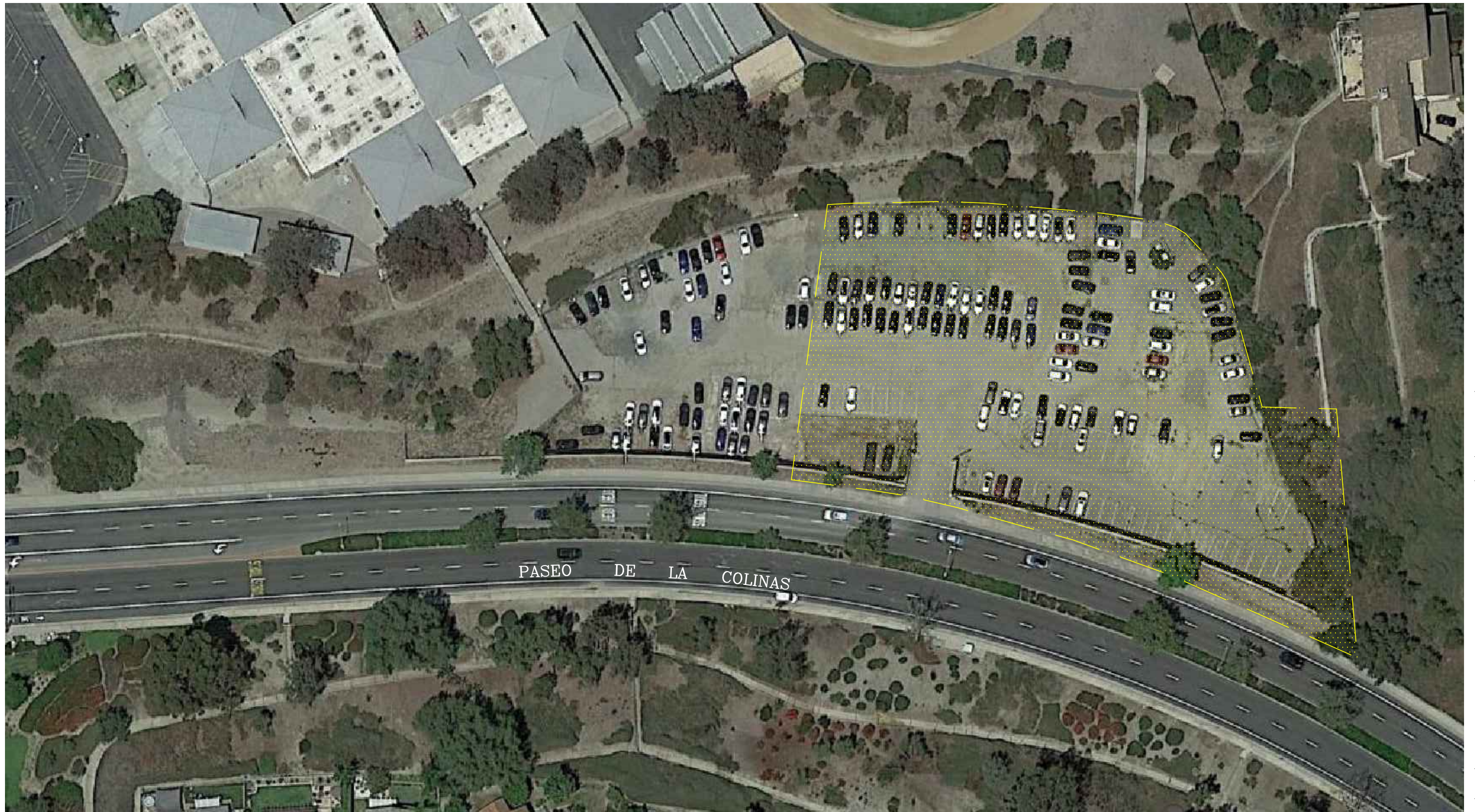
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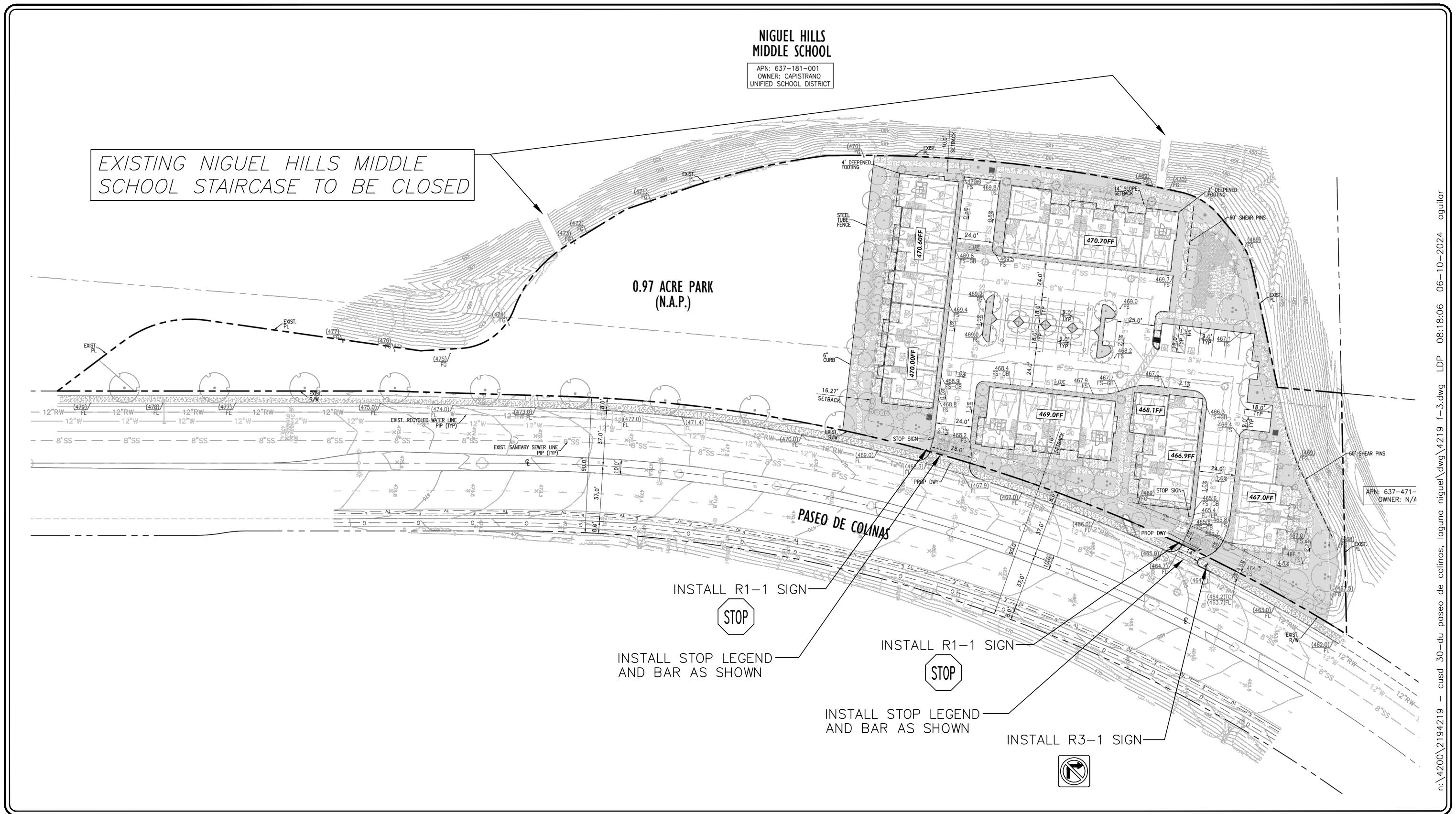
FIGURE 1

VICINITY MAP

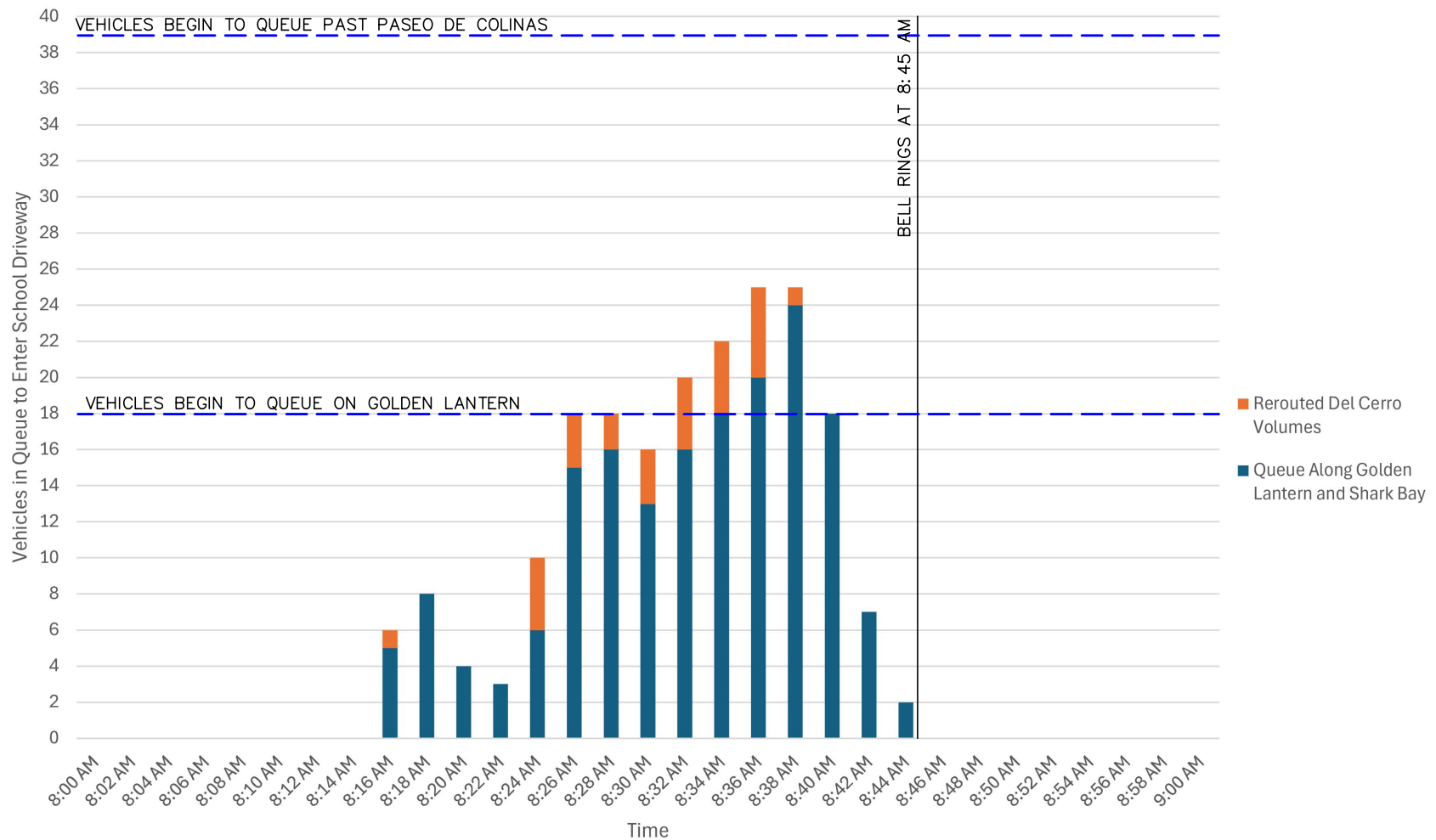
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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*NOTE: REPORTED QUEUES ARE FROM THE START OF THE SCHOOL DRIVEWAY ALONG SHARK BAY

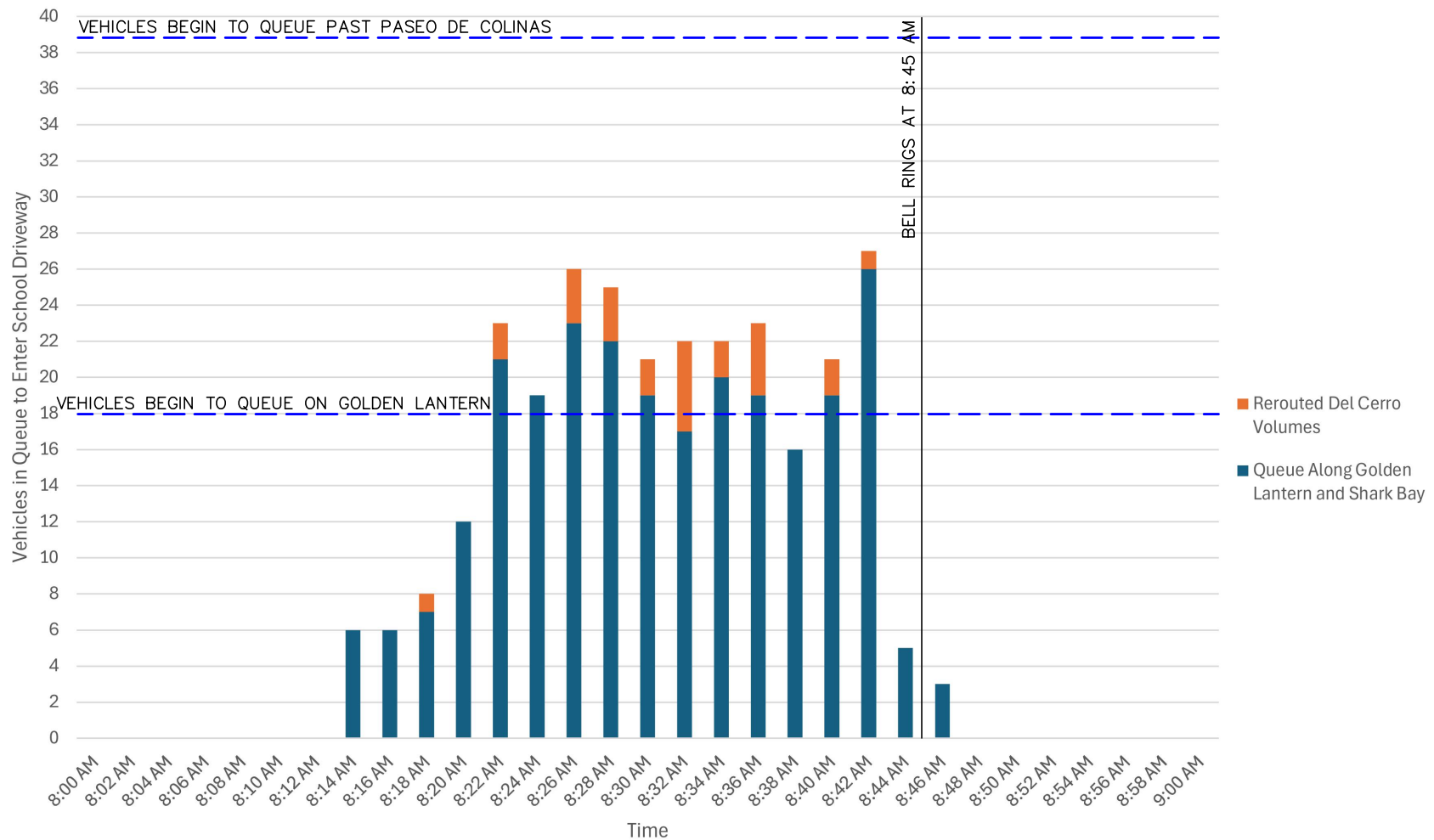
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FIGURE 4A

**TUESDAY AM DROP-OFF PERIOD QUEUING
ALONG SHARK BAY AND GOLDEN LANTERN**

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



*NOTE: REPORTED QUEUES ARE FROM THE START OF THE SCHOOL DRIVEWAY ALONG SHARK BAY

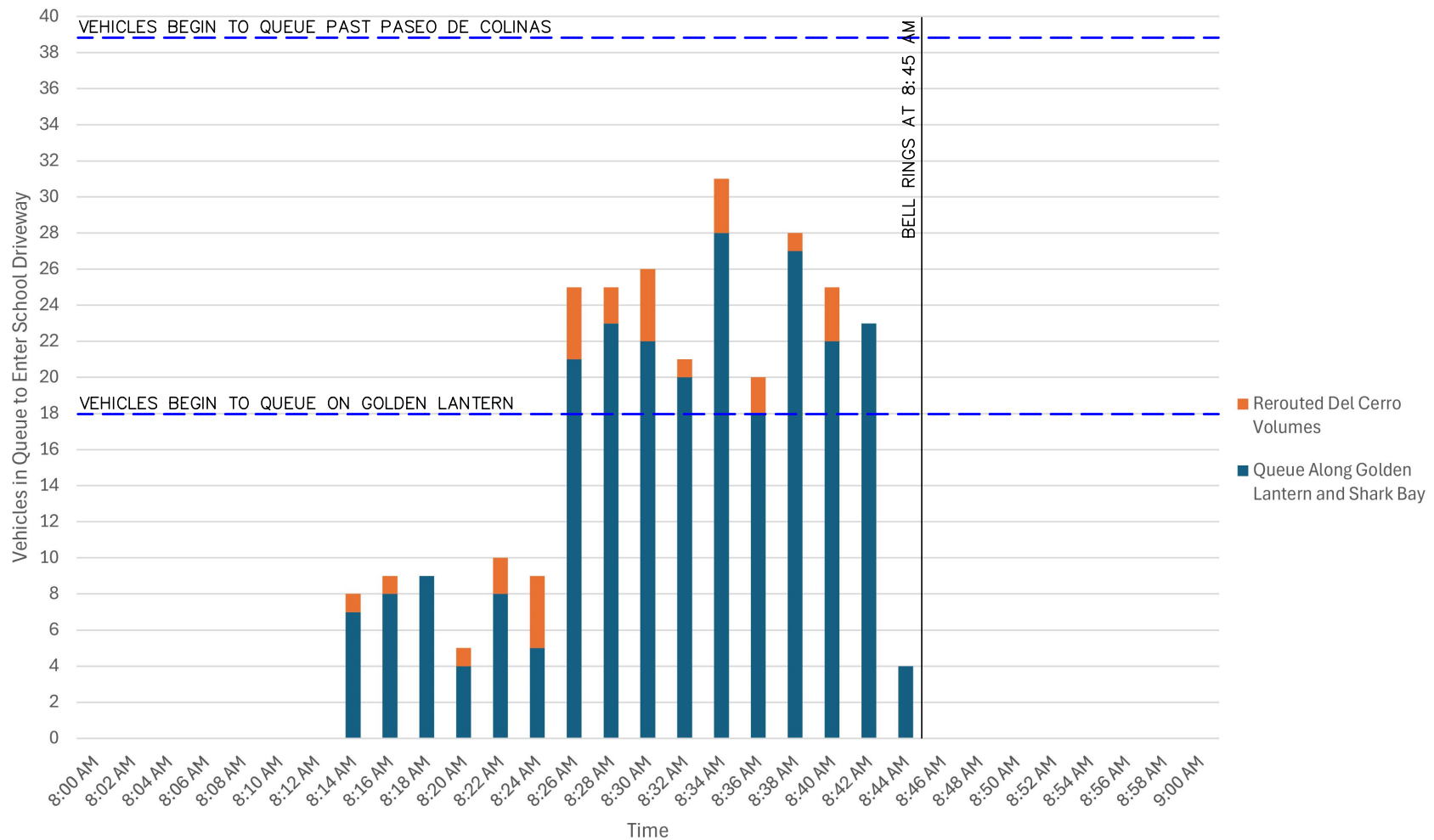
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FIGURE 4B

WEDNESDAY AM DROP-OFF PERIOD QUEUING
ALONG SHARK BAY AND GOLDEN LANTERN

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



*NOTE: REPORTED QUEUES ARE FROM THE START OF THE SCHOOL DRIVEWAY ALONG SHARK BAY

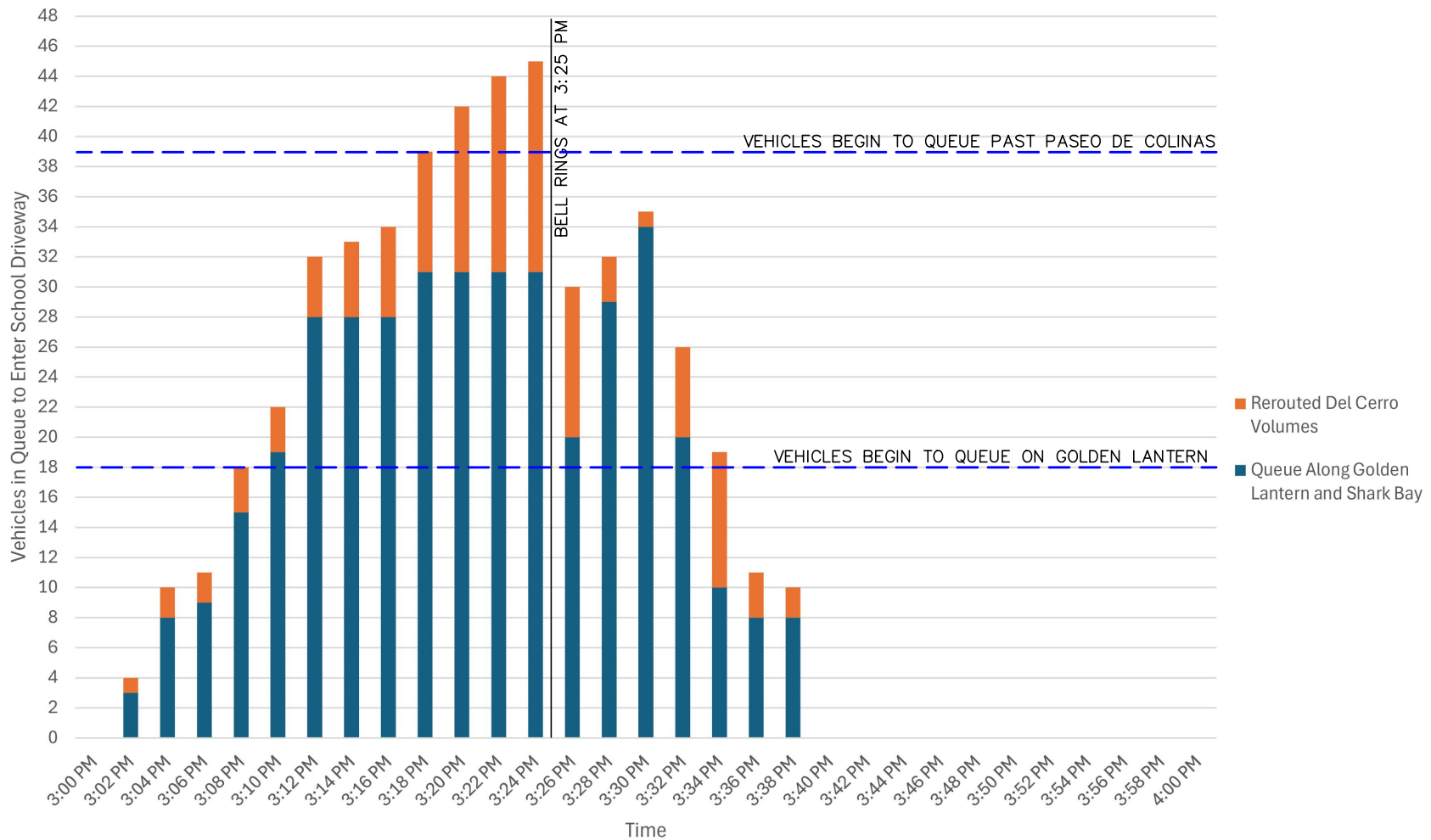
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FIGURE 4C

THURSDAY AM DROP-OFF PERIOD QUEUING
ALONG SHARK BAY AND GOLDEN LANTERN

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



*NOTE: REPORTED QUEUES ARE FROM THE START OF THE SCHOOL DRIVEWAY ALONG SHARK BAY

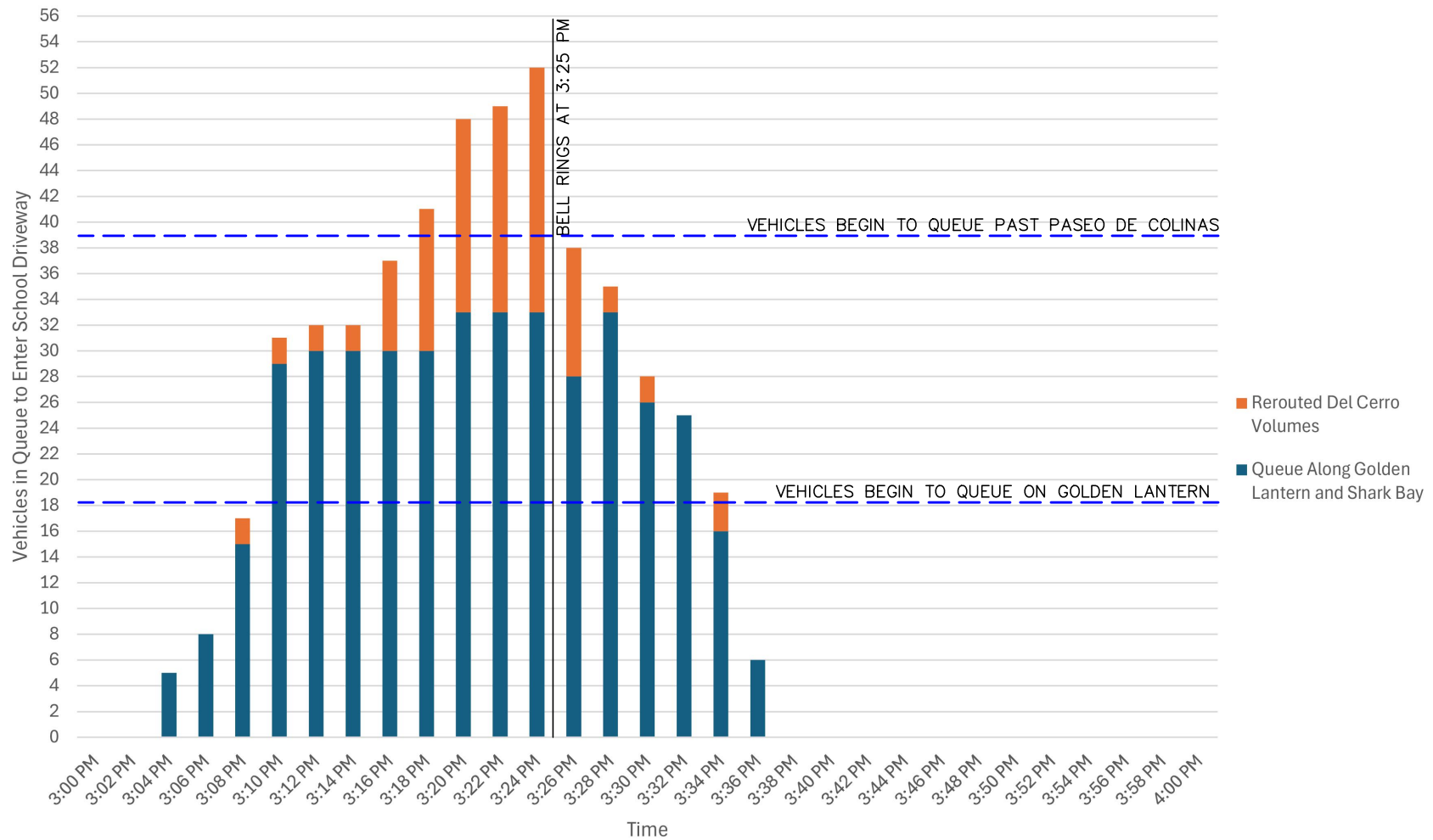
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FIGURE 5A

**TUESDAY PM PICK-UP PERIOD QUEUING
ALONG SHARK BAY AND GOLDEN LANTERN**

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



*NOTE: REPORTED QUEUES ARE FROM THE START OF THE SCHOOL DRIVEWAY ALONG SHARK BAY

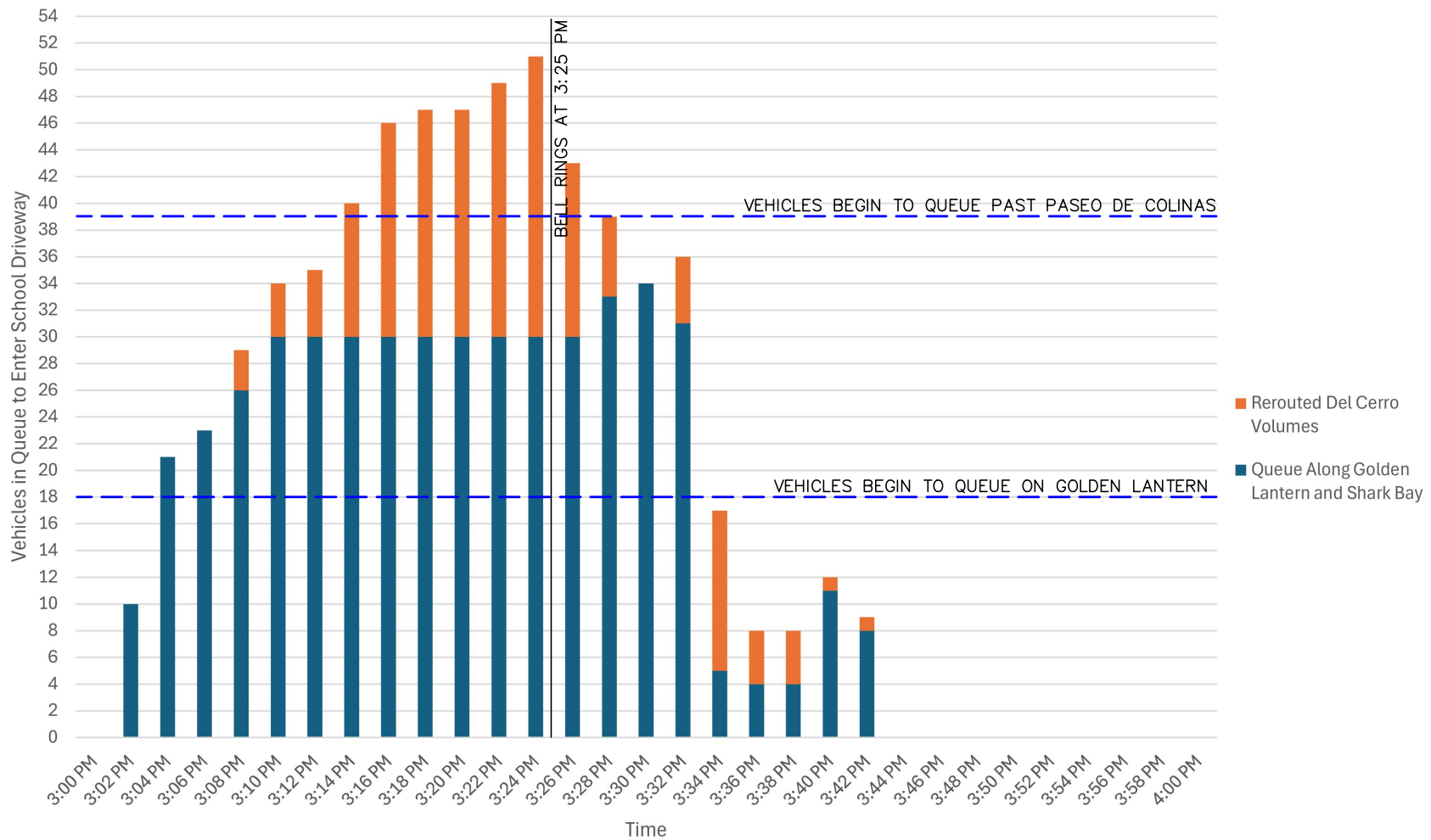
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FIGURE 5B

**WEDNESDAY PM PICK-UP PERIOD QUEUING
ALONG SHARK BAY AND GOLDEN LANTERN**

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



*NOTE: REPORTED QUEUES ARE FROM THE START OF THE SCHOOL DRIVEWAY ALONG SHARK BAY

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FIGURE 5C

**THURSDAY PM PICK-UP PERIOD QUEUING
ALONG SHARK BAY AND GOLDEN LANTERN**

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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SCALE: 1=60'

SIGHT DISTANCE

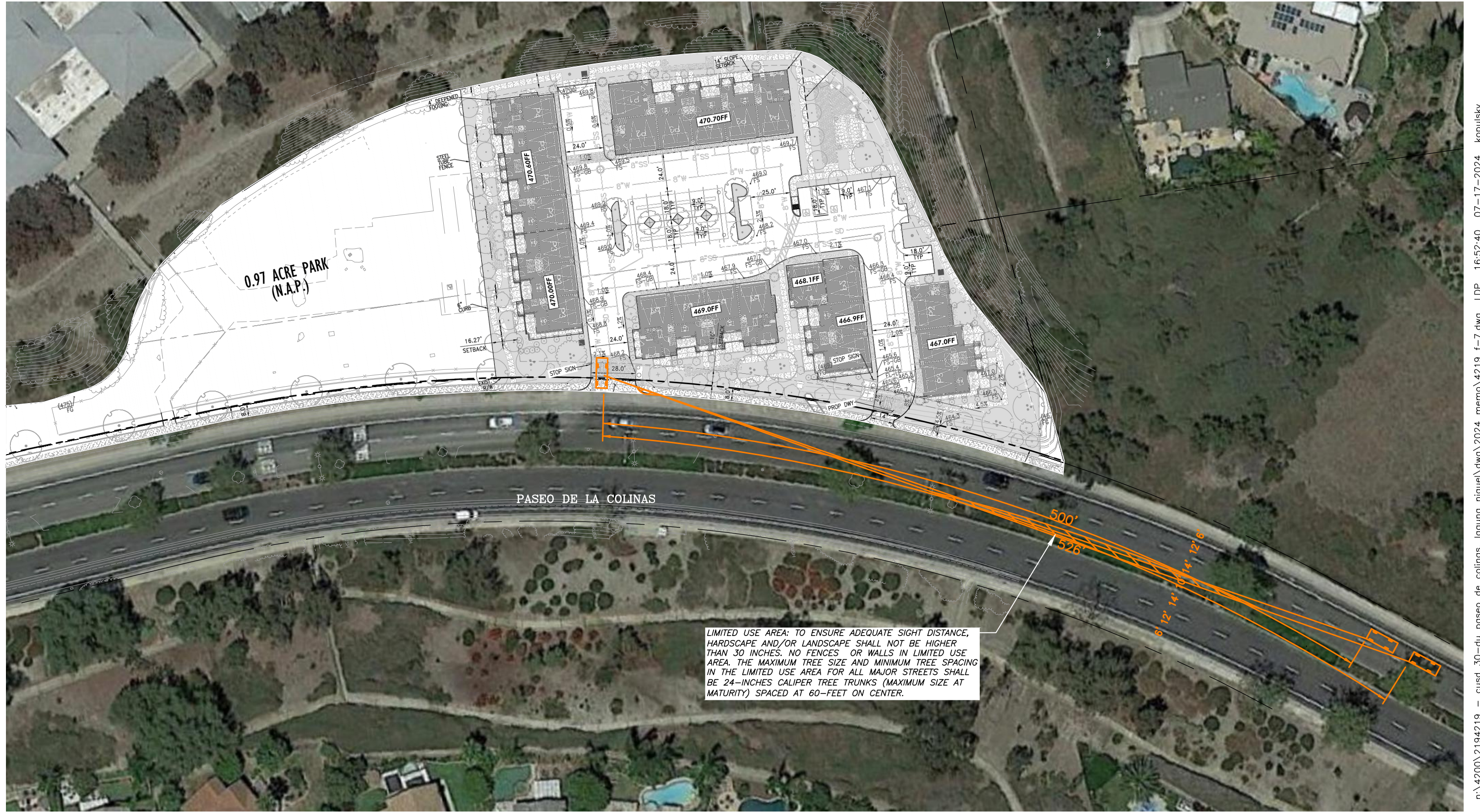
DESIGN SPEED LIMIT:	55 MPH
REQUIRED STOPPING SIGHT DISTANCE:	500 FEET
REQUIRED CORNER SIGHT DISTANCE:	526 FEET

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 6

SIGHT DISTANCE ANALYSIS – DRIVEWAY NO. 1
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



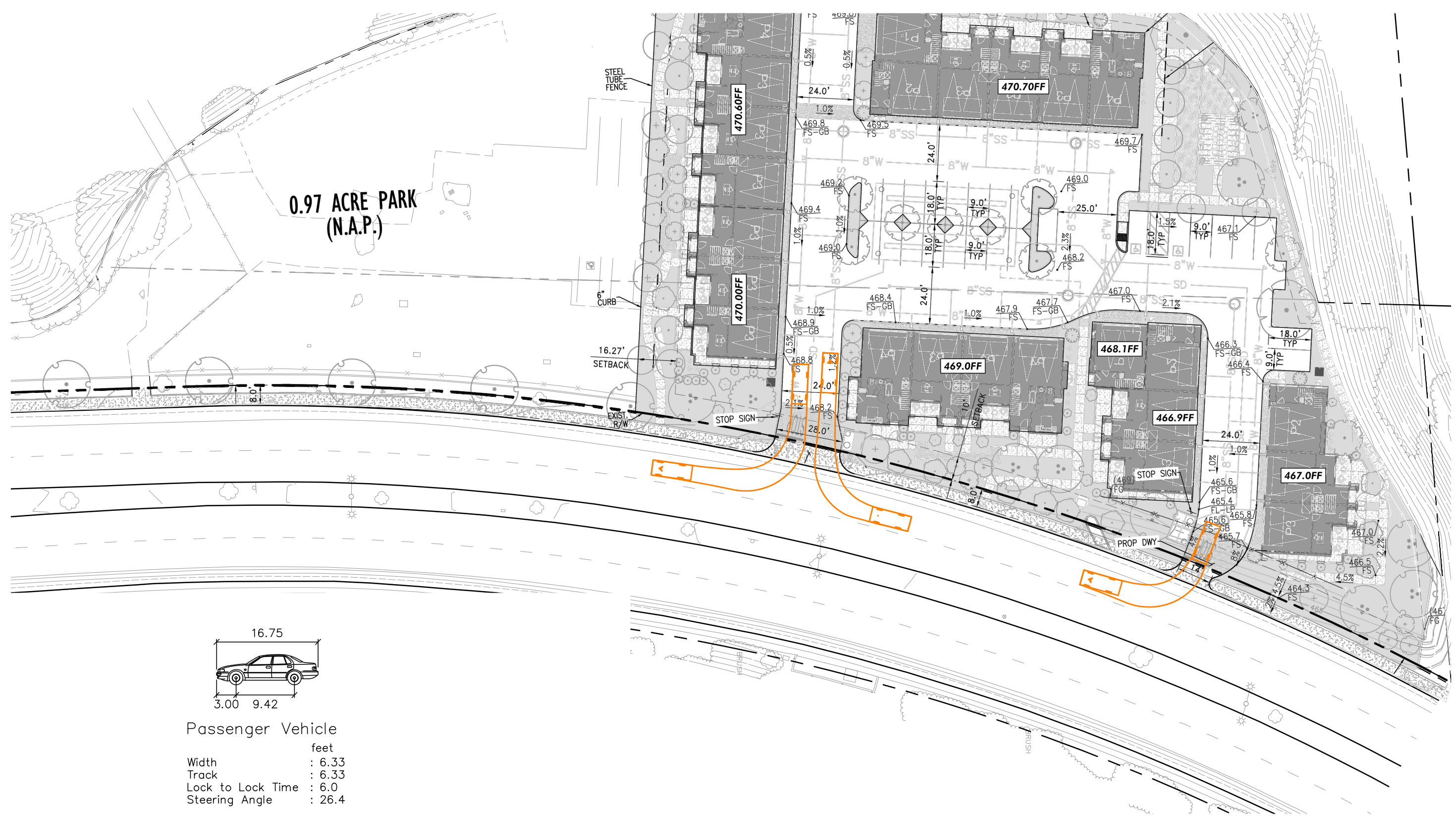
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SIGHT DISTANCE

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

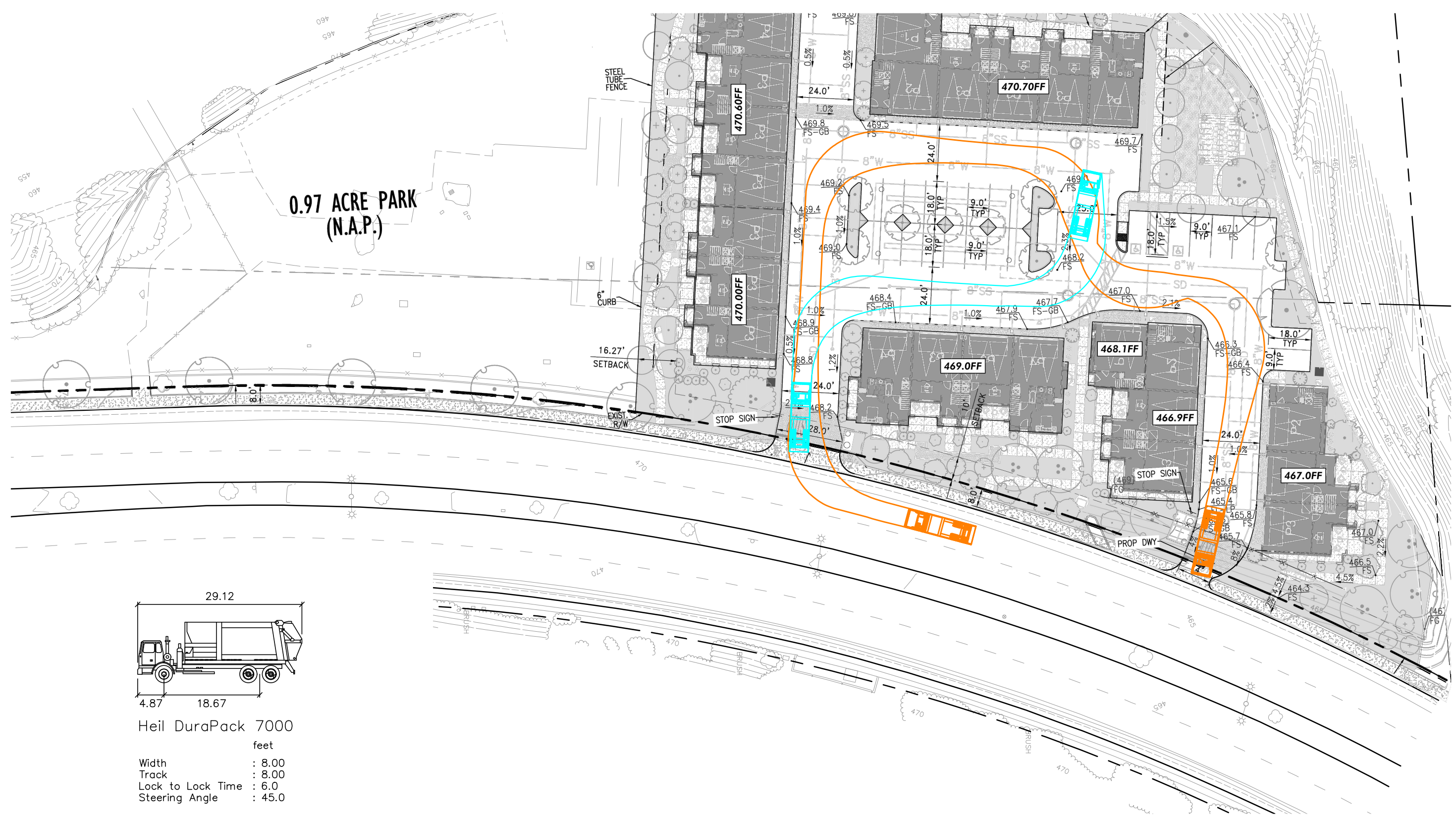
FIGURE 7

SIGHT DISTANCE ANALYSIS – DRIVEWAY NO. 2
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



16.75

 3.00 9.42
 Passenger Vehicle
 Width : 6.33
 Track : 6.33
 Lock to Lock Time : 6.0
 Steering Angle : 26.4

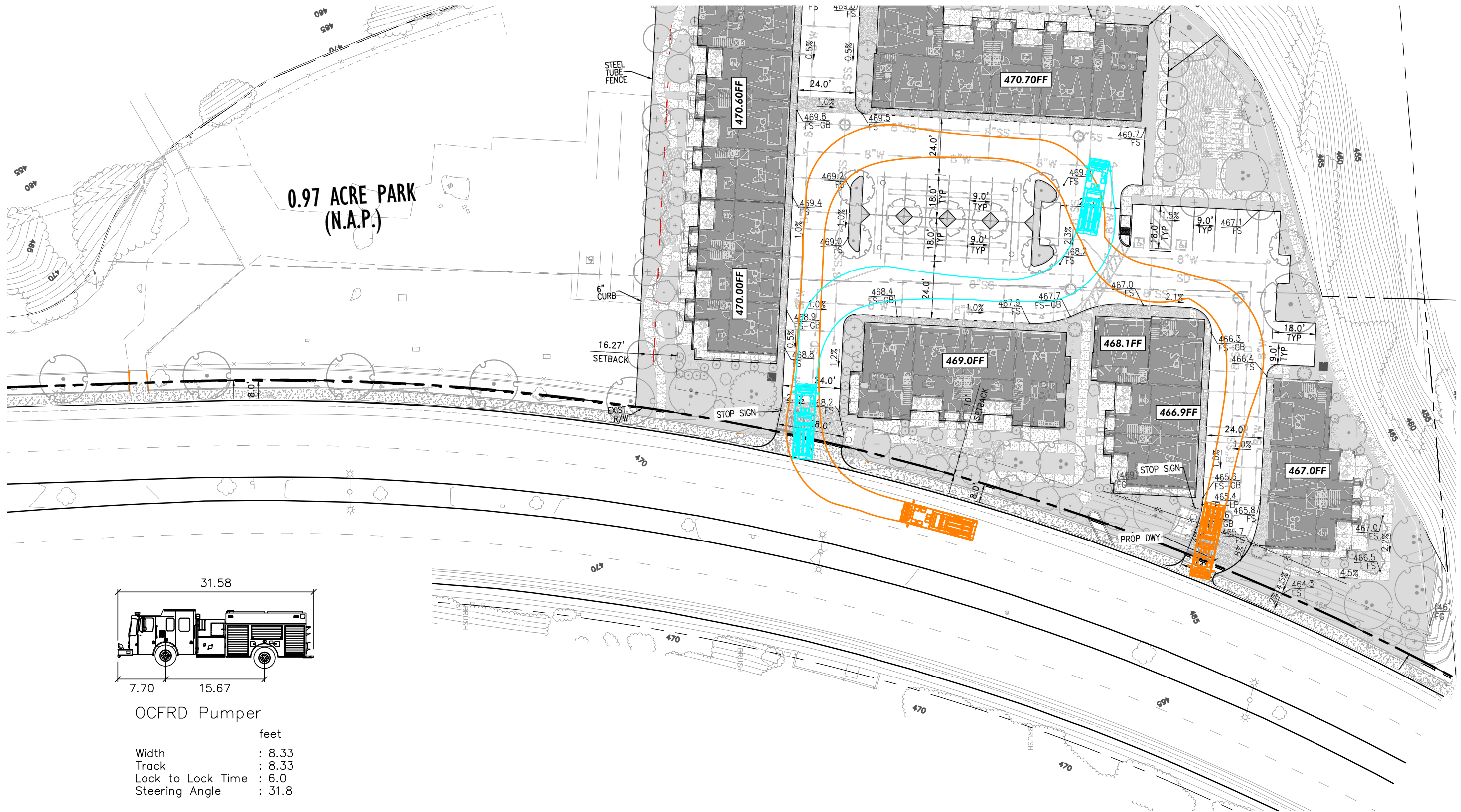


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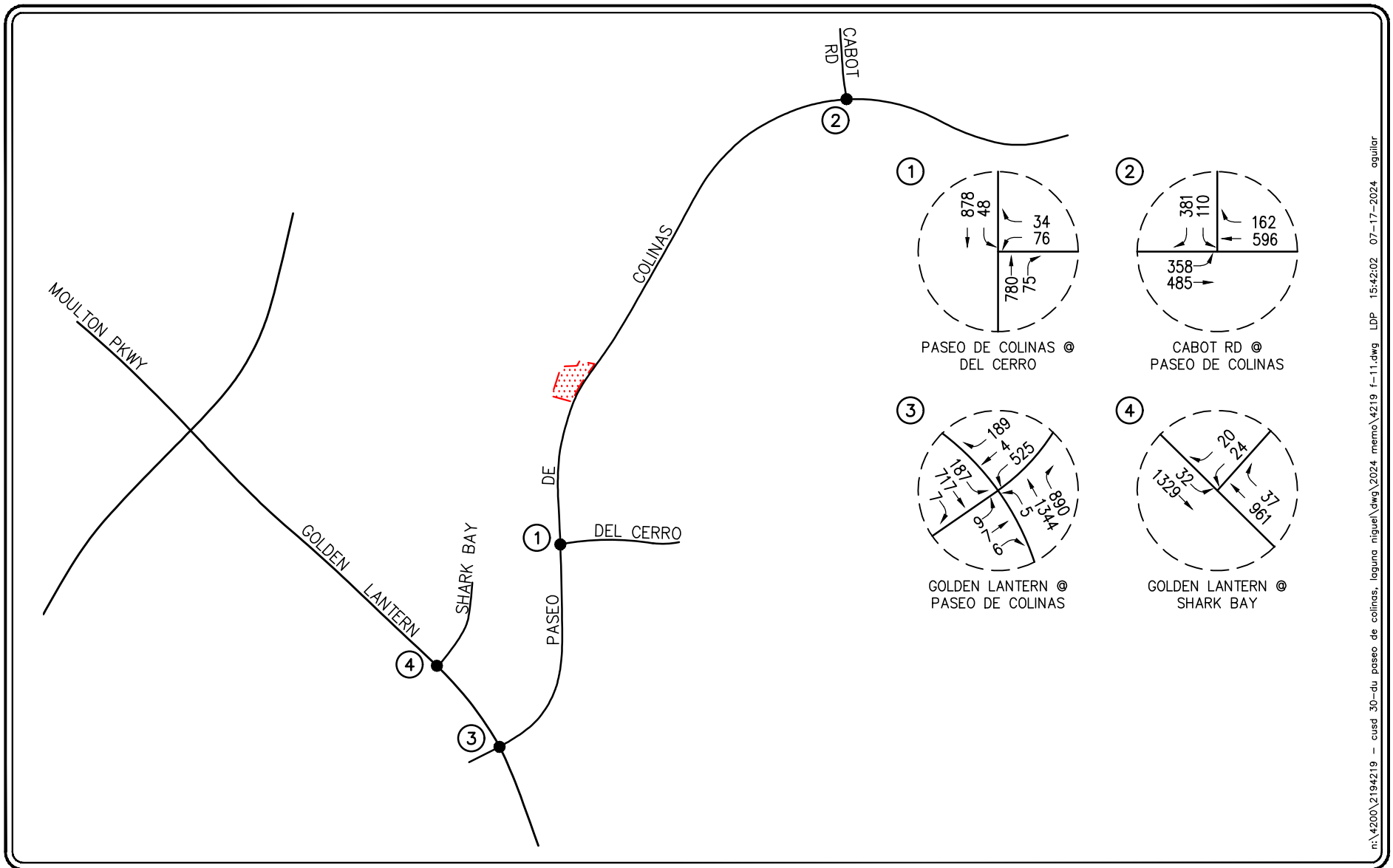
FIGURE 9

TRASH TRUCK TURNING ANALYSIS
 CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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FIGURE 10



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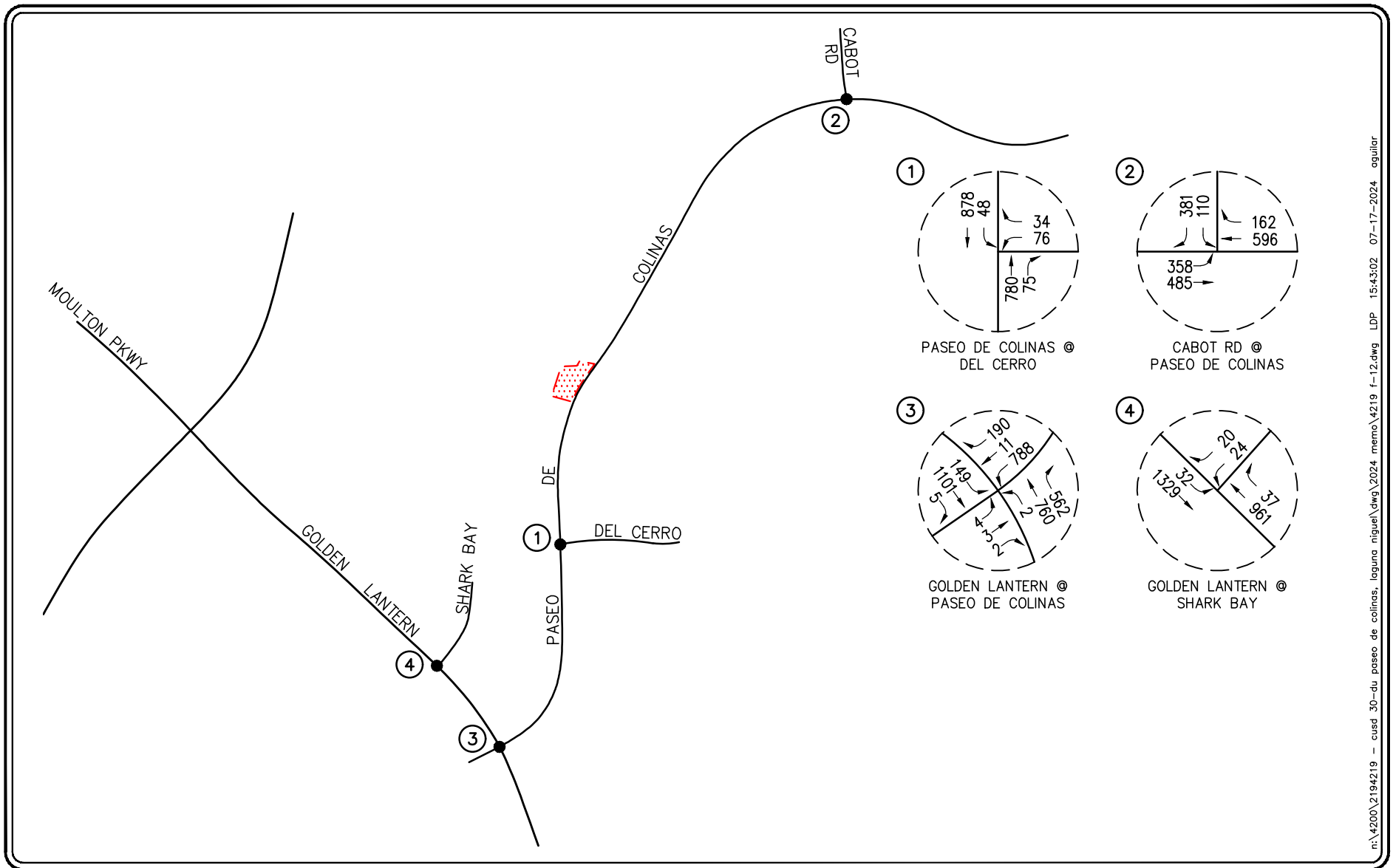
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KEY

- # = STUDY INTERSECTION
- = PROJECT SITE

FIGURE 11

EXISTING AM PEAK HOUR TRAFFIC VOLUMES
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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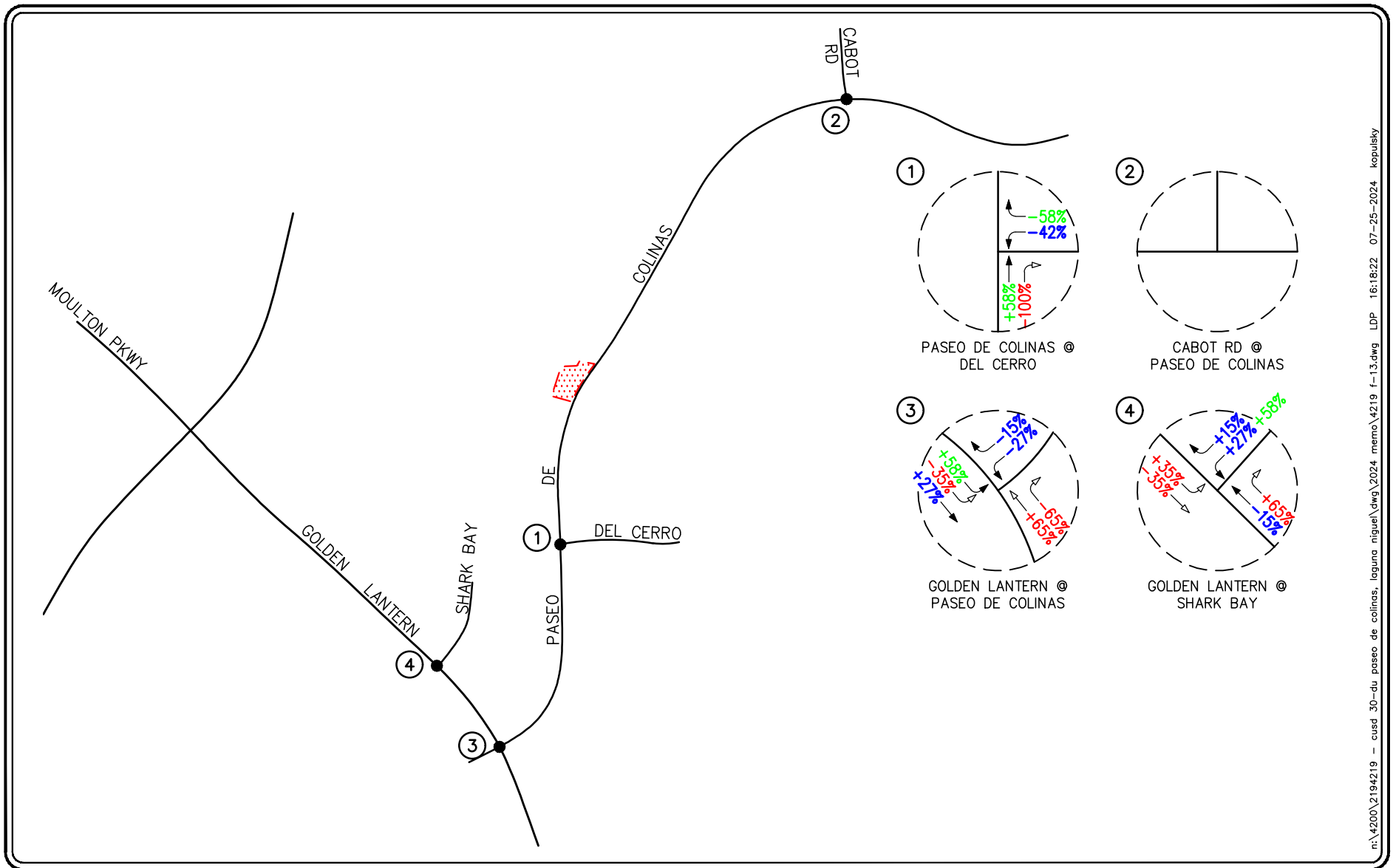
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KEY

- ① = STUDY INTERSECTION
- [Red Hatched Box] = PROJECT SITE

FIGURE 12

EXISTING PM PEAK HOUR TRAFFIC VOLUMES
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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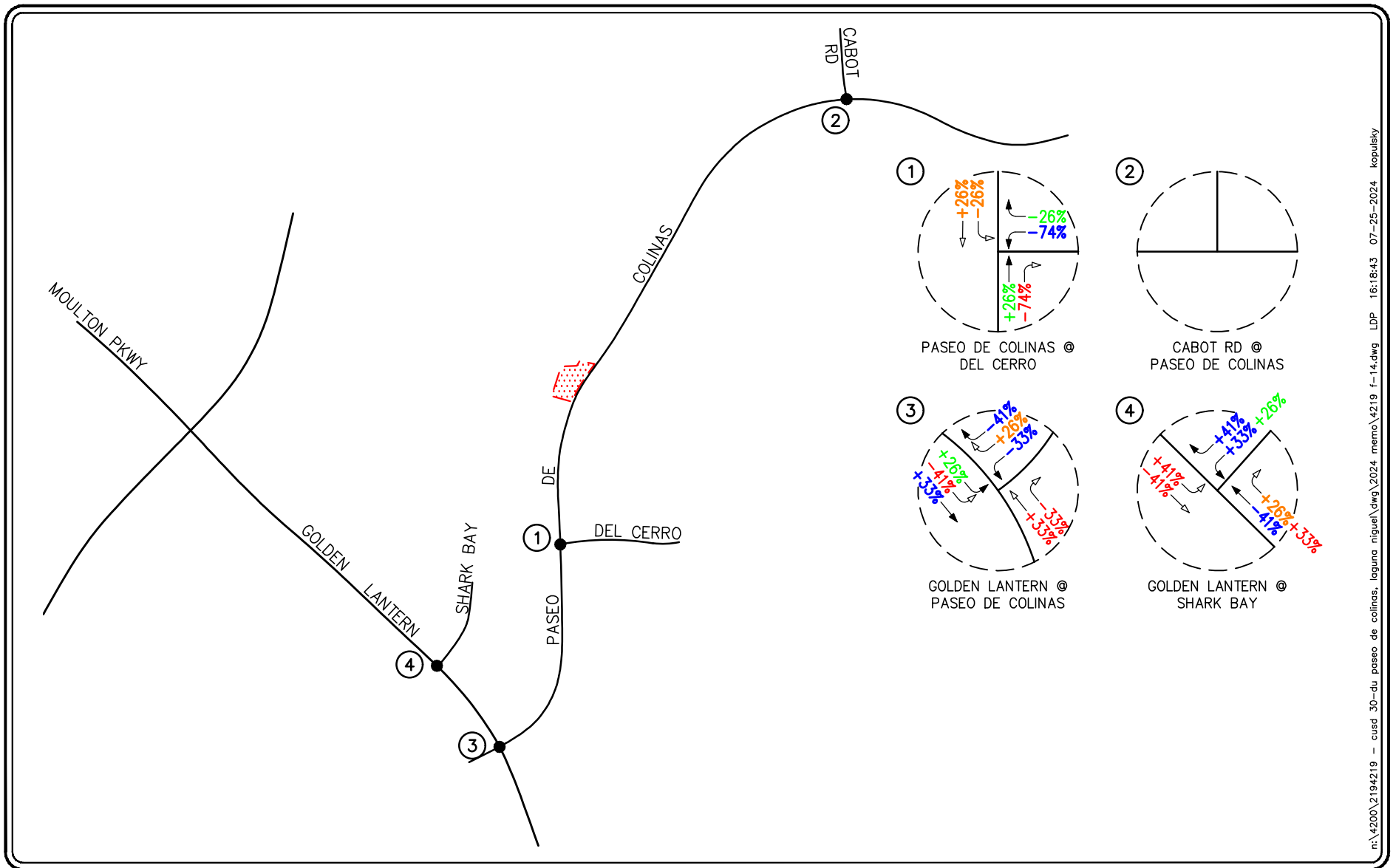
KEY

- ① = STUDY INTERSECTION
- ← = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE
- [Red Hatched Box] = PROJECT SITE

FIGURE 13

VOLUME REDISTRIBUTION FOR STAIRWAY CLOSURE AM PEAK HOUR

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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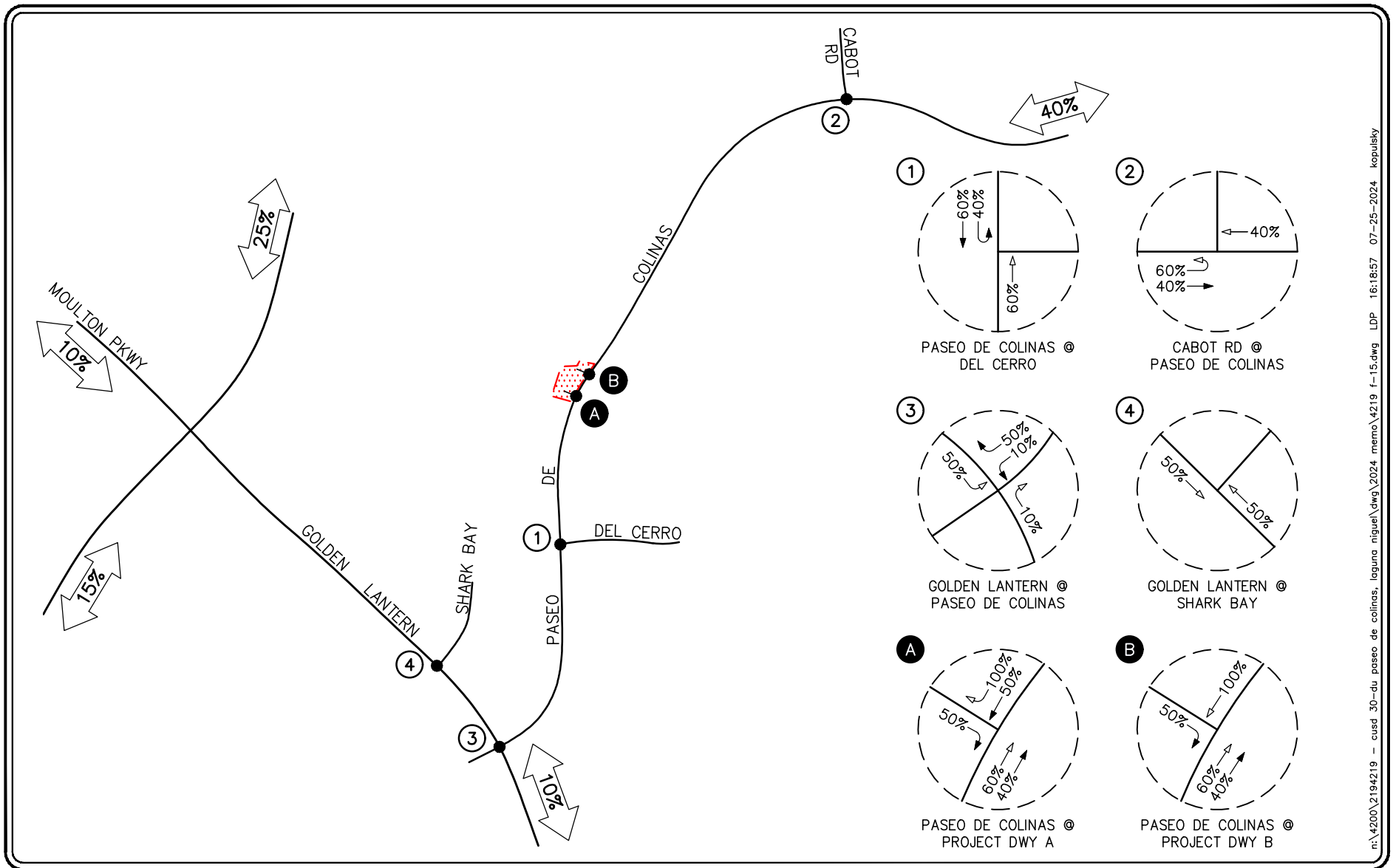
KEY

- ① = STUDY INTERSECTION
- ← = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE
- = PROJECT SITE

FIGURE 14

VOLUME REDISTRIBUTION FOR STAIRWAY CLOSURE PM PEAK HOUR

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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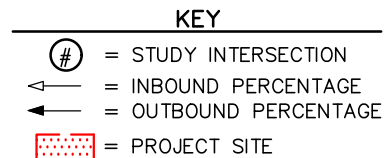
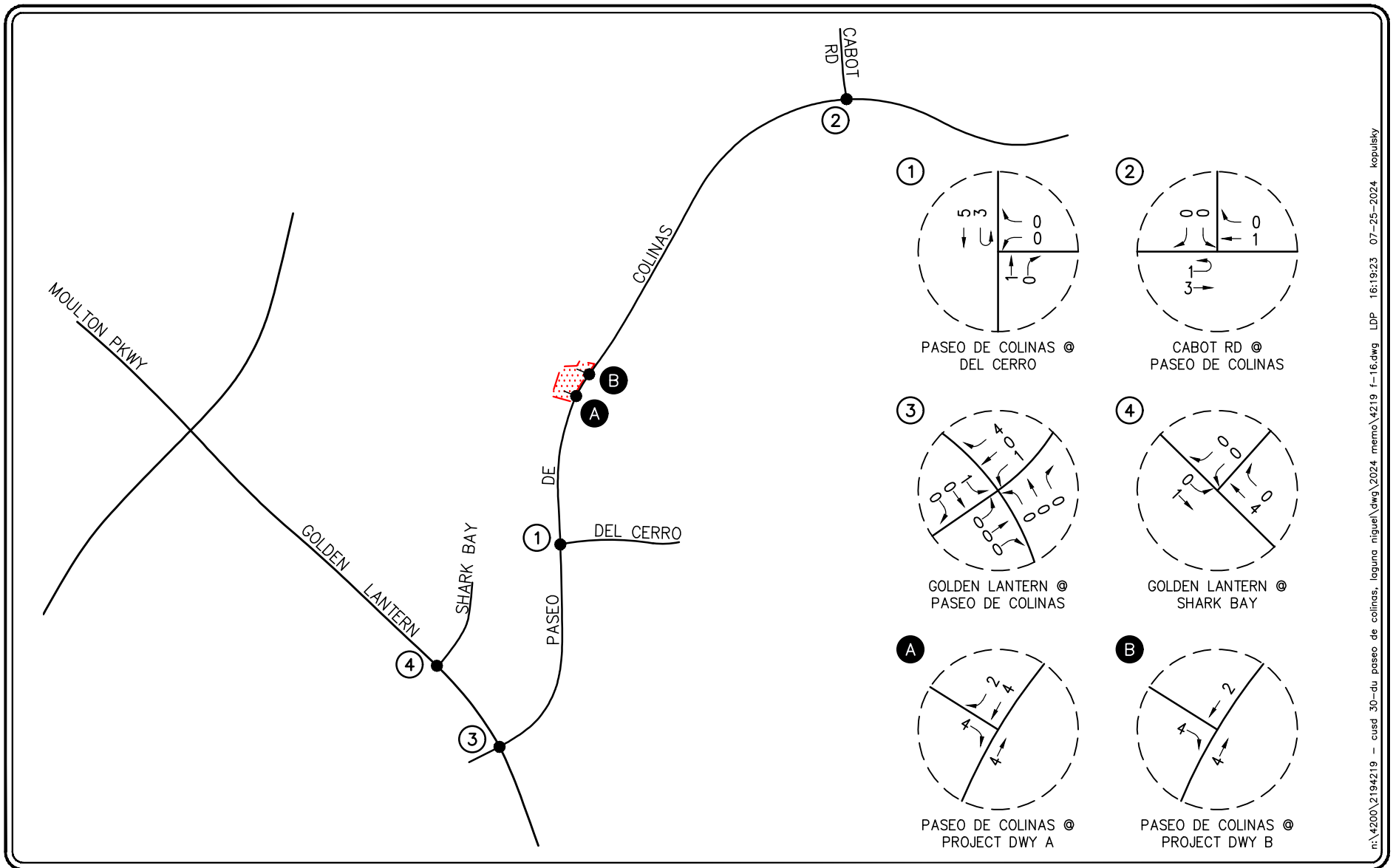


FIGURE 15

PROJECT DISTRIBUTION PATTERN
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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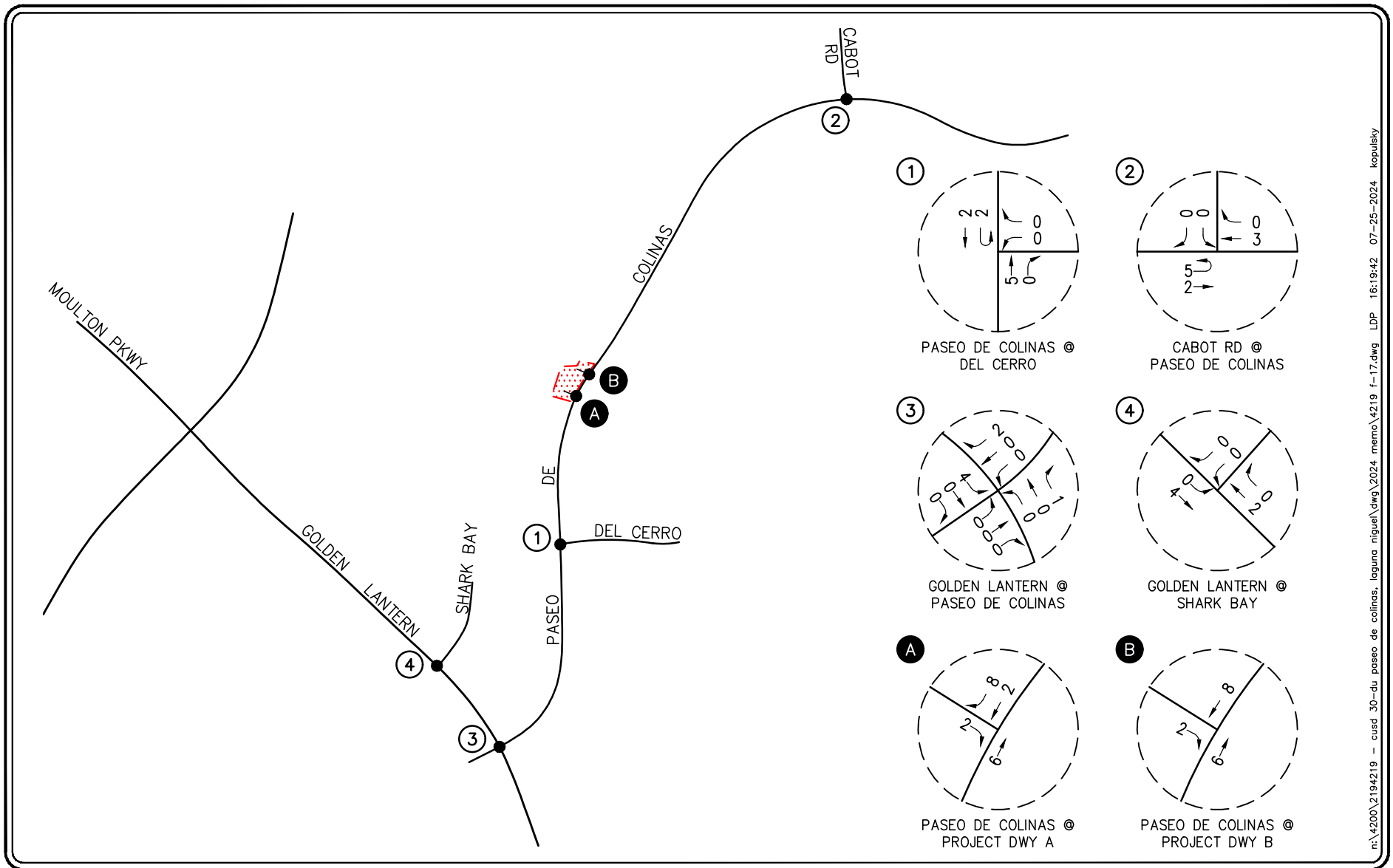
NO SCALE

KEY

- # = STUDY INTERSECTION
- = PROJECT SITE

FIGURE 16

AM PEAK HOUR PROJECT TRAFFIC VOLUMES
 CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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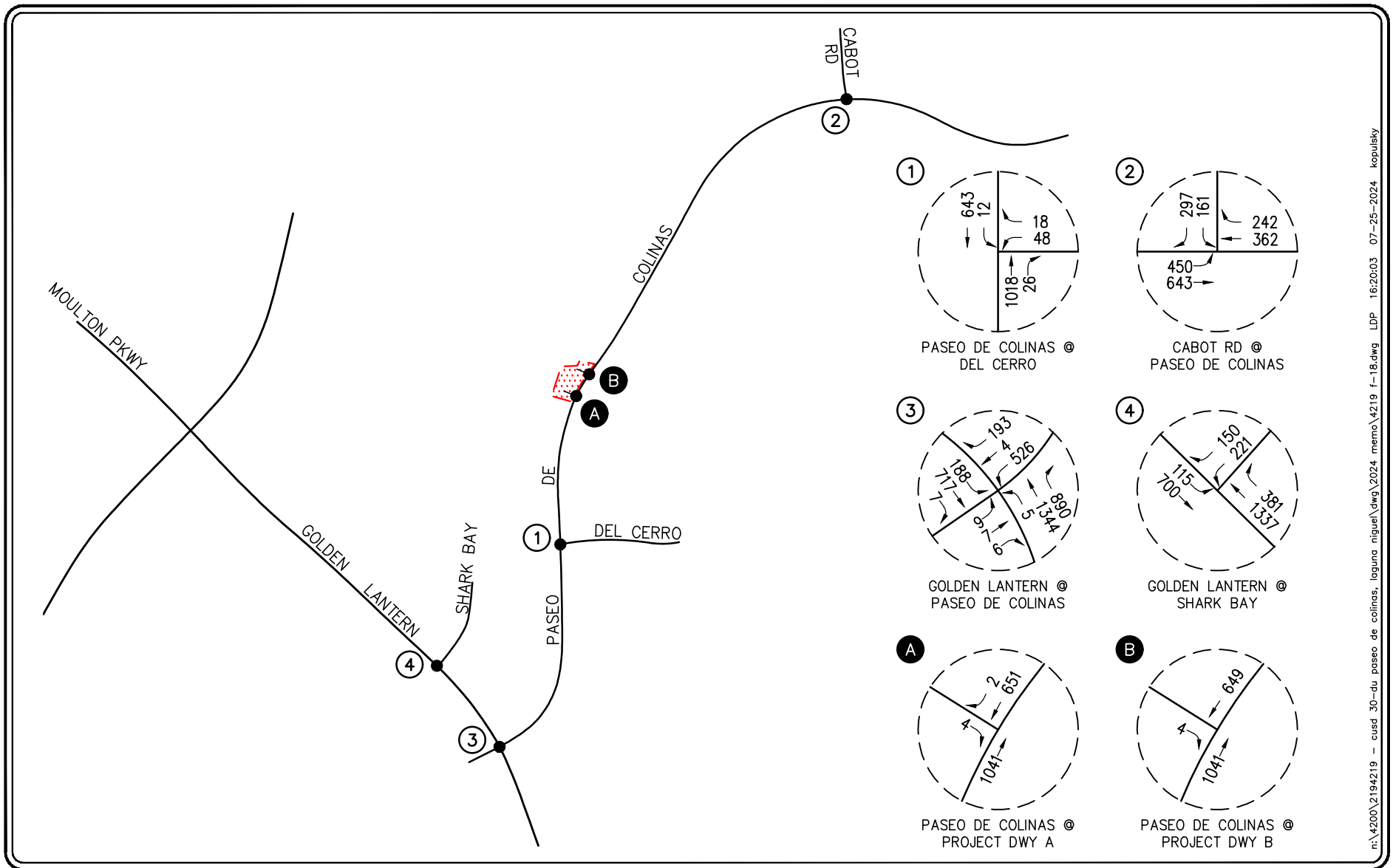
NO SCALE

KEY

- # = STUDY INTERSECTION
- = PROJECT SITE

FIGURE 17

PM PEAK HOUR PROJECT TRAFFIC VOLUMES
 CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



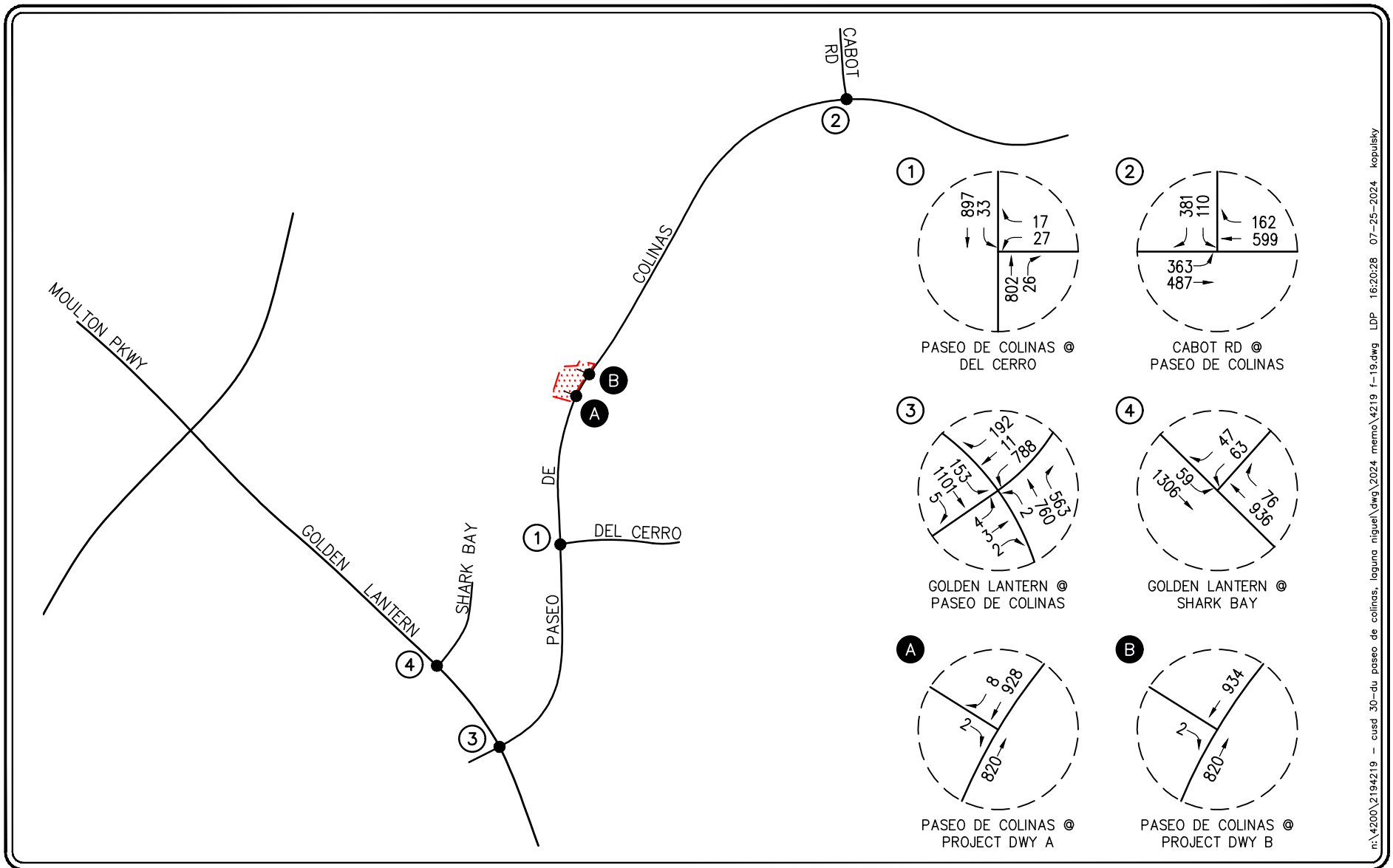
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KEY
 (#) = STUDY INTERSECTION
 [Hatched Box] = PROJECT SITE

FIGURE 18

**EXISTING PLUS PROJECT
 AM PEAK HOUR TRAFFIC VOLUMES**
 CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



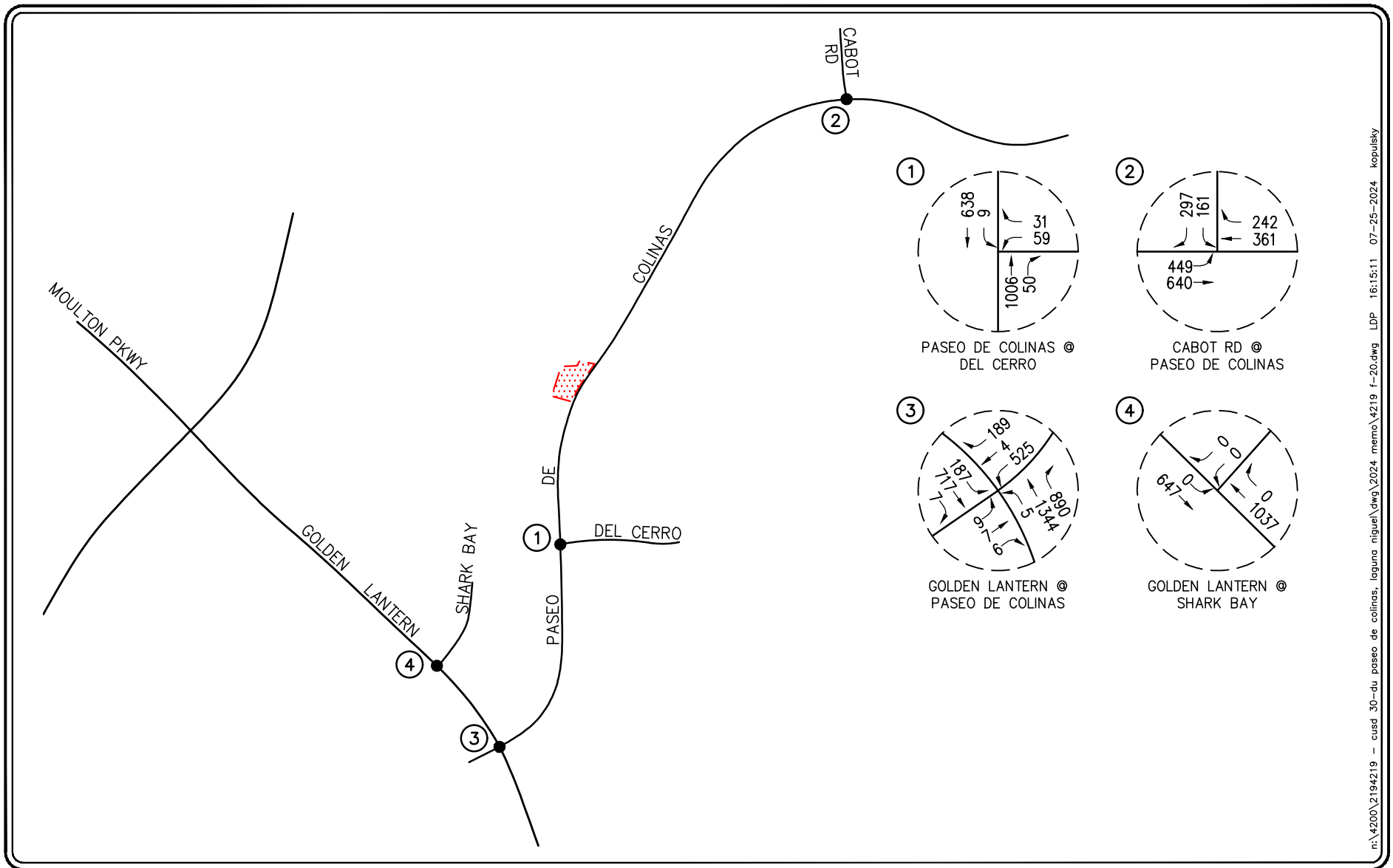
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KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE

FIGURE 19

**EXISTING PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES**
 CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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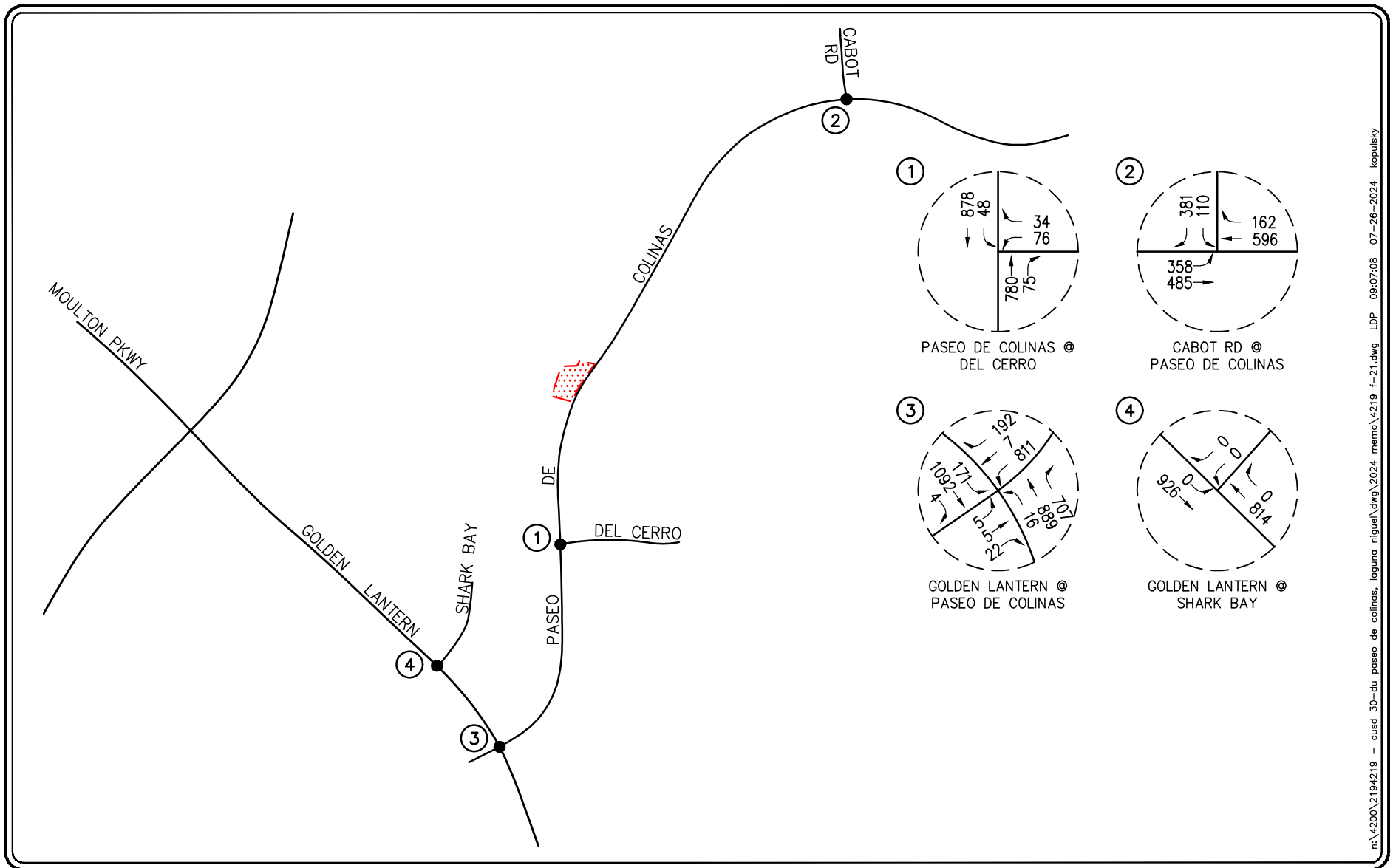
KEY

- # = STUDY INTERSECTION
- = PROJECT SITE

FIGURE 20

EXISTING AM DROP-OFF PERIOD TRAFFIC VOLUMES

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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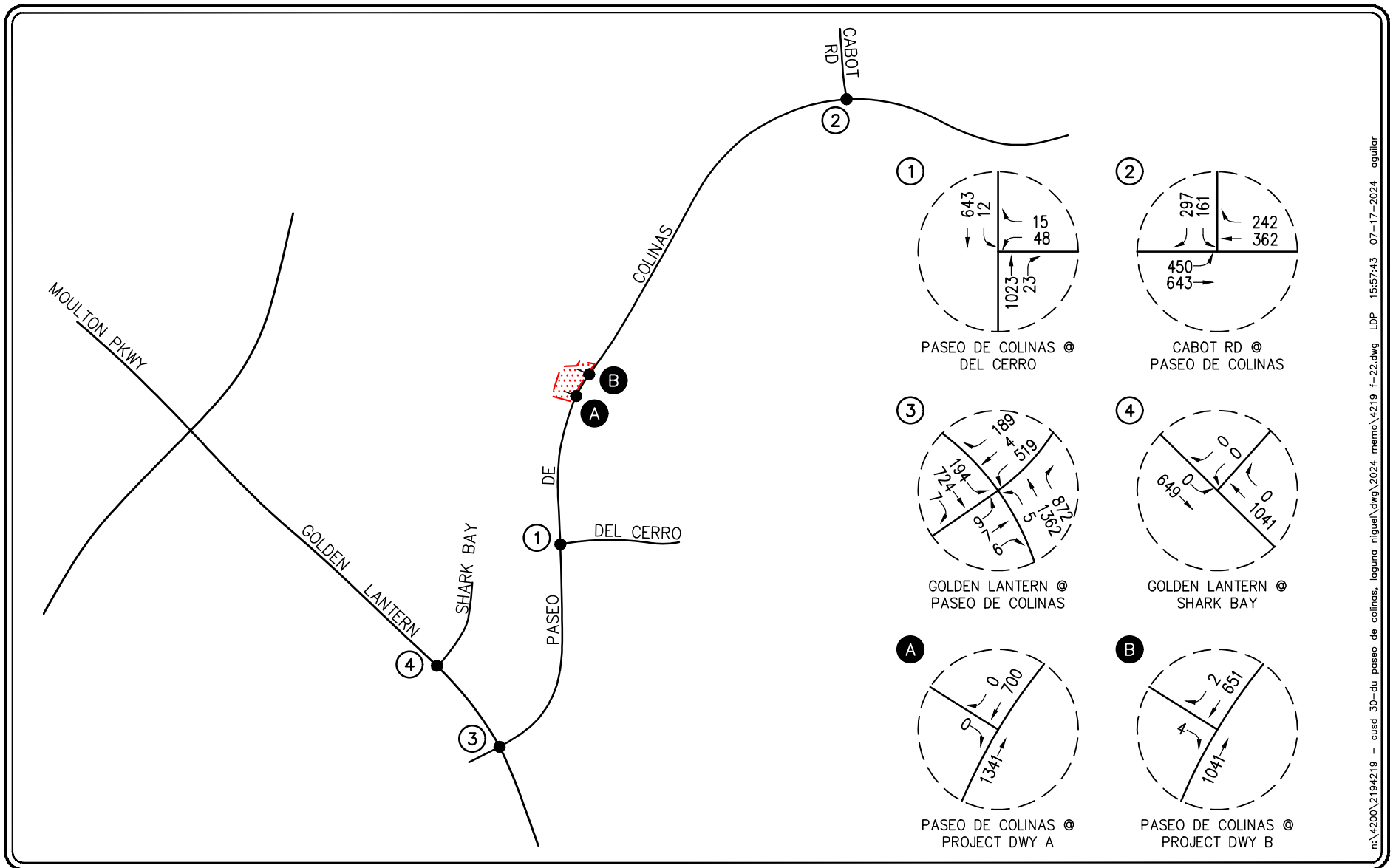
① = STUDY INTERSECTION

▨ = PROJECT SITE

FIGURE 21

EXISTING PM PICK-UP
PERIOD TRAFFIC VOLUMES

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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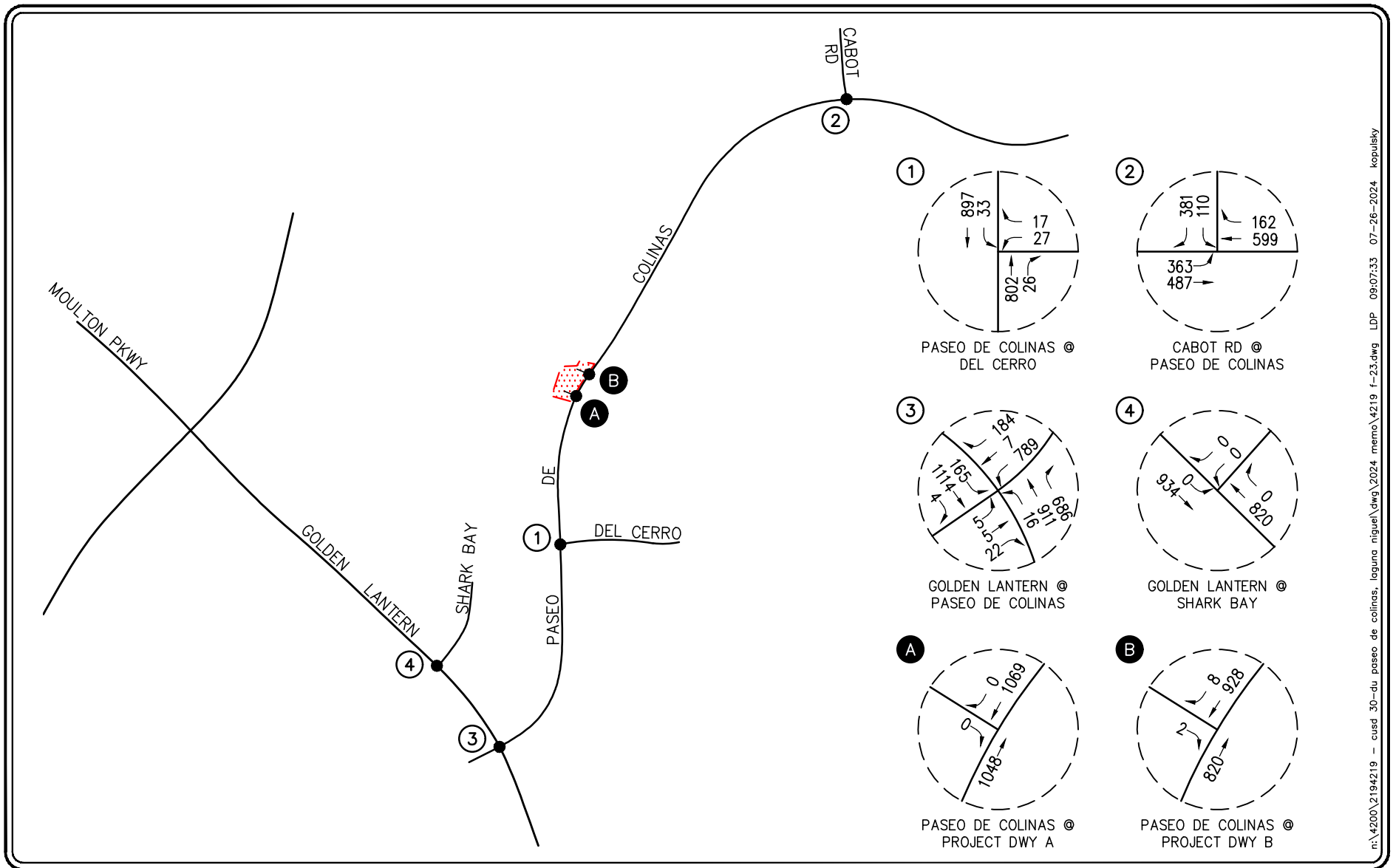


KEY
 (#) = STUDY INTERSECTION
 [Hatched Box] = PROJECT SITE

FIGURE 22

**EXISTING PLUS PROJECT AM DROP-OFF
PERIOD TRAFFIC VOLUMES**

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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KEY

① = STUDY INTERSECTION

▨ = PROJECT SITE

FIGURE 23

**EXISTING PLUS PROJECT PM PICK-UP
PERIOD TRAFFIC VOLUMES**

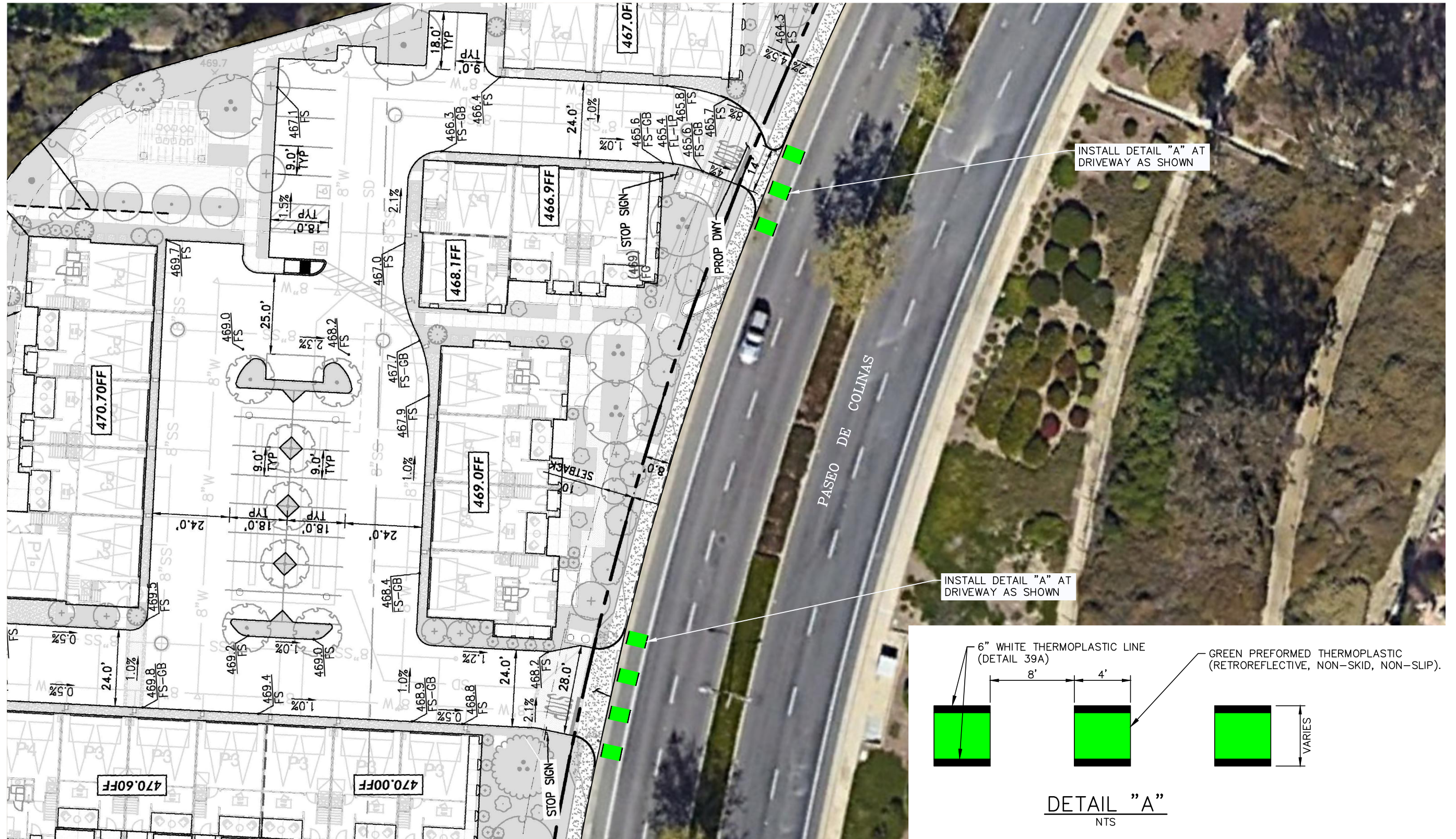
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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FIGURE 24A

**GREEN-BIKE IMPROVEMENTS
PASEO DE COLINAS AT LOMA LINDA**
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL





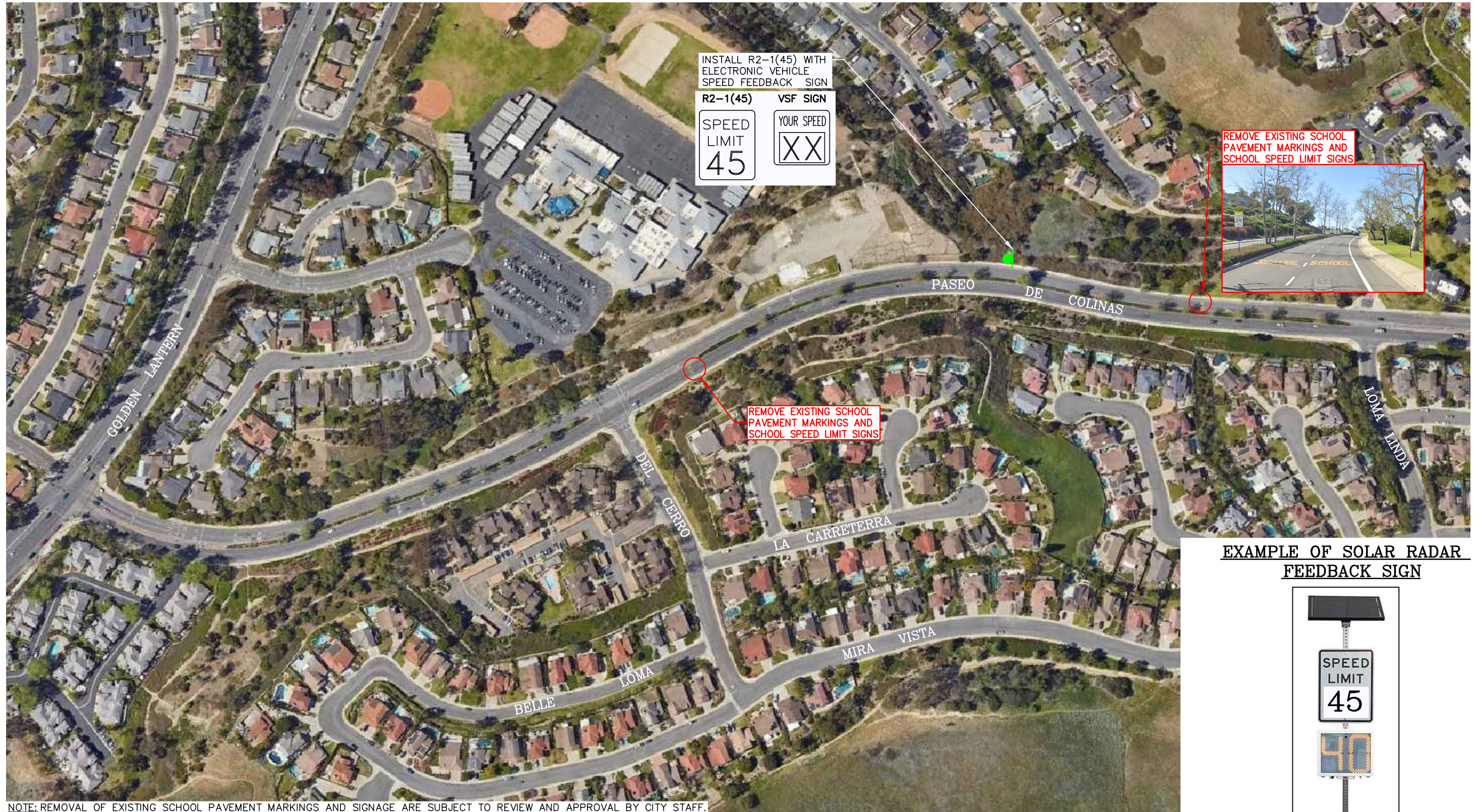
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FIGURE 24C

**GREEN-BIKE IMPROVEMENTS
PASEO DE COLINAS AT DEL CERRO**
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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FIGURE 25

**POTENTIAL LOCATION OF
VEHICLE SPEED FEEDBACK SIGN**

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL

TABLE 1
PROJECT DEVELOPMENT SUMMARY⁴

Land Use / Project Description	Project Development Totals
<u>Paseo De Colinas Townhomes</u>	
☐ 2 Bedroom / 2 Bath Units (1,236 SF – 1,259 SF)	8 Units
☐ 3 Bedroom / 2.5 Bath Units (1,617 SF)	12 Units
☐ 4 Bedroom / 3.5 Bath Units (1,930 SF)	<u>4 Units</u>
<i>Total Residential Units:</i>	<i>24 Units</i>
<u>Parking Supply</u>	
☐ Parking	
○ Garages (2 car / unit)	48 spaces
☐ Guest / Open Parking	
○ Surface Parking	<u>25 spaces</u>
<i>Total Parking Supply:</i>	<i>73 spaces</i>

⁴ Source: KTGy, Architectural Site Plan.

TABLE 2
PROJECT TRAFFIC GENERATION RATES AND FORECAST⁵

Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
<u>Trip Rates:</u>							
▪ 220: Multifamily Housing (Low-Rise ⁶) (TE/DU)	6.74	24%	76%	0.40	63%	37%	0.51
▪ 221: Multifamily Housing (Mid-Rise ⁷) (TE/DU)	4.54	23%	77%	0.37	61%	39%	0.39
<u>Project Trip Generation:</u>							
▪ 220: Paseo De Colinas 24-DU Residential Development (24 DU)	162	2	8	10	8	4	12

Notes:

TE/KSF = Trip End per 1,000 Square Feet

TE/DU = Trip End per Dwelling Unit

⁵ Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).

⁶ Low-Rise Multifamily Housing consists of buildings that range between 1 and 2 levels.

⁷ Mid-Rise Multifamily Housing consists of buildings that range between 3 and 10 levels.

TABLE 3
EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS
DURING WEEKDAY AM AND PM PEAK COMMUTE HOURS

Key Intersection	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact		(4) Existing Plus Project Plus Improvement	
		ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/ No	ICU/HCM	LOS
1. Paseo De Colinas at Del Cerro	AM	0.401	A	0.391	A	-0.010 ⁸	No	--	--
	PM	0.348	A	0.348	A	0.000	No	--	--
2. Cabot Road at Paseo De Colinas	AM	0.579	A	0.580	A	0.001	No	--	--
	PM	0.591	A	0.594	A	0.003	No	--	--
3. Golden Lantern at Paseo De Colinas	AM	0.847	D	0.838	D	-0.009 ⁸	No	--	--
	PM	0.706	C	0.709	C	0.003	No	--	--
4. Golden Lantern at Shark Bay	AM	0.564	A	0.589	A	0.025	No	--	--
	PM	0.325	A	0.325	A	0.000	No	--	--
5. Paseo De Colinas at Project Driveway 1	AM	--	--	10.4 s/v	B	--	--	--	--
	PM	--	--	12.0 s/v	B	--	--	--	--
6. Paseo De Colinas at Project Driveway 2	AM	--	--	10.4 s/v	B	--	--	--	--
	PM	--	--	12.0 s/v	B	--	--	--	--

Notes:

- **Bold HCM/LOS** values indicate adverse service levels based on the City's LOS standards.
- s/v = seconds per vehicle

⁸ Negative increase due to volume redistribution for closed staircase.

TABLE 4
EXISTING WITH PROJECT INTERSECTION CAPACITY ANALYSIS
DURING SCHOOL DROP-OFF AND PICK-UP PERIOD⁹

Key Intersection	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact		(4) Existing Plus Project Plus Improvement	
		ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/ No	ICU/HCM	LOS
1. Paseo De Colinas at Del Cerro	AM	0.401	A	0.393	A	-0.008 ¹⁰	No	--	--
	PM	0.374	A	0.330	A	-0.044 ⁸	No	--	--
2. Cabot Road at Paseo De Colinas	AM	0.579	A	0.580	A	0.001	No	--	--
	PM	0.596	A	0.599	A	0.003	No	--	--
3. Golden Lantern at Paseo De Colinas	AM	0.847	D	0.839	D	-0.008 ⁸	No	--	--
	PM	0.823	D	0.801	D	-0.022 ⁸	No	--	--
4. Golden Lantern at Shark Bay	AM	0.564	A	0.586	A	0.022	No	--	--
	PM	0.390	A	0.432	A	0.042	No	--	--
5. Paseo De Colinas at Project Driveway 1	AM	--	--	10.4 s/v	B	--	--	--	--
	PM	--	--	11.7 s/v	B	--	--	--	--
6. Paseo De Colinas at Project Driveway 2	AM	--	--	10.4 s/v	B	--	--	--	--
	PM	--	--	11.7 s/v	B	--	--	--	--

Notes:

- **Bold HCM/LOS** values indicate adverse service levels based on the City's LOS standards.
- s/v = seconds per vehicle

⁹ School peak drop-off and pick-up times are 7:00 AM – 8:00 AM and 3:00 PM – 4:00 PM.

¹⁰ Negative increase due to volume redistribution for closed staircase.

TABLE 5
EXISTING WITH PROJECT PEAK HOUR INTERSECTION QUEUING ANALYSIS¹¹
DURING WEEKDAY AM AND PM PEAK COMMUTE HOURS

Key Intersection	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
1. Paseo De Colinas at Del Cerro <i>Southbound Left-Turn</i>	160	25	Yes	36	Yes	25	Yes	39	Yes
2. Cabot Road at Paseo De Colinas <i>Eastbound Left-Turn</i>	475	479	Yes ¹²	334	Yes	480	Yes ¹²	340	Yes

¹¹ Queues are based on HCM 95th Percentile methodology.

¹² Although the anticipated queue exceeds the striped storage, the spillover queue can be accommodated within the transition area.

TABLE 6
EXISTING WITH PROJECT PEAK HOUR INTERSECTION QUEUING ANALYSIS¹³
DURING SCHOOL DROP-OFF AND PICK-UP PERIOD¹⁴

Key Intersection	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
1. Paseo De Colinas at Del Cerro <i>Southbound Left-Turn</i>	160	25	Yes	56	Yes	25	Yes	39	Yes
2. Cabot Road at Paseo De Colinas <i>Eastbound Left-Turn</i>	475	479	Yes ¹⁵	364	Yes	480	Yes ¹⁵	369	Yes

¹³ Queues are based on HCM 95th Percentile methodology.

¹⁴ School peak drop-off and pick-up times are 7:00 AM – 8:00 AM and 3:00 PM – 4:00 PM.

¹⁵ Although the anticipated queue exceeds the striped storage, the spillover queue can be accommodated within the transition area.

APPENDIX A

TRAFFIC STUDY SCOPE OF WORK



MEMORANDUM

To: Katie Crockett, Planning Manager
Community Development Department
City of Laguna Niguel
Date: June 10, 2024

Cc: Kathy Nguyen, P.E., T.E., Eng. Services Manager
Shane S. Green, P.E. Senior Transportation Engr.

From: Richard E. Barretto, P.E., Principal
LLG Ref: 2.19.4219.1
Linscott, Law & Greenspan, Engineers

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Irvine, CA 92614
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Pasadena
Irvine
San Diego

Subject: ***Limited Scope LOS Traffic Impact Study Scope of Work for the
Paseo De Colinas 24-DU Residential Development
Laguna Niguel, California***

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the following Limited Scope LOS Traffic Impact Study Scope of Work associated with the development of a multi-family residential community (herein after referred to as Project) on a 1.50-acre portion of a 2.47-acre parcel of land owned by the Capistrano Unified School District (CUSD) in the City of Laguna Niguel, for your review and approval. The work program summarized below considers the City of Laguna Niguel requirements, preliminary discussions on the Project with the Consultant Team and our understanding of the Project.

Traffic Impact Study Scope of Work

The Traffic Impact Study (TIS) for Paseo De Colinas 24-DU Residential Development will satisfy the traffic impact requirements of the City of Laguna Niguel. *The City of Laguna Niguel Transportation Assessment Guidelines, dated November 2020* will be utilized in this evaluation. The TIS scope of work will consider deficiencies in Level-of-Service (LOS) for General Plan consistency purposes, and transportation impacts under CEQA using Vehicle Miles Traveled (VMT).

A. Project Location: The Project site is a 1.50-acre portion of a 2.47-acre parcel of land owned by the Capistrano Unified School District that is a part of the Niguel Hills Middle School Campus. The remaining 0.97-acre will be dedicated to the City of Laguna Niguel as a future park site. 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 intersection. 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** presents a vicinity map that illustrates the general location of the Project and surrounding street system. **Figure 2** presents the existing aerial of the Project site.

David S. Shender, PE
John A. Boarman, PE
Richard E. Barretto, PE
Keil D. Maberry, PE
KC Yellapu, PE
Dave Roseman, PE
Shankar Ramakrishnan, PE

B. Project Description: The Project is proposing the construction of a 24-unit townhome community consisting of eight (8) two-bedroom/two-bath units, twelve (12) three-bedroom/two and ½ bath units and four (4) four-bedroom/two and ½ bath units within five (5), three-story buildings. Parking for the Project includes 48 garage spaces (2 per unit) and 25 open spaces. *Table 1* summarizes the development totals for the proposed Project.

As shown in the proposed site plan, access to the Project site is proposed to be provided via two unsignalized driveways located along Paseo De Colinas. The southernmost project driveway is proposed as a right turn in/out only driveway with the northernmost project driveway proposed as a right turn out (exit only) driveway. The northernmost project driveway will include “project design features” such as curb enhancements and signage that would restrict vehicles from entering via Paseo De Colinas. Vehicular circulation internal to the site will be provided by local drive aisles/streets which measure 24-feet wide. *Figure 3* presents the proposed site plan for the Project, prepared by Fuscoe Engineering, the Project Civil Engineers.

C. Project Trip Generation and Distribution: 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/or equations used in this traffic analysis are based on information found in the 11th Edition of Trip Generation, published by the Institute of Transportation Engineers (ITE) [Washington, D.C., 2021].

The proposed Project includes a development of five (5) multi-level townhome buildings, 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. However, 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 2 summarizes the trip generation rates and forecast for the Project. As shown, the proposed Project is forecast to generate 162 weekday daily trips, with 10 trips (2 inbound, 8 outbound) during the weekday AM peak hour and 12 trips (8 inbound, 4 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.

Figure 4 presents the proposed distribution pattern for the Project. The Project's trip distribution patterns through the study area/local area intersections are presented **Table 3** as well.

LOS Traffic Impact Study Requirements

When assessing the need to prepare a traffic impact analysis, inclusive of the need to prepare a level of service (LOS) evaluation 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. Further, given these results, and based on the City's guidelines, the Project would screen out and should not be required to prepare a traffic impact (Level of Service) analysis.

However, based on concerns brought up by the City regarding traffic safety and traffic-related comments from the local community a limited scope LOS Traffic Impact Study will be prepared.

- D. Traffic Study Locations:** Based on discussions with City staff, the following four (4) key study intersections were selected for analysis. *Figure 1* identifies the study intersections.

Key Study Intersections

1. Paseo De Colinas at Del Cerro
2. Cabot Road at Paseo De Colinas
3. Golden Lantern at Paseo De Colinas
4. Golden Lantern at Shark Bay

E. Commuter Peak Period Intersection Traffic Counts:

- Weekday AM (7-9) and PM (4-6) peak period traffic counts were collected in 2023 at the four (4) study intersections while class were in session.

- F. Analysis Scenarios:** Prepare AM and PM peak hour level of Service (LOS) calculations at the four (4) study intersections to determine the potential impacts of the proposed Project. Subject to confirmation by City staff, the following traffic scenarios will be prepared.

- (a) Existing Traffic Conditions;
- (b) Existing Plus Project Traffic Conditions; and
- (c) Scenario (b) with Mitigation, if necessary.

G. Level of Service Criteria: Level of service calculations will be based on Intersection Capacity Utilization (ICU) methodology for signalized intersections and the Highway Capacity Manual (HCM) methodology for unsignalized intersections. A minimum clearance interval of 0.05 in conjunction with lane capacities of 1700 per hour of green time for through and turn lanes will be used for all V/C calculations. An operations assessment, using the HCM/LOS methodology, will be prepared for the purposes of conducting a queuing analysis at key signalized study locations.

Signalized Intersections

A significant impact would occur at a study intersection when project-related traffic causes a signalized intersection to degrade from an acceptable LOS D or better to LOS E or LOS F; or the volume to capacity (V/C) ratio to increase by more than 0.01 at a signalized intersection operating at LOS E or LOS F.

Unsignalized Intersections

If an intersection is operating at LOS E or worse and a significant impact is anticipated (V/C ratio increase of more than 0.01), improvement is needed to improve intersection operations equal to the project-generated impact on the intersection. If an impact drops from LOS D or above to LOS E or F, improvement is required to bring the LOS back to the acceptable threshold level (LOS D) as a part of the project approval. No improvement is required for intersections operating at or above the acceptable threshold.

H. Site Access and Circulation:

- Perform level of service analysis at the project driveways.
- Evaluate queuing for the key study intersections of Paseo De Colinas at Del Cerro for the southbound left-turn movement and Cabot Road at Paseo De Colinas for the eastbound left-turn movement.
- Perform sight distance analysis at the project driveways.
- Evaluate the potential need for acceleration and deceleration lanes along Paseo De Colinas at the project driveways.

I. Paseo De Colinas Safety Enhancements: Based on concerns brought up by the City and community, the Project will consider funding bicycle safety enhancements along Paseo De Colinas near the project site. In addition, the funding of traffic calming measures will be considered along Paseo De Colinas such as installation of a solar radar feedback sign.

J. Niguel Hills Middle School Staircase Closure: There are two staircases that are adjacent to the Project site that are property of Niguel Hills Middle School (NHMS) and not a part of the proposed Project. Per CUSD, the northern stairs are closed and will remain closed. The southern staircase, which is currently accessible and provides pedestrian (student) connectivity between the school campus and Paseo De Colinas, will be closed/locked by Niguel Hills Middle School upon the start of construction of the proposed Project. It is expected that with this closure, all pedestrian activity associated with the school, inclusive of student drop-off/pick-up, that occurs at the Paseo De Colinas and Del Cerro intersection will be re-routed to the school's main access at Golden Lantern and Shark Bay, via the Paseo De Colinas at Golden Lantern intersections. As such, observation were collected during the morning drop-off period from 8:00 AM – 9:00 AM and during the afternoon dismissal period from 3:00 PM – 4:00 PM to document the following items:

- Student utilization of the staircase
- Utilization of Del Cerro as a drop-off/pick-up area
- Utilization of Shark Bay as a drop-off/pick-up area
- Shark Bay/Golden Lantern queuing observations

As a result of the above along with discussions with the City, the following observations/data collections were conducted related to school activity.

- Pedestrian observations were conducted on May 24, 2023 and supplemented with three days of additional counts on May 14, 15, and 16, 2024 at the Niguel Hills Middle School staircase along Paseo De Colinas during the school drop-off period (8:00 AM – 9:00 AM) and the school pick-up period (3:00 PM – 4:00 PM). These observations will be used to determine the number of students utilizing the Niguel Hills Middle School staircase as well as the number of these students that are picked-up/dropped-off along Del Cerro.
- Queuing observations along Shark Bay/Golden Lantern were conducted on May 14, 15, and 16, 2024 during the school drop-off period (8:00 AM – 9:00 AM) and the school pick-up period (3:00 PM – 4:00 PM). These observations will be used to document congestion in the area and identify peak stacking for the drop-off/pick-up lane. The peak queues would then be compared to future anticipated queues as a result of traffic shifts related to the closer of the staircase.
- Bicycle counts were collected at the entrance of the Niguel Hills Middle School parking lot on May 14, 15, and 16, 2024, during the school drop-off period (8:00 AM – 9:00 AM) and the school pick-up period (3:00 PM – 4:00 PM). These observations will be used to document bicycle utilization.

Due to the staircase closure which would redirect trips from Del Cerro to Shark Bay peak hour level of service analysis would be completed during the school drop-off period (8:00 AM – 9:00 AM) and school pick-up period (3:00 PM – 4:00 PM). The traffic scenarios for assessment would be Existing Plus Project and Existing Plus Project Plus Staircase Closure Shifts. To provide a conservative assessment the PM peak hour trips generated by the Project will be assumed during the 3:00 PM – 4:00 PM time period.

Figures 5 and 6 present the anticipated shift in traffic from Del Cerro to Shark Bay as a result of the staircase closure for the drop-off period (8:00 AM – 9:00 AM) and pick-up period (3:00 PM – 4:00 PM), respectively. Once the supplemental data is available for the three additional count days noted above the distribution presented in **Figures 5 and 6** will be applied to the highest drop-off and pick-up demands documented along Del Cerro.

K. VMT Assessment:

- Using the *City of Laguna Niguel Transportation Assessment Guidelines*, dated *November 2020*, as guidance prepare a VMT screening assessment to determine if the proposed Project screens out from the preparation of a full VMT analysis.
- For Non-Screened Project, prepare detailed VMT analysis and separate report in memorandum format. The VMT analysis and forecasting will be completed through the OCTAM model to determine if they have a significant VMT impact per the City's guidelines.

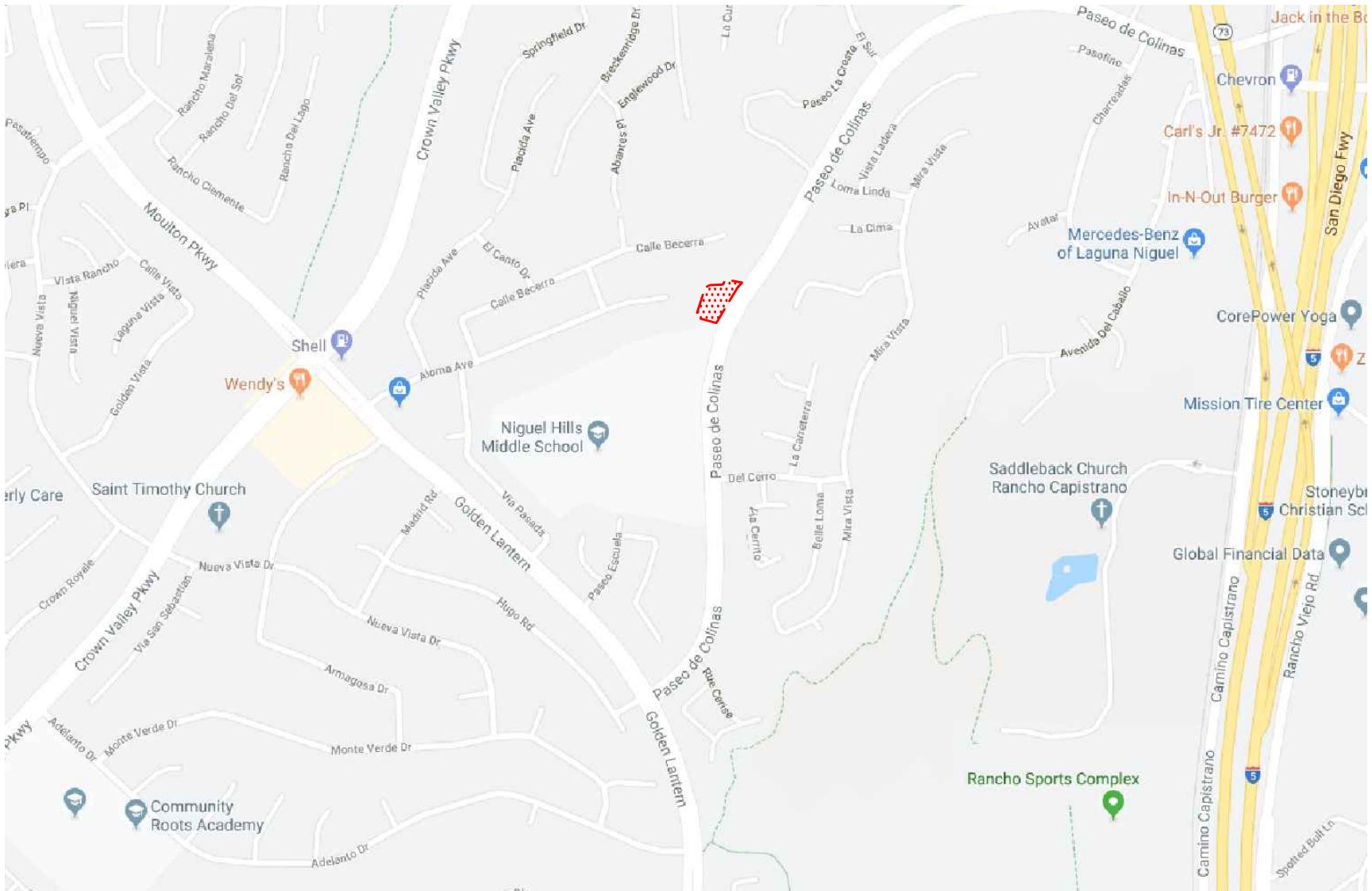
We appreciate the opportunity to provide this scope of work. Should you have any questions, please call us at (949)825-6175. Thank you.

Approved by:

City of Laguna Niguel

Date

Attachments



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NO SCALE

SOURCE: GOOGLE

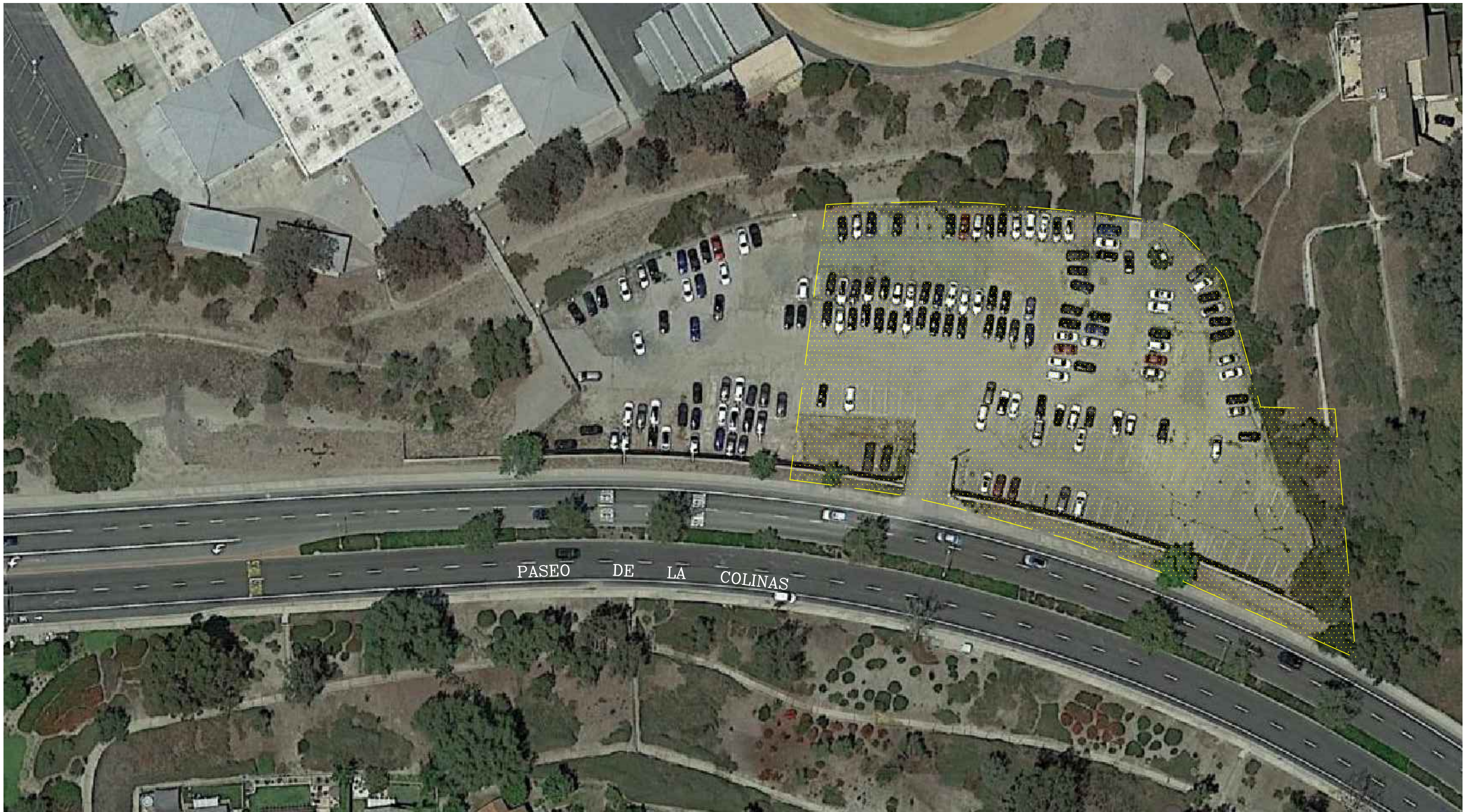
KEY

 = PROJECT SITE

FIGURE 1

VICINITY MAP

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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**NIGUEL HILLS
MIDDLE SCHOOL**

APN: 637-181-001
OWNER: CAPISTRANO
UNIFIED SCHOOL DISTRICT

EXISTING NIGUEL HILLS MIDDLE
SCHOOL STAIRCASE TO BE CLOSED

0.97 ACRE PARK
(N.A.P.)

PASEO DE COLINAS

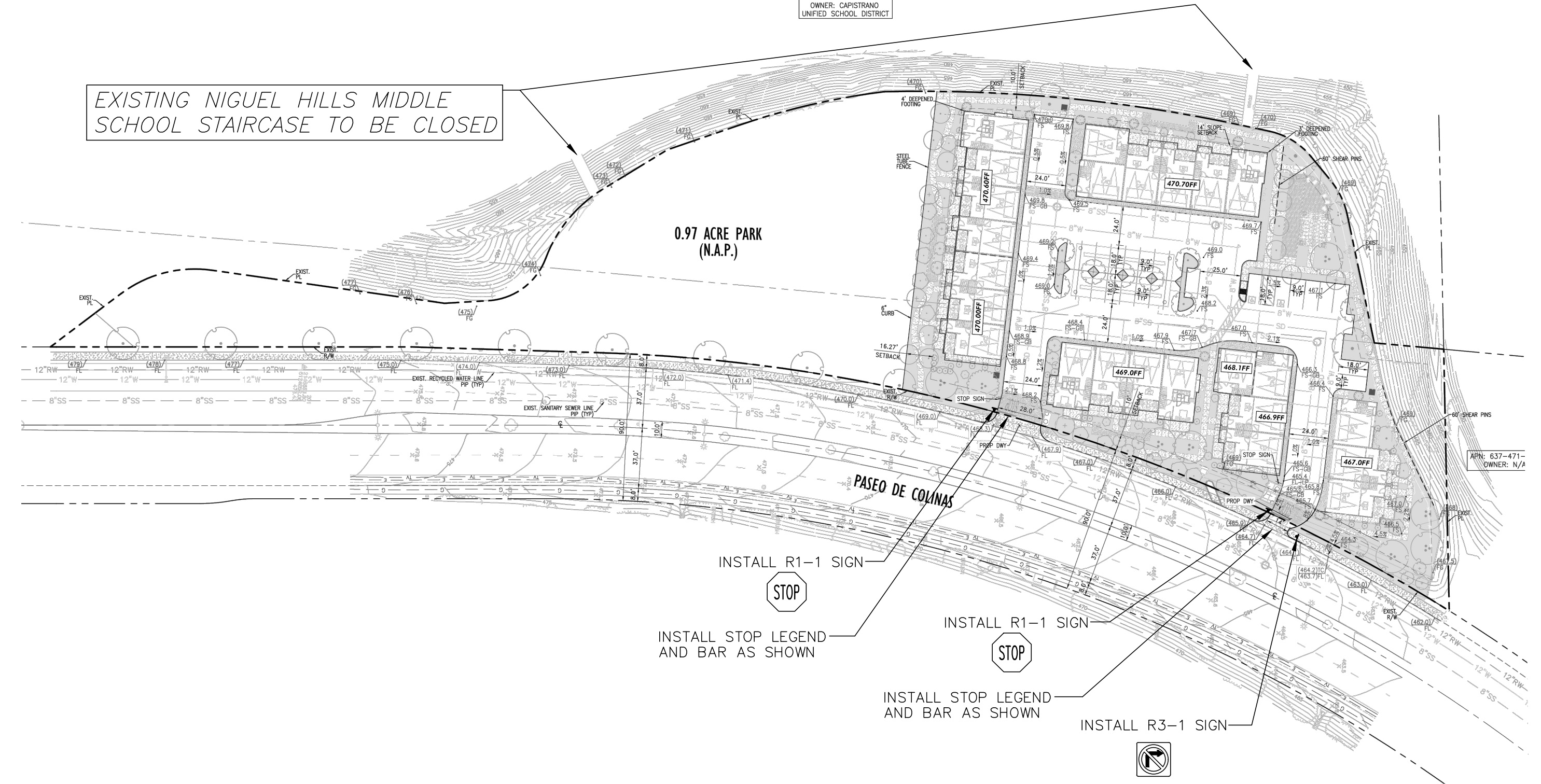
INSTALL R1-1 SIGN

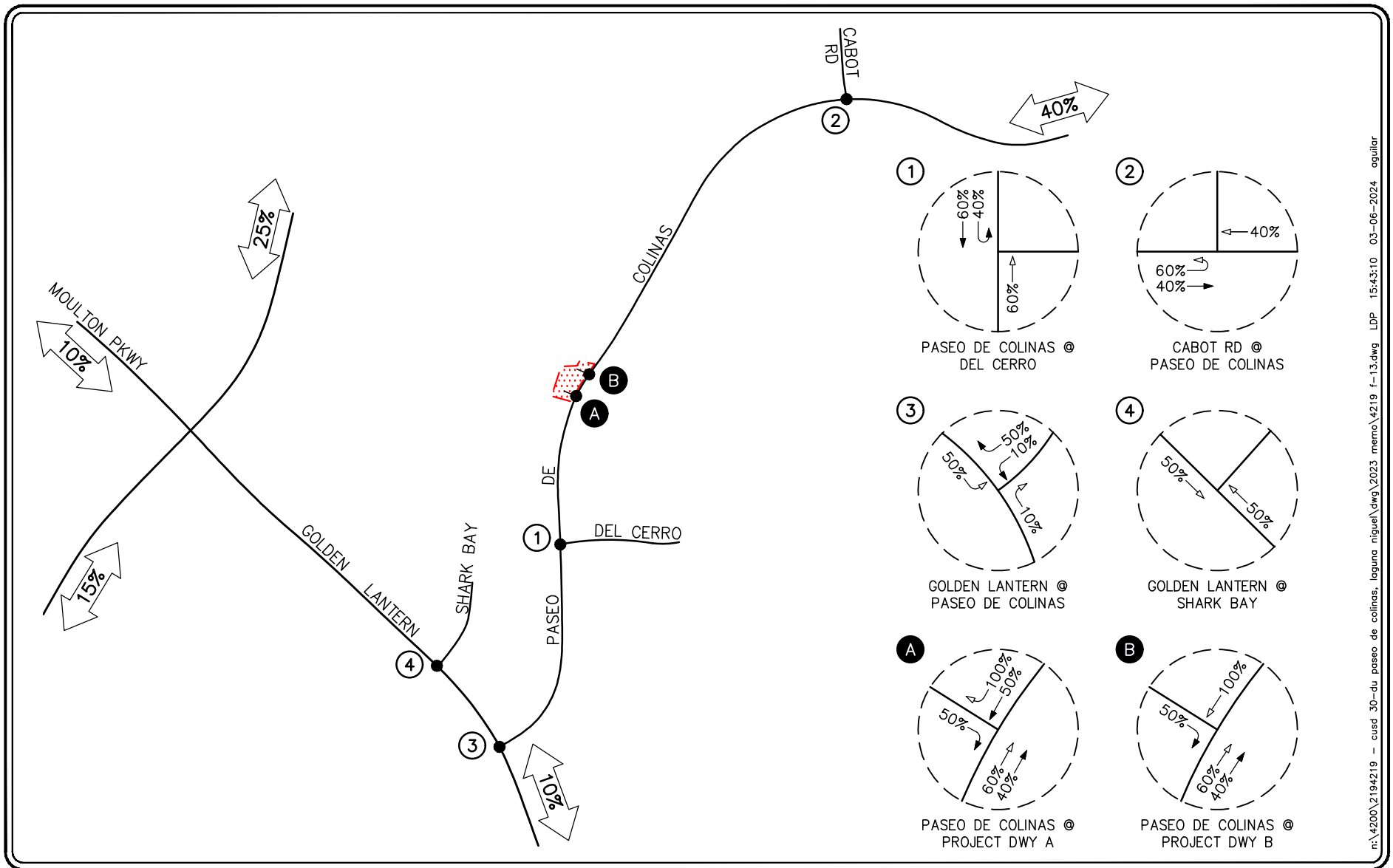
INSTALL STOP LEGEND
AND BAR AS SHOWN

INSTALL R1-1 SIGN

INSTALL STOP LEGEND
AND BAR AS SHOWN

INSTALL R3-1 SIGN





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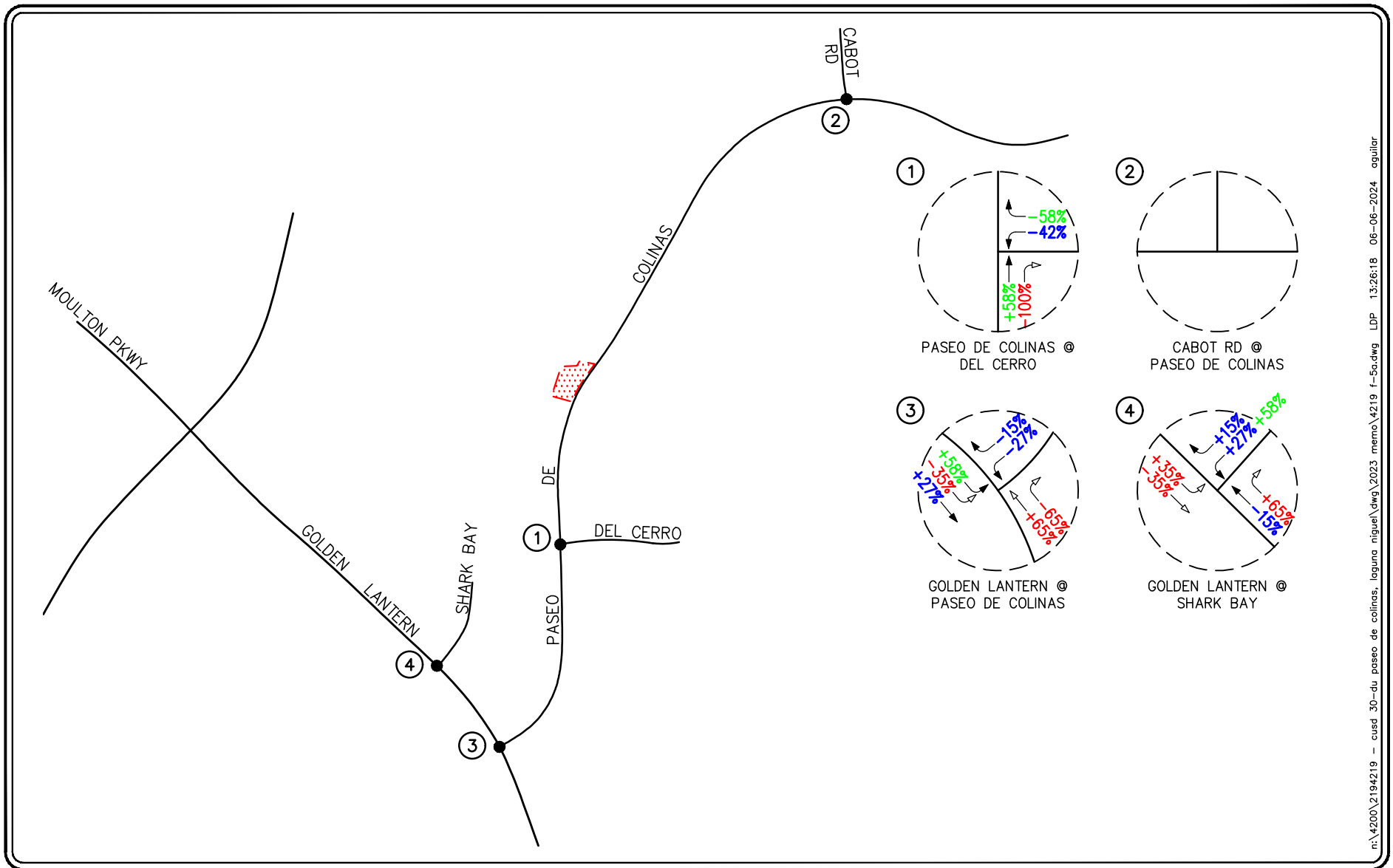
NO SCALE

KEY

- = PROJECT SITE
- = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE

FIGURE 4

PROJECT DISTRIBUTION PATTERN
CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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NO SCALE

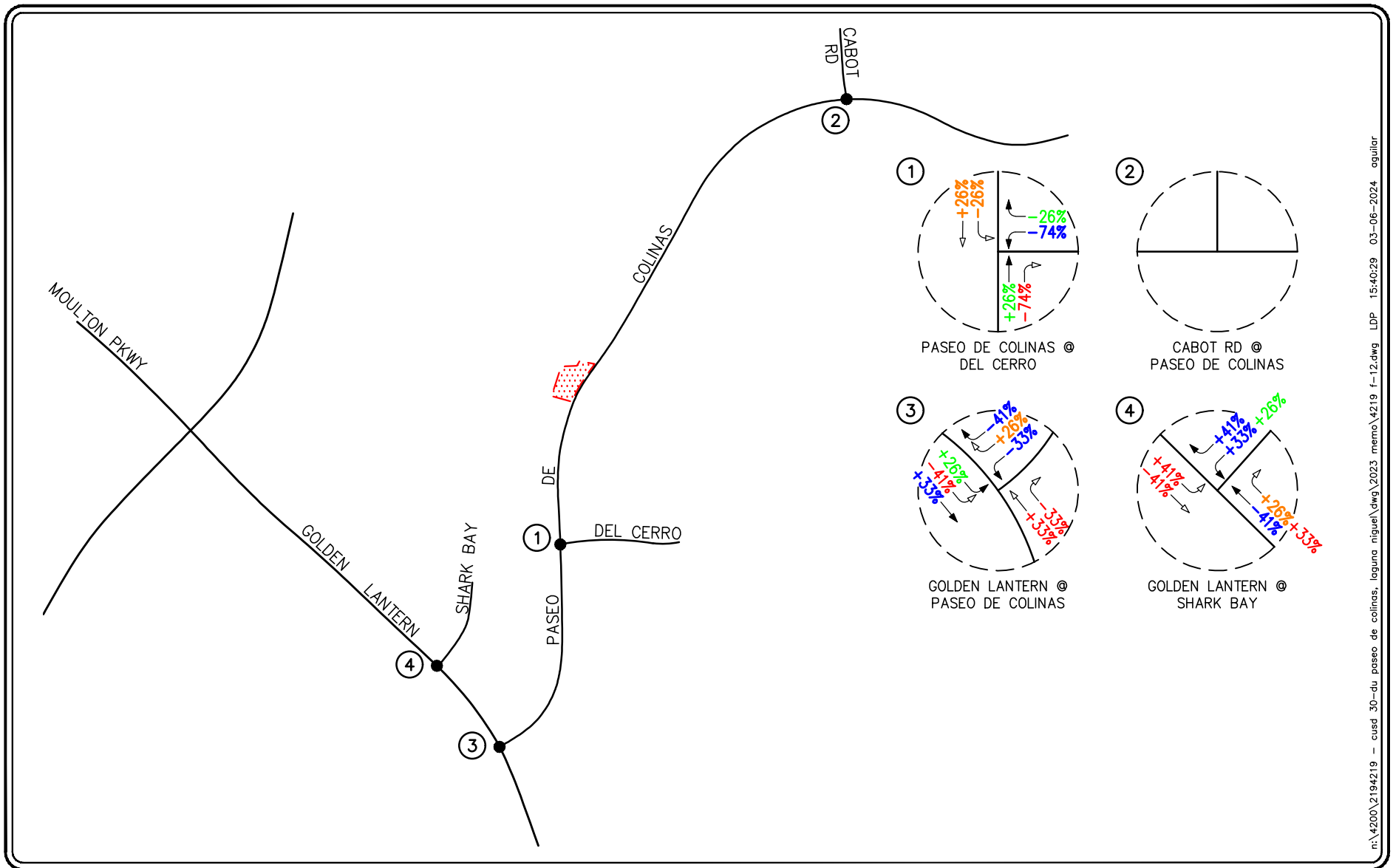
KEY

- ① = STUDY INTERSECTION
- ← = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE
- [Red Hatched Box] = PROJECT SITE

FIGURE 5

VOLUME REDISTRIBUTION FOR STAIRWAY CLOSURE AM PEAK HOUR

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL



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NO SCALE

KEY

- ① = STUDY INTERSECTION
- ← = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE
- [Red Hatched Box] = PROJECT SITE

FIGURE 6

VOLUME REDISTRIBUTION FOR STAIRWAY CLOSURE PM PEAK HOUR

CUSD 24-DU PASEO DE COLINAS, LAGUNA NIGUEL

TABLE 1
PROJECT DEVELOPMENT SUMMARY³
PASEO DE COLINAS 24-DU RESIDENTIAL DEVELOPMENT, LAGUNA NIGUEL

Land Use / Project Description	Project Development Totals
<u>Paseo De Colinas Townhomes</u> ☐ 2 Bedroom / 2 Bath Units (1,236 SF – 1,259 SF) ☐ 3 Bedroom / 2.5 Bath Units (1,617 SF) ☐ 4 Bedroom / 3.5 Bath Units (1,930 SF) <i>Total Residential Units:</i>	8 Units 12 Units <u>4 Units</u> <i>24 Units</i>
<u>Parking Supply</u> ☐ Parking ○ Garages (2 car / unit) ☐ Guest / Open Parking ○ Surface Parking <i>Total Parking Supply:</i>	48 spaces <u>25 spaces</u> <i>73 spaces</i>

³ Source: KTGy, Architectural Site Plan.

TABLE 2
PROJECT TRAFFIC GENERATION RATES AND FORECAST⁴
PASEO DE COLINAS 24-DU RESIDENTIAL DEVELOPMENT, LAGUNA NIGUEL

Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
<u>Trip Rates:</u>							
▪ 220: Multifamily Housing (Low-Rise ⁵) (TE/DU)	6.74	24%	76%	0.40	63%	37%	0.51
▪ 221: Multifamily Housing (Mid-Rise ⁶) (TE/DU)	4.54	23%	77%	0.37	61%	39%	0.39
<u>Project Trip Generation:</u>							
▪ 220: Paseo De Colinas 24-DU Residential Development (24 DU)	162	2	8	10	8	4	12

Notes:

TE/DU = Trip End per Dwelling Unit

⁴ Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).

⁵ Low-Rise Multifamily Housing consists of buildings that range between 1 and 2 levels.

⁶ Mid-Rise Multifamily Housing consists of buildings that range between 3 and 10 levels.

TABLE 3
PROJECT DIRECTIONAL DISTRIBUTION PATTERN
PASEO DE COLINAS 24-DU RESIDENTIAL DEVELOPMENT, LAGUNA NIGUEL

Project Distribution Percentage	Orientation/Direction
10%	To/from the north via Moulton Parkway
10%	To/from the south via Golden Lantern
40%	To/from the east via Paseo de Colinas
25%	To/from the east via Crown Valley Parkway
15%	To/from the west via Crown Valley Parkway
100%	Total

APPENDIX B

EXISTING TRAFFIC COUNT DATA

City of Laguna Niguel
N/S: Paseo De Colinas
E/W: Del Cerro
Weather: Clear

File Name : 01_LNL_PDC_DC AM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 1

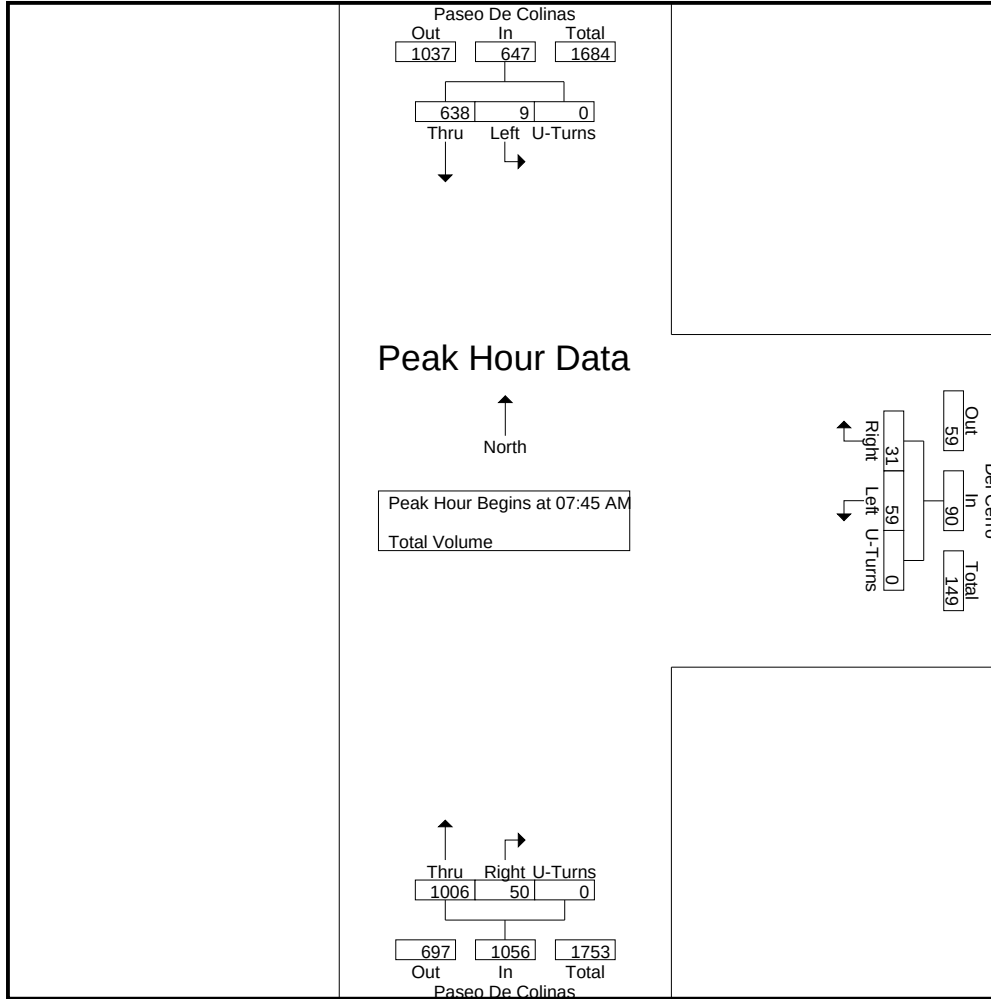
Groups Printed- Total Volume

	Paseo De Colinas Southbound				Del Cerro Westbound				Paseo De Colinas Northbound				
Start Time	Left	Thru	U-Turns	App. Total	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	1	98	0	99	6	7	0	13	189	2	0	191	303
07:15 AM	1	145	0	146	8	10	0	18	206	1	0	207	371
07:30 AM	0	137	0	137	17	8	0	25	229	3	0	232	394
07:45 AM	2	161	0	163	6	3	0	9	301	7	0	308	480
Total	4	541	0	545	37	28	0	65	925	13	0	938	1548
08:00 AM	1	142	0	143	15	7	0	22	287	6	0	293	458
08:15 AM	4	170	0	174	22	9	0	31	205	17	0	222	427
08:30 AM	2	165	0	167	16	12	0	28	213	20	0	233	428
08:45 AM	6	134	0	140	8	4	0	12	195	7	0	202	354
Total	13	611	0	624	61	32	0	93	900	50	0	950	1667
Grand Total	17	1152	0	1169	98	60	0	158	1825	63	0	1888	3215
Apprch %	1.5	98.5	0		62	38	0		96.7	3.3	0		
Total %	0.5	35.8	0	36.4	3	1.9	0	4.9	56.8	2	0	58.7	

	Paseo De Colinas Southbound				Del Cerro Westbound				Paseo De Colinas Northbound				
Start Time	Left	Thru	U-Turns	App. Total	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	2	161	0	163	6	3	0	9	301	7	0	308	480
08:00 AM	1	142	0	143	15	7	0	22	287	6	0	293	458
08:15 AM	4	170	0	174	22	9	0	31	205	17	0	222	427
08:30 AM	2	165	0	167	16	12	0	28	213	20	0	233	428
Total Volume	9	638	0	647	59	31	0	90	1006	50	0	1056	1793
% App. Total	1.4	98.6	0		65.6	34.4	0		95.3	4.7	0		
PHF	.563	.938	.000	.930	.670	.646	.000	.726	.836	.625	.000	.857	.934

City of Laguna Niguel
N/S: Paseo De Colinas
E/W: Del Cerro
Weather: Clear

File Name : 01_LNL_PDC_DC AM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				08:00 AM				07:45 AM			
+0 mins.	2	161	0	163	15	7	0	22	301	7	0	308
+15 mins.	1	142	0	143	22	9	0	31	287	6	0	293
+30 mins.	4	170	0	174	16	12	0	28	205	17	0	222
+45 mins.	2	165	0	167	8	4	0	12	213	20	0	233
Total Volume	9	638	0	647	61	32	0	93	1006	50	0	1056
% App. Total	1.4	98.6	0		65.6	34.4	0		95.3	4.7	0	
PHF	.563	.938	.000	.930	.693	.667	.000	.750	.836	.625	.000	.857

City of Laguna Niguel
N/S: Paseo De Colinas
E/W: Del Cerro
Weather: Clear

File Name : 01_LNL_PDC_DC PM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 1

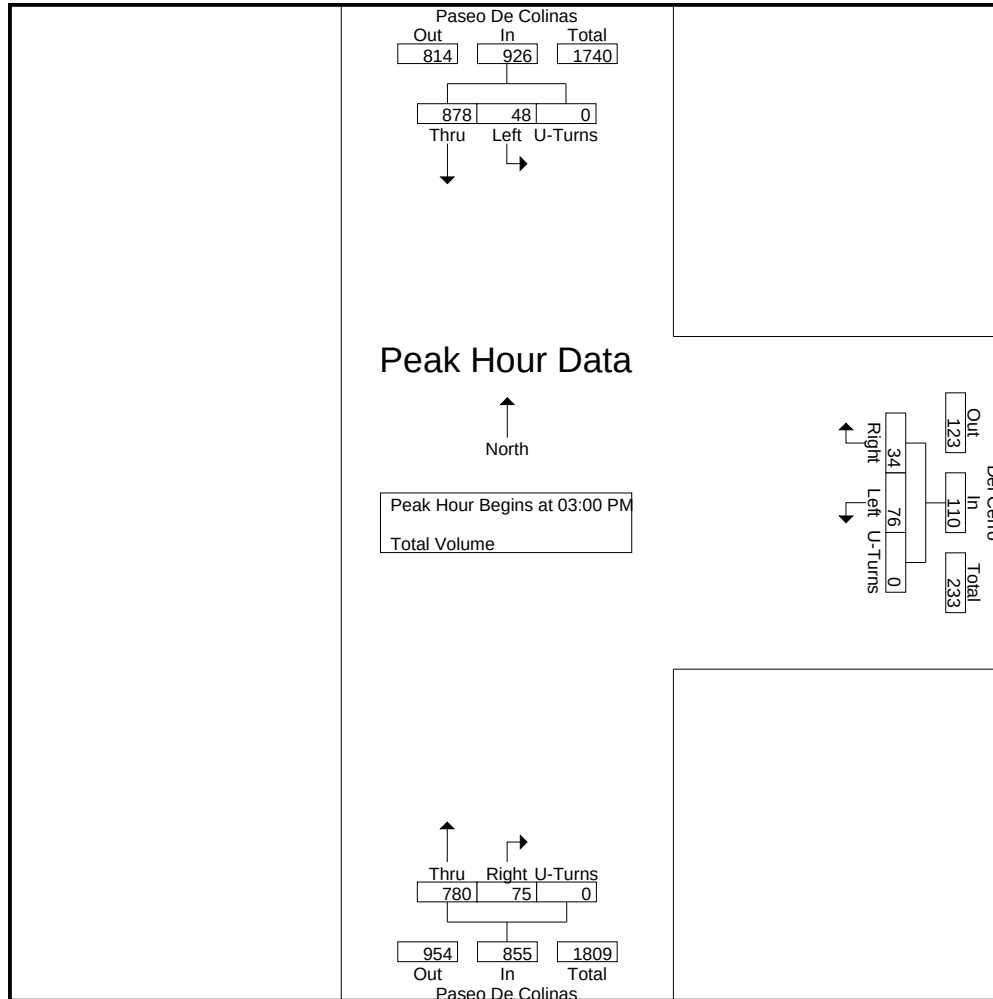
Groups Printed- Total Volume

	Paseo De Colinas Southbound				Del Cerro Westbound				Paseo De Colinas Northbound				
Start Time	Left	Thru	U-Turns	App. Total	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Int. Total
03:00 PM	10	227	0	237	6	3	0	9	177	12	0	189	435
03:15 PM	14	198	0	212	10	2	0	12	189	21	0	210	434
03:30 PM	17	230	0	247	54	20	0	74	199	27	0	226	547
03:45 PM	7	223	0	230	6	9	0	15	215	15	0	230	475
Total	48	878	0	926	76	34	0	110	780	75	0	855	1891
04:00 PM	5	219	0	224	5	3	0	8	191	10	0	201	433
04:15 PM	3	228	0	231	11	2	0	13	171	8	0	179	423
04:30 PM	7	261	0	268	7	3	0	10	180	4	0	184	462
04:45 PM	7	231	0	238	5	4	0	9	170	14	0	184	431
Total	22	939	0	961	28	12	0	40	712	36	0	748	1749
05:00 PM	9	237	0	246	7	4	0	11	170	8	0	178	435
05:15 PM	9	232	0	241	7	2	0	9	179	5	0	184	434
05:30 PM	6	260	0	266	7	8	0	15	183	7	0	190	471
05:45 PM	5	232	0	237	7	4	0	11	162	8	0	170	418
Total	29	961	0	990	28	18	0	46	694	28	0	722	1758
Grand Total	99	2778	0	2877	132	64	0	196	2186	139	0	2325	5398
Apprch %	3.4	96.6	0		67.3	32.7	0		94	6	0		
Total %	1.8	51.5	0	53.3	2.4	1.2	0	3.6	40.5	2.6	0	43.1	

	Paseo De Colinas Southbound				Del Cerro Westbound				Paseo De Colinas Northbound				
Start Time	Left	Thru	U-Turns	App. Total	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	10	227	0	237	6	3	0	9	177	12	0	189	435
03:15 PM	14	198	0	212	10	2	0	12	189	21	0	210	434
03:30 PM	17	230	0	247	54	20	0	74	199	27	0	226	547
03:45 PM	7	223	0	230	6	9	0	15	215	15	0	230	475
Total Volume	48	878	0	926	76	34	0	110	780	75	0	855	1891
% App. Total	5.2	94.8	0		69.1	30.9	0		91.2	8.8	0		
PHF	.706	.954	.000	.937	.352	.425	.000	.372	.907	.694	.000	.929	.864

City of Laguna Niguel
N/S: Paseo De Colinas
E/W: Del Cerro
Weather: Clear

File Name : 01_LNL_PDC_DC PM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 2



Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				03:00 PM				03:15 PM			
+0 mins.	5	219	0	224	6	3	0	9	189	21	0	210
+15 mins.	3	228	0	231	10	2	0	12	199	27	0	226
+30 mins.	7	261	0	268	54	20	0	74	215	15	0	230
+45 mins.	7	231	0	238	6	9	0	15	191	10	0	201
Total Volume	22	939	0	961	76	34	0	110	794	73	0	867
% App. Total	2.3	97.7	0		69.1	30.9	0		91.6	8.4	0	
PHF	.786	.899	.000	.896	.352	.425	.000	.372	.923	.676	.000	.942

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City of Laguna Niguel
N/S: Golden Lantern
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Weather: Clear

File Name : 02_LNL_GL_PDC AM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 1

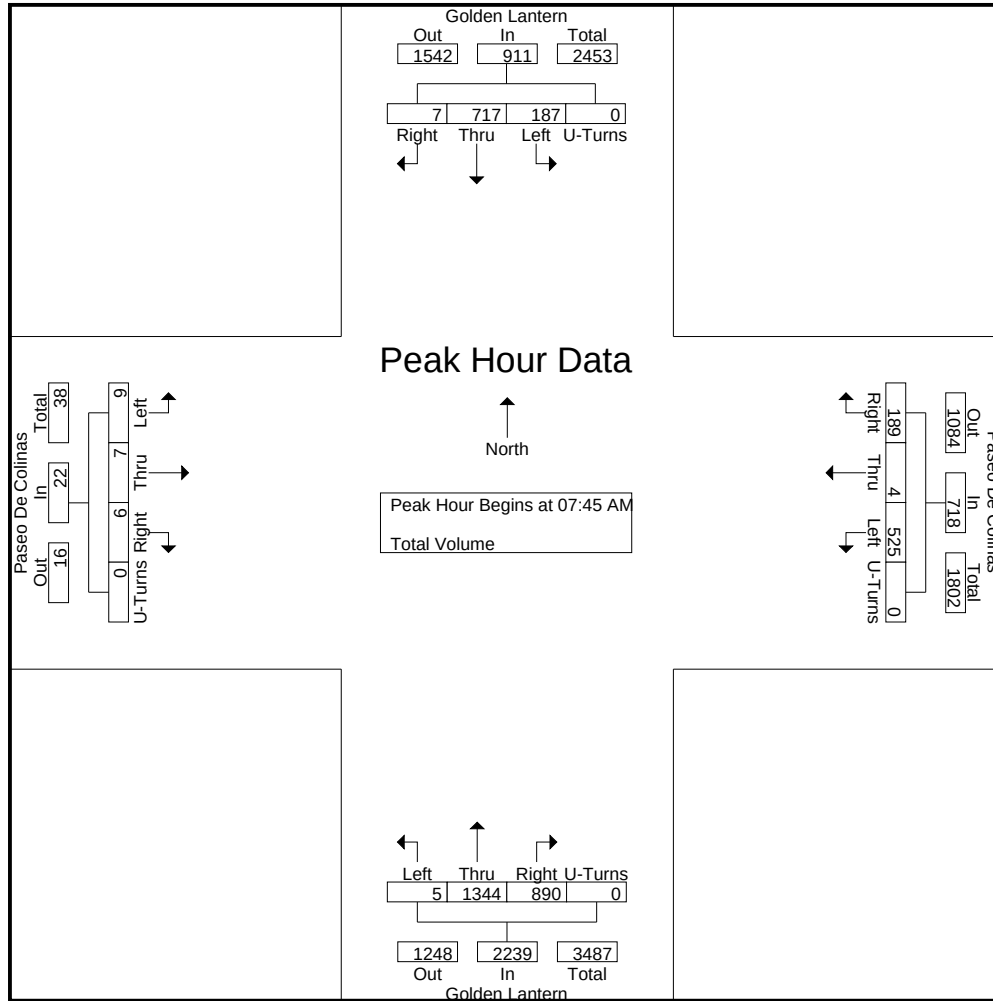
Groups Printed- Total Volume

	Golden Lantern Southbound					Paseo De Colinas Westbound					Golden Lantern Northbound					Paseo De Colinas Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	18	116	1	0	135	68	0	25	0	93	1	120	172	0	293	0	0	1	0	1	522
07:15 AM	21	147	0	0	168	121	0	35	0	156	0	208	191	0	399	0	2	0	0	2	725
07:30 AM	26	170	0	0	196	126	0	34	0	160	0	249	214	0	463	0	1	0	0	1	820
07:45 AM	55	151	2	0	208	141	1	30	0	172	1	284	262	0	547	0	0	2	0	2	929
Total	120	584	3	0	707	456	1	124	0	581	2	861	839	0	1702	0	3	3	0	6	2996
08:00 AM	62	191	4	0	257	120	0	41	0	161	1	337	238	0	576	1	4	1	0	6	1000
08:15 AM	38	180	0	0	218	128	1	60	0	189	2	394	202	0	598	0	1	1	0	2	1007
08:30 AM	32	195	1	0	228	136	2	58	0	196	1	329	188	0	518	8	2	2	0	12	954
08:45 AM	27	184	1	0	212	95	1	32	0	128	0	200	176	0	376	0	1	2	0	3	719
Total	159	750	6	0	915	479	4	191	0	674	4	1260	804	0	2068	9	8	6	0	23	3680
Grand Total	279	1334	9	0	1622	935	5	315	0	1255	6	2121	1643	0	3770	9	11	9	0	29	6676
Apprch %	17.2	82.2	0.6	0		74.5	0.4	25.1	0		0.2	56.3	43.6	0		31	37.9	31	0		
Total %	4.2	20	0.1	0	24.3	14	0.1	4.7	0	18.8	0.1	31.8	24.6	0	56.5	0.1	0.2	0.1	0	0.4	

	Golden Lantern Southbound					Paseo De Colinas Westbound					Golden Lantern Northbound					Paseo De Colinas Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	55	151	2	0	208	141	1	30	0	172	1	284	262	0	547	0	0	2	0	2	929
08:00 AM	62	191	4	0	257	120	0	41	0	161	1	337	238	0	576	1	4	1	0	6	1000
08:15 AM	38	180	0	0	218	128	1	60	0	189	2	394	202	0	598	0	1	1	0	2	1007
08:30 AM	32	195	1	0	228	136	2	58	0	196	1	329	188	0	518	8	2	2	0	12	954
Total Volume	187	717	7	0	911	525	4	189	0	718	5	1344	890	0	2239	9	7	6	0	22	3890
% App. Total	20.5	78.7	0.8	0		73.1	0.6	26.3	0		0.2	60	39.7	0		40.9	31.8	27.3	0		
PHF	.754	.919	.438	.000	.886	.931	.500	.788	.000	.916	.625	.853	.849	.000	.936	.281	.438	.750	.000	.458	.966

City of Laguna Niguel
N/S: Golden Lantern
E/W: Paseo De Colinas
Weather: Clear

File Name : 02_LNL_GL_PDC AM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM					07:45 AM					07:45 AM					08:00 AM				
+0 mins.	62	191	4	0	257	141	1	30	0	172	1	284	262	0	547	1	4	1	0	6
+15 mins.	38	180	0	0	218	120	0	41	0	161	1	337	238	0	576	0	1	1	0	2
+30 mins.	32	195	1	0	228	128	1	60	0	189	2	394	202	0	598	8	2	2	0	12
+45 mins.	27	184	1	0	212	136	2	58	0	196	1	329	188	0	518	0	1	2	0	3
Total Volume	159	750	6	0	915	525	4	189	0	718	5	1344	890	0	2239	9	8	6	0	23
% App. Total	17.4	82	0.7	0		73.1	0.6	26.3	0		0.2	60	39.7	0		39.1	34.8	26.1	0	
PHF	.641	.962	.375	.000	.890	.931	.500	.788	.000	.916	.625	.853	.849	.000	.936	.281	.500	.750	.000	.479

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N/S: Golden Lantern
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File Name : 02_LNL_GL_PDC PM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 1

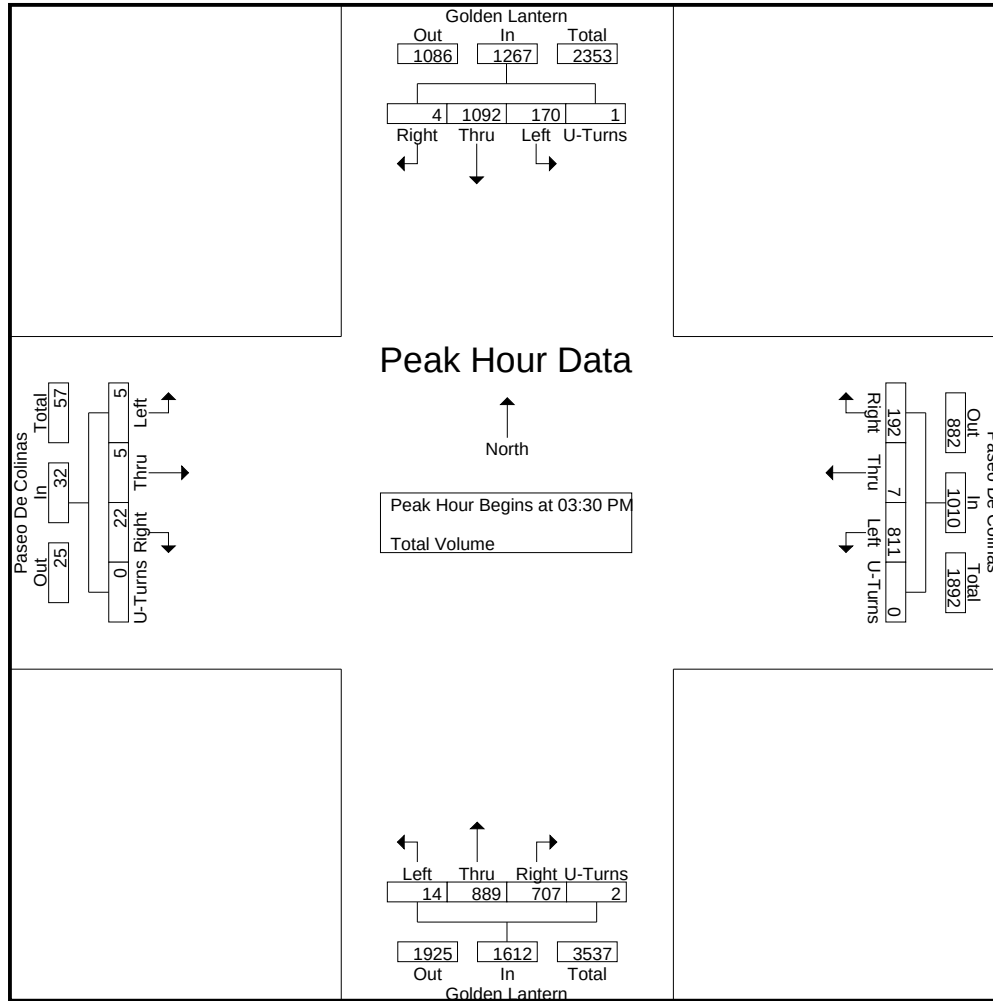
Groups Printed- Total Volume

	Golden Lantern Southbound					Paseo De Colinas Westbound					Golden Lantern Northbound					Paseo De Colinas Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
03:00 PM	34	209	2	0	245	188	1	44	0	233	1	207	168	0	376	0	0	4	0	4	858
03:15 PM	38	207	3	0	248	174	3	49	0	226	6	203	199	1	409	0	0	0	0	0	883
03:30 PM	42	312	2	0	356	217	3	63	0	283	13	260	177	1	451	3	1	17	0	21	1111
03:45 PM	57	277	2	0	336	199	1	51	0	251	1	238	206	1	446	1	3	5	0	9	1042
Total	171	1005	9	0	1185	778	8	207	0	993	21	908	750	3	1682	4	4	26	0	34	3894
04:00 PM	45	241	0	0	286	194	1	41	0	236	0	193	163	0	356	1	1	0	0	2	880
04:15 PM	26	262	0	1	289	201	2	37	0	240	0	198	161	0	359	0	0	0	0	0	888
04:30 PM	35	288	4	0	327	234	3	56	0	293	0	196	183	0	379	2	0	1	0	3	1002
04:45 PM	34	260	0	0	294	167	5	48	0	220	1	177	160	0	338	2	1	0	0	3	855
Total	140	1051	4	1	1196	796	11	182	0	989	1	764	667	0	1432	5	2	1	0	8	3625
05:00 PM	32	266	1	0	299	185	2	46	0	233	0	218	157	0	375	0	1	1	0	2	909
05:15 PM	48	287	0	0	335	202	1	40	0	243	1	169	152	0	322	0	1	0	0	1	901
05:30 PM	34	271	1	1	307	237	1	48	0	286	0	153	156	0	309	1	4	5	0	10	912
05:45 PM	33	253	2	0	288	205	0	38	0	243	2	180	149	0	331	0	0	2	0	2	864
Total	147	1077	4	1	1229	829	4	172	0	1005	3	720	614	0	1337	1	6	8	0	15	3586
Grand Total	458	3133	17	2	3610	2403	23	561	0	2987	25	2392	2031	3	4451	10	12	35	0	57	11105
Apprch %	12.7	86.8	0.5	0.1		80.4	0.8	18.8	0		0.6	53.7	45.6	0.1		17.5	21.1	61.4	0		
Total %	4.1	28.2	0.2	0	32.5	21.6	0.2	5.1	0	26.9	0.2	21.5	18.3	0	40.1	0.1	0.1	0.3	0	0.5	

	Golden Lantern Southbound					Paseo De Colinas Westbound					Golden Lantern Northbound					Paseo De Colinas Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	42	312	2	0	356	217	3	63	0	283	13	260	177	1	451	3	1	17	0	21	1111
03:45 PM	57	277	2	0	336	199	1	51	0	251	1	238	206	1	446	1	3	5	0	9	1042
04:00 PM	45	241	0	0	286	194	1	41	0	236	0	193	163	0	356	1	1	0	0	2	880
04:15 PM	26	262	0	1	289	201	2	37	0	240	0	198	161	0	359	0	0	0	0	0	888
Total Volume	170	1092	4	1	1267	811	7	192	0	1010	14	889	707	2	1612	5	5	22	0	32	3921
% App. Total	13.4	86.2	0.3	0.1		80.3	0.7	19	0		0.9	55.1	43.9	0.1		15.6	15.6	68.8	0		
PHF	.746	.875	.500	.250	.890	.934	.583	.762	.000	.892	.269	.855	.858	.500	.894	.417	.417	.324	.000	.381	.882

City of Laguna Niguel
N/S: Golden Lantern
E/W: Paseo De Colinas
Weather: Clear

File Name : 02_LNL_GL_PDC PM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:30 PM					03:45 PM					03:00 PM					03:00 PM				
+0 mins.	42	312	2	0	356	199	1	51	0	251	1	207	168	0	376	0	0	4	0	4
+15 mins.	57	277	2	0	336	194	1	41	0	236	6	203	199	1	409	0	0	0	0	0
+30 mins.	45	241	0	0	286	201	2	37	0	240	13	260	177	1	451	3	1	17	0	21
+45 mins.	26	262	0	1	289	234	3	56	0	293	1	238	206	1	446	1	3	5	0	9
Total Volume	170	1092	4	1	1267	828	7	185	0	1020	21	908	750	3	1682	4	4	26	0	34
% App. Total	13.4	86.2	0.3	0.1		81.2	0.7	18.1	0		1.2	54	44.6	0.2		11.8	11.8	76.5	0	
PHF	.746	.875	.500	.250	.890	.885	.583	.826	.000	.870	.404	.873	.910	.750	.932	.333	.333	.382	.000	.405

City of Laguna Niguel
N/S: Cabot Road
E/W: Paseo De Colinas
Weather: Clear

File Name : 03_LNL_Cab_PDC AM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 1

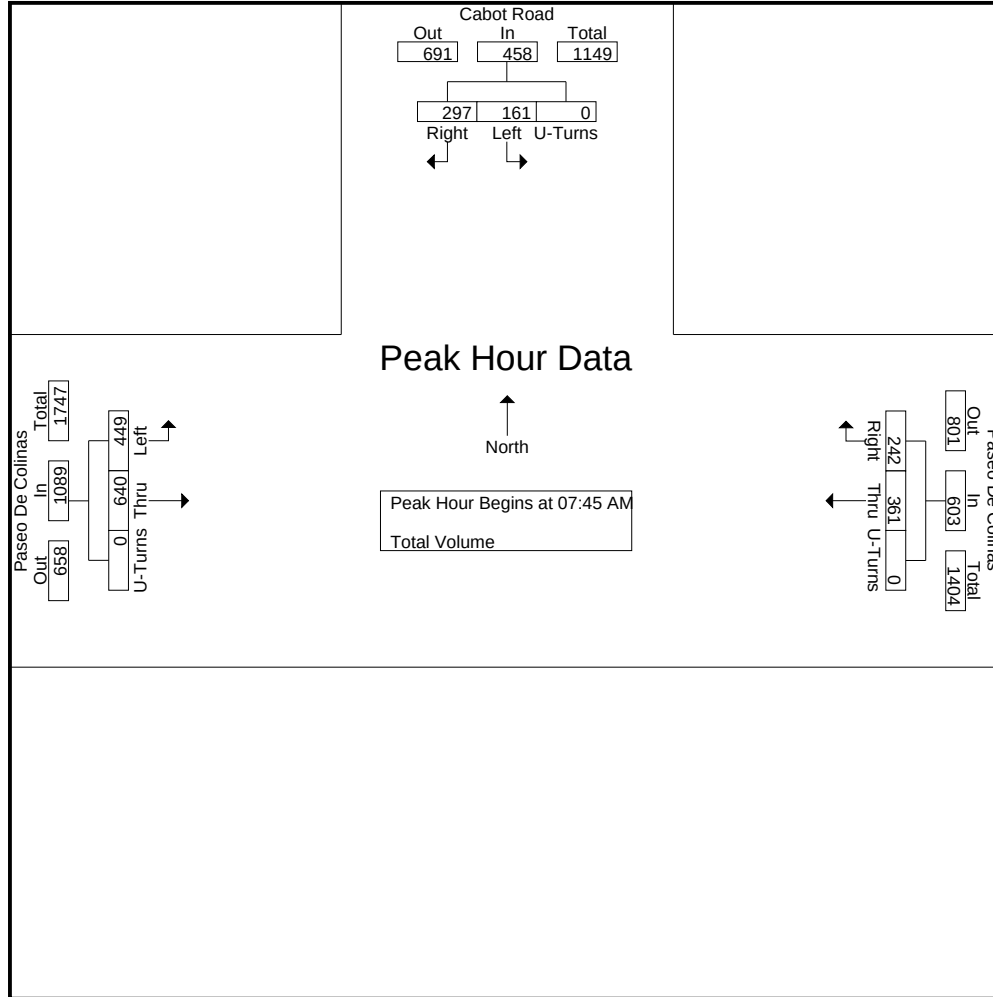
Groups Printed- Total Volume

	Cabot Road Southbound				Paseo De Colinas Westbound				Paseo De Colinas Eastbound				
Start Time	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Left	Thru	U-Turns	App. Total	Int. Total
07:00 AM	14	35	1	50	62	22	0	84	61	148	1	210	344
07:15 AM	20	77	0	97	73	18	0	91	85	140	0	225	413
07:30 AM	23	55	0	78	69	25	0	94	111	148	0	259	431
07:45 AM	48	88	0	136	84	22	0	106	126	195	0	321	563
Total	105	255	1	361	288	87	0	375	383	631	1	1015	1751
08:00 AM	52	58	0	110	81	50	0	131	107	200	0	307	548
08:15 AM	36	75	0	111	94	103	0	197	106	133	0	239	547
08:30 AM	25	76	0	101	102	67	0	169	110	112	0	222	492
08:45 AM	17	55	0	72	77	28	0	105	92	133	0	225	402
Total	130	264	0	394	354	248	0	602	415	578	0	993	1989
Grand Total	235	519	1	755	642	335	0	977	798	1209	1	2008	3740
Apprch %	31.1	68.7	0.1		65.7	34.3	0		39.7	60.2	0		
Total %	6.3	13.9	0	20.2	17.2	9	0	26.1	21.3	32.3	0	53.7	

	Cabot Road Southbound				Paseo De Colinas Westbound				Paseo De Colinas Eastbound				
Start Time	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Left	Thru	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	48	88	0	136	84	22	0	106	126	195	0	321	563
08:00 AM	52	58	0	110	81	50	0	131	107	200	0	307	548
08:15 AM	36	75	0	111	94	103	0	197	106	133	0	239	547
08:30 AM	25	76	0	101	102	67	0	169	110	112	0	222	492
Total Volume	161	297	0	458	361	242	0	603	449	640	0	1089	2150
% App. Total	35.2	64.8	0		59.9	40.1	0		41.2	58.8	0		
PHF	.774	.844	.000	.842	.885	.587	.000	.765	.891	.800	.000	.848	.955

City of Laguna Niguel
N/S: Cabot Road
E/W: Paseo De Colinas
Weather: Clear

File Name : 03_LNL_Cab_PDC AM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:30 AM			
+0 mins.	48	88	0	136	84	22	0	106	111	148	0	259
+15 mins.	52	58	0	110	81	50	0	131	126	195	0	321
+30 mins.	36	75	0	111	94	103	0	197	107	200	0	307
+45 mins.	25	76	0	101	102	67	0	169	106	133	0	239
Total Volume	161	297	0	458	361	242	0	603	450	676	0	1126
% App. Total	35.2	64.8	0		59.9	40.1	0		40	60	0	
PHF	.774	.844	.000	.842	.885	.587	.000	.765	.893	.845	.000	.877

City of Laguna Niguel
N/S: Cabot Road
E/W: Paseo De Colinas
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File Name : 03_LNL_Cab_PDC PM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 1

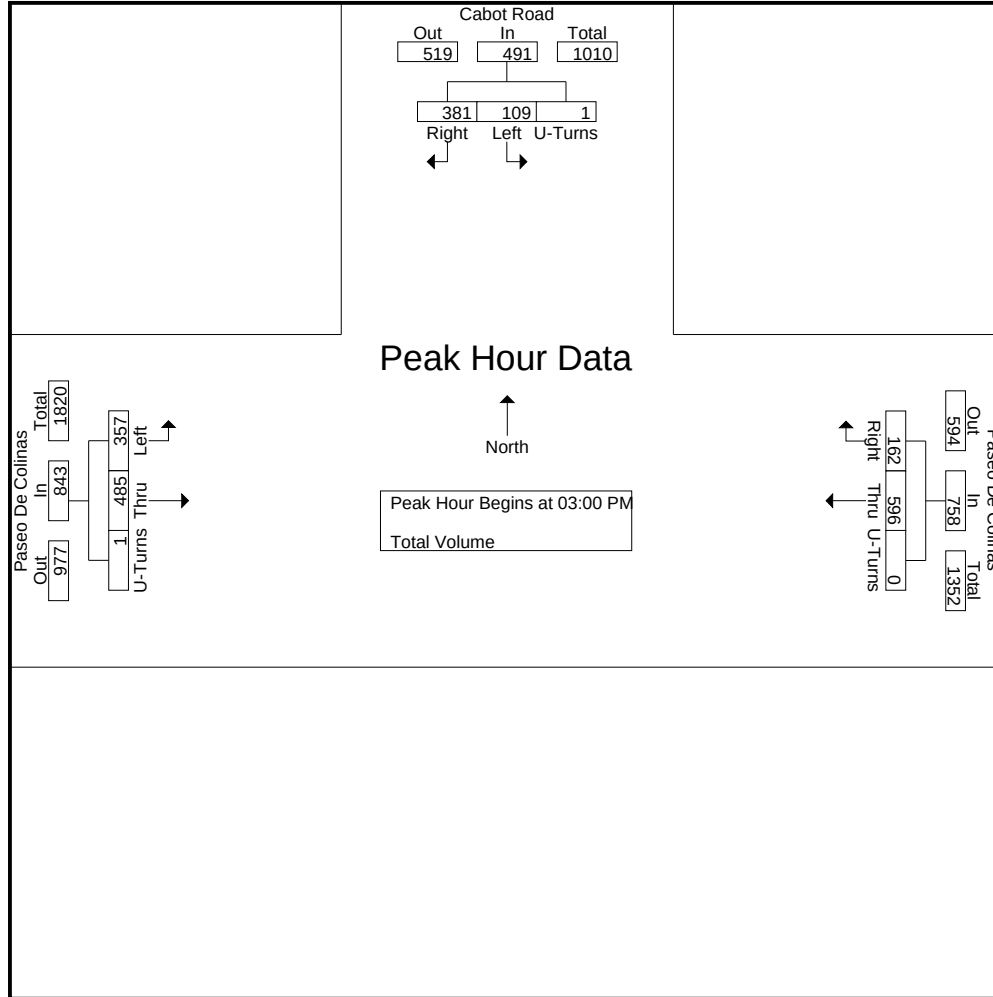
Groups Printed- Total Volume

	Cabot Road Southbound				Paseo De Colinas Westbound				Paseo De Colinas Eastbound				
Start Time	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Left	Thru	U-Turns	App. Total	Int. Total
03:00 PM	27	96	1	124	153	33	0	186	71	112	0	183	493
03:15 PM	25	81	0	106	151	38	0	189	95	119	1	215	510
03:30 PM	36	102	0	138	142	44	0	186	93	118	0	211	535
03:45 PM	21	102	0	123	150	47	0	197	98	136	0	234	554
Total	109	381	1	491	596	162	0	758	357	485	1	843	2092
04:00 PM	24	95	0	119	127	29	0	156	83	119	0	202	477
04:15 PM	37	94	0	131	156	39	0	195	84	109	0	193	519
04:30 PM	33	90	0	123	177	35	0	212	79	108	0	187	522
04:45 PM	31	97	0	128	137	44	0	181	92	105	0	197	506
Total	125	376	0	501	597	147	0	744	338	441	0	779	2024
05:00 PM	29	107	0	136	158	44	0	202	75	102	0	177	515
05:15 PM	26	101	0	127	148	38	0	186	71	99	0	170	483
05:30 PM	30	109	0	139	163	46	0	209	70	133	1	204	552
05:45 PM	28	109	0	137	138	28	0	166	58	114	0	172	475
Total	113	426	0	539	607	156	0	763	274	448	1	723	2025
Grand Total	347	1183	1	1531	1800	465	0	2265	969	1374	2	2345	6141
Apprch %	22.7	77.3	0.1		79.5	20.5	0		41.3	58.6	0.1		
Total %	5.7	19.3	0	24.9	29.3	7.6	0	36.9	15.8	22.4	0	38.2	

	Cabot Road Southbound				Paseo De Colinas Westbound				Paseo De Colinas Eastbound				
Start Time	Left	Right	U-Turns	App. Total	Thru	Right	U-Turns	App. Total	Left	Thru	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	27	96	1	124	153	33	0	186	71	112	0	183	493
03:15 PM	25	81	0	106	151	38	0	189	95	119	1	215	510
03:30 PM	36	102	0	138	142	44	0	186	93	118	0	211	535
03:45 PM	21	102	0	123	150	47	0	197	98	136	0	234	554
Total Volume	109	381	1	491	596	162	0	758	357	485	1	843	2092
% App. Total	22.2	77.6	0.2		78.6	21.4	0		42.3	57.5	0.1		
PHF	.757	.934	.250	.889	.974	.862	.000	.962	.911	.892	.250	.901	.944

City of Laguna Niguel
N/S: Cabot Road
E/W: Paseo De Colinas
Weather: Clear

File Name : 03_LNL_Cab_PDC PM
Site Code : 05723533
Start Date : 5/24/2023
Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				03:15 PM			
+0 mins.	29	107	0	136	156	39	0	195	95	119	1	215
+15 mins.	26	101	0	127	177	35	0	212	93	118	0	211
+30 mins.	30	109	0	139	137	44	0	181	98	136	0	234
+45 mins.	28	109	0	137	158	44	0	202	83	119	0	202
Total Volume	113	426	0	539	628	162	0	790	369	492	1	862
% App. Total	21	79	0		79.5	20.5	0		42.8	57.1	0.1	
PHF	.942	.977	.000	.969	.887	.920	.000	.932	.941	.904	.250	.921

Transportation Studies, Inc
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: LAGUNA NIGUEL
N-S Direction: GOLDEN LANTERN
E-W Direction: SHARK BAY

File Name : H2311004
Site Code : 00005724
Start Date : 11/8/2023
Page No : 1

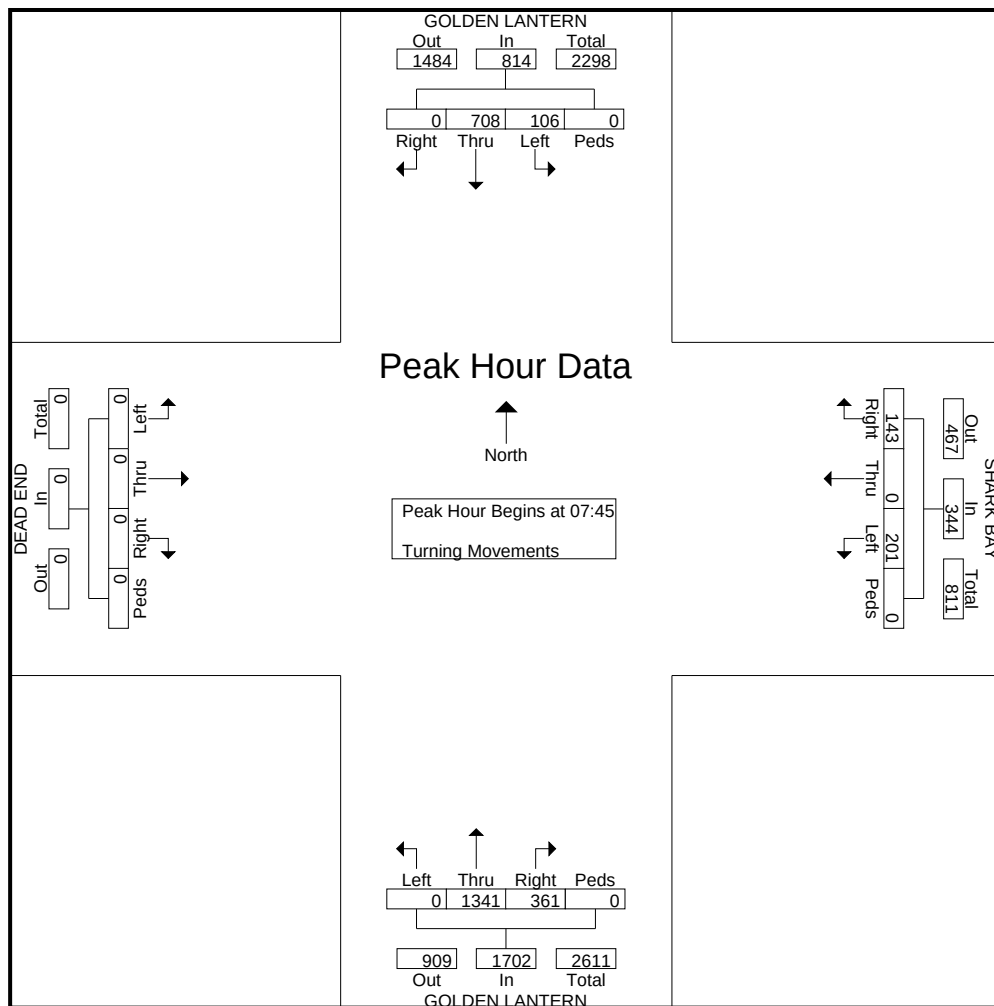
Groups Printed- Turning Movements

	GOLDEN LANTERN Southbound				SHARK BAY Westbound				GOLDEN LANTERN Northbound				DEAD END Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00	0	118	4	0	2	0	11	0	13	174	0	0	0	0	0	0	322
07:15	0	191	7	0	14	0	13	0	20	219	0	0	0	0	0	0	464
07:30	0	182	9	0	15	0	20	0	34	312	0	0	0	0	0	0	572
07:45	0	213	10	0	11	0	21	0	24	345	0	0	0	0	0	0	624
Total	0	704	30	0	42	0	65	0	91	1050	0	0	0	0	0	0	1982
08:00	0	214	20	0	17	0	29	0	59	321	0	0	0	0	0	0	660
08:15	0	145	38	0	48	0	60	0	151	332	0	0	0	0	0	0	774
08:30	0	136	38	0	67	0	91	0	127	343	0	0	0	0	0	0	802
08:45	0	169	14	0	31	0	41	0	81	264	0	0	0	0	0	0	600
Total	0	664	110	0	163	0	221	0	418	1260	0	0	0	0	0	0	2836
16:00	0	272	5	0	18	0	12	0	7	280	0	0	0	0	0	0	594
16:15	0	301	5	0	10	0	1	0	13	283	0	0	0	0	0	0	613
16:30	0	303	6	0	11	0	17	0	6	242	0	0	0	0	0	0	585
16:45	0	343	2	0	1	0	1	0	5	237	0	0	0	0	0	0	589
Total	0	1219	18	0	40	0	31	0	31	1042	0	0	0	0	0	0	2381
17:00	0	311	5	0	5	0	4	0	5	230	0	0	0	0	0	0	560
17:15	0	372	19	0	3	0	2	0	21	252	0	0	0	0	0	0	669
17:30	0	301	7	0	14	0	8	0	11	222	0	0	0	0	0	0	563
17:45	0	297	9	0	4	0	3	0	9	191	0	0	0	0	0	0	513
Total	0	1281	40	0	26	0	17	0	46	895	0	0	0	0	0	0	2305
Grand Total	0	3868	198	0	271	0	334	0	586	4247	0	0	0	0	0	0	9504
Apprch %	0	95.1	4.9	0	44.8	0	55.2	0	12.1	87.9	0	0	0	0	0	0	
Total %	0	40.7	2.1	0	2.9	0	3.5	0	6.2	44.7	0	0	0	0	0	0	

City: LAGUNA NIGUEL
N-S Direction: GOLDEN LANTERN
E-W Direction: SHARK BAY

File Name : H2311004
Site Code : 00005724
Start Date : 11/8/2023
Page No : 2

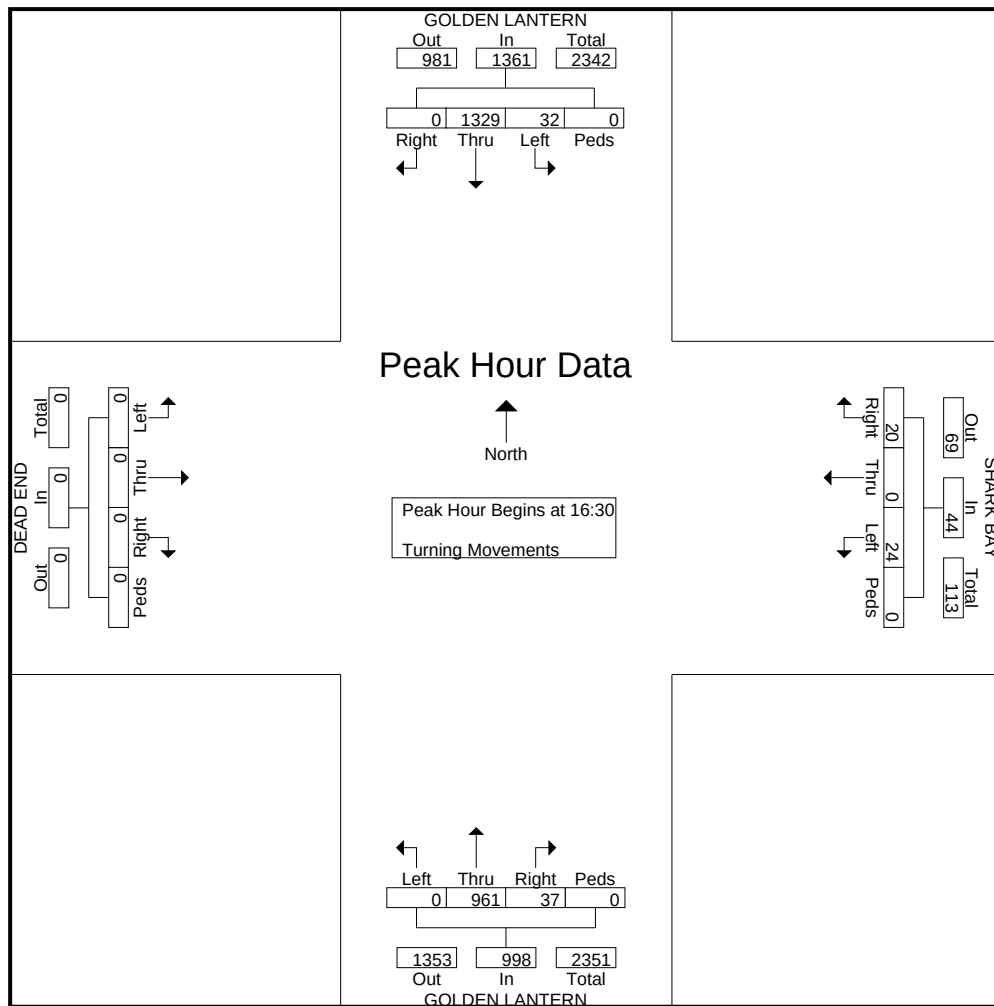
	GOLDEN LANTERN Southbound					SHARK BAY Westbound					GOLDEN LANTERN Northbound					DEAD END Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	213	10	0	223	11	0	21	0	32	24	345	0	0	369	0	0	0	0	0	624
08:00	0	214	20	0	234	17	0	29	0	46	59	321	0	0	380	0	0	0	0	0	660
08:15	0	145	38	0	183	48	0	60	0	108	151	332	0	0	483	0	0	0	0	0	774
08:30	0	136	38	0	174	67	0	91	0	158	127	343	0	0	470	0	0	0	0	0	802
Total Volume	0	708	106	0	814	143	0	201	0	344	361	1341	0	0	1702	0	0	0	0	0	2860
% App. Total	0	87	13	0		41.6	0	58.4	0		21.2	78.8	0	0		0	0	0	0		
PHF	.000	.827	.697	.000	.870	.534	.000	.552	.000	.544	.598	.972	.000	.000	.881	.000	.000	.000	.000	.000	.892



City: LAGUNA NIGUEL
N-S Direction: GOLDEN LANTERN
E-W Direction: SHARK BAY

File Name : H2311004
Site Code : 00005724
Start Date : 11/8/2023
Page No : 3

	GOLDEN LANTERN Southbound					SHARK BAY Westbound					GOLDEN LANTERN Northbound					DEAD END Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	303	6	0	309	11	0	17	0	28	6	242	0	0	248	0	0	0	0	0	585
16:45	0	343	2	0	345	1	0	1	0	2	5	237	0	0	242	0	0	0	0	0	589
17:00	0	311	5	0	316	5	0	4	0	9	5	230	0	0	235	0	0	0	0	0	560
17:15	0	372	19	0	391	3	0	2	0	5	21	252	0	0	273	0	0	0	0	0	669
Total Volume	0	1329	32	0	1361	20	0	24	0	44	37	961	0	0	998	0	0	0	0	0	2403
% App. Total	0	97.6	2.4	0		45.5	0	54.5	0		3.7	96.3	0	0		0	0	0	0		
PHF	.000	.893	.421	.000	.870	.455	.000	.353	.000	.393	.440	.953	.000	.000	.914	.000	.000	.000	.000	.000	.898



APPENDIX C

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX C-1

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.401

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1006	50	9	638	59	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1006	50	9	638	59	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	252	13	2	160	15	8
Total Analysis Volume [veh/h]	1006	50	9	638	59	31
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.31	0.01	0.19	0.03	0.02
Intersection LOS	A					
Intersection V/C	0.401					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	449	640	361	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	449	640	361	242
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	74	112	160	90	61
Total Analysis Volume [veh/h]	161	297	449	640	361	242
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.09	0.26	0.19	0.18	0.18
Intersection LOS	A					
Intersection V/C	0.579					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	5	1344	890	187	717	7	9	7	6	525	4	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1344	890	187	717	7	9	7	6	525	4	189
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	336	223	47	179	2	2	2	2	131	1	47
Total Analysis Volume [veh/h]	5	1344	890	187	717	7	9	7	6	525	4	189
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.52	0.11	0.14	0.14	0.01	0.01	0.01	0.15	0.16	0.11
Intersection LOS	D											
Intersection V/C	0.847											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	1341	361	106	708	201	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1341	361	106	708	201	143
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	335	90	27	177	50	36
Total Analysis Volume [veh/h]	1341	361	106	708	201	143
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.33	0.06	0.14	0.12	0.02
Intersection LOS	A					
Intersection V/C	0.564					

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	702	34	31	960	26	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	702	34	31	960	26	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	9	8	240	7	5
Total Analysis Volume [veh/h]	702	34	31	960	26	18
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.22	0.02	0.28	0.02	0.01
Intersection LOS	A					
Intersection V/C	0.348					

Intersection Level Of Service Report

Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	130	388	330	424	628	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	388	330	424	628	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	97	83	106	157	41
Total Analysis Volume [veh/h]	130	388	330	424	628	162
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.11	0.19	0.12	0.23	0.23
Intersection LOS	A					
Intersection V/C	0.591					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.706

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	2	760	562	149	1101	5	4	3	2	788	11	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	760	562	149	1101	5	4	3	2	788	11	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	190	141	37	275	1	1	1	1	197	3	48
Total Analysis Volume [veh/h]	2	760	562	149	1101	5	4	3	2	788	11	190
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.15	0.33	0.09	0.22	0.22	0.00	0.00	0.00	0.23	0.24	0.11
Intersection LOS	C											
Intersection V/C	0.706											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	961	37	32	1329	24	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	961	37	32	1329	24	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	240	9	8	332	6	5
Total Analysis Volume [veh/h]	961	37	32	1329	24	20
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.20	0.02	0.26	0.01	0.00
Intersection LOS	A					
Intersection V/C	0.325					

APPENDIX C-II

**EXISTING WITH PROJECT
TRAFFIC CONDITIONS**

Intersection Level Of Service Report

Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.393

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1023	23	12	643	48	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1023	23	12	643	48	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	256	6	3	161	12	4
Total Analysis Volume [veh/h]	1023	23	12	643	48	15
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.31	0.01	0.19	0.03	0.01
Intersection LOS	A					
Intersection V/C	0.393					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	450	643	362	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	450	643	362	242
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	74	113	161	91	61
Total Analysis Volume [veh/h]	161	297	450	643	362	242
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.09	0.26	0.19	0.18	0.18
Intersection LOS	A					
Intersection V/C	0.580					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.839

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	5	1362	872	194	724	7	9	7	6	519	4	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1362	872	194	724	7	9	7	6	519	4	189
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	341	218	49	181	2	2	2	2	130	1	47
Total Analysis Volume [veh/h]	5	1362	872	194	724	7	9	7	6	519	4	189
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.27	0.51	0.11	0.14	0.14	0.01	0.01	0.01	0.15	0.15	0.11
Intersection LOS	D											
Intersection V/C	0.839											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	1341	379	114	700	224	146
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1341	379	114	700	224	146
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	335	95	29	175	56	37
Total Analysis Volume [veh/h]	1341	379	114	700	224	146
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.34	0.07	0.14	0.13	0.02
Intersection LOS	A					
Intersection V/C	0.586					

Intersection Level Of Service Report
Intersection 5: Paseo De Colinas at Project Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Base Volume Input [veh/h]	0	1041	651	2	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1041	651	2	0	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	260	163	1	0	1
Total Analysis Volume [veh/h]	0	1041	651	2	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.41
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.45
d_A, Approach Delay [s/veh]	0.00		0.00		10.41	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Paseo De Colinas at Project Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Base Volume Input [veh/h]	0	1041	649	0	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1041	649	0	0	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	260	162	0	0	1
Total Analysis Volume [veh/h]	0	1041	649	0	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.40
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.45
d_A, Approach Delay [s/veh]	0.00		0.00		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	707	34	33	962	26	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	707	34	33	962	26	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	9	8	241	7	5
Total Analysis Volume [veh/h]	707	34	33	962	26	18
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.22	0.02	0.28	0.02	0.01
Intersection LOS	A					
Intersection V/C	0.348					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.594

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	130	388	335	426	631	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	388	335	426	631	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	97	84	107	158	41
Total Analysis Volume [veh/h]	130	388	335	426	631	162
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.11	0.20	0.13	0.23	0.23
Intersection LOS	A					
Intersection V/C	0.594					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.709

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	2	760	563	153	1101	5	4	3	2	788	11	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	760	563	153	1101	5	4	3	2	788	11	192
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	190	141	38	275	1	1	1	1	197	3	48
Total Analysis Volume [veh/h]	2	760	563	153	1101	5	4	3	2	788	11	192
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.15	0.33	0.09	0.22	0.22	0.00	0.00	0.00	0.23	0.24	0.11
Intersection LOS	C											
Intersection V/C	0.709											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	963	37	32	1333	24	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	963	37	32	1333	24	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	241	9	8	333	6	5
Total Analysis Volume [veh/h]	963	37	32	1333	24	20
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.20	0.02	0.26	0.01	0.00
Intersection LOS	A					
Intersection V/C	0.325					

Intersection Level Of Service Report
Intersection 5: Paseo De Colinas at Project Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Base Volume Input [veh/h]	0	726	993	8	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	726	993	8	0	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	182	248	2	0	1
Total Analysis Volume [veh/h]	0	726	993	8	0	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.01
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.29
d_A, Approach Delay [s/veh]	0.00		0.00		12.01	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Paseo De Colinas at Project Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Base Volume Input [veh/h]	0	726	999	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	726	999	0	0	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	182	250	0	0	1
Total Analysis Volume [veh/h]	0	726	999	0	0	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.00
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.29
d_A, Approach Delay [s/veh]	0.00		0.00		12.00	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

APPENDIX D

SCHOOL PEAK HOUR INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX D-1

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.401

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1006	50	9	638	59	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1006	50	9	638	59	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	252	13	2	160	15	8
Total Analysis Volume [veh/h]	1006	50	9	638	59	31
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.31	0.01	0.19	0.03	0.02
Intersection LOS	A					
Intersection V/C	0.401					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	449	640	361	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	449	640	361	242
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	74	112	160	90	61
Total Analysis Volume [veh/h]	161	297	449	640	361	242
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.09	0.26	0.19	0.18	0.18
Intersection LOS	A					
Intersection V/C	0.579					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	5	1344	890	187	717	7	9	7	6	525	4	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1344	890	187	717	7	9	7	6	525	4	189
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	336	223	47	179	2	2	2	2	131	1	47
Total Analysis Volume [veh/h]	5	1344	890	187	717	7	9	7	6	525	4	189
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.52	0.11	0.14	0.14	0.01	0.01	0.01	0.15	0.16	0.11
Intersection LOS	D											
Intersection V/C	0.847											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	1341	361	106	708	201	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1341	361	106	708	201	143
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	335	90	27	177	50	36
Total Analysis Volume [veh/h]	1341	361	106	708	201	143
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.33	0.06	0.14	0.12	0.02
Intersection LOS	A					
Intersection V/C	0.564					

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.374

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	780	75	48	878	76	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	75	48	878	76	34
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	19	12	220	19	9
Total Analysis Volume [veh/h]	780	75	48	878	76	34
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.25	0.25	0.03	0.26	0.04	0.02
Intersection LOS	A					
Intersection V/C	0.374					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	110	381	358	485	596	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	381	358	485	596	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	95	90	121	149	41
Total Analysis Volume [veh/h]	110	381	358	485	596	162
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.11	0.21	0.14	0.22	0.22
Intersection LOS	A					
Intersection V/C	0.596					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.823

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	16	889	707	171	1092	4	5	5	22	811	7	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	889	707	171	1092	4	5	5	22	811	7	192
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	222	177	43	273	1	1	1	6	203	2	48
Total Analysis Volume [veh/h]	16	889	707	171	1092	4	5	5	22	811	7	192
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.17	0.42	0.10	0.21	0.21	0.00	0.02	0.02	0.24	0.24	0.11
Intersection LOS	D											
Intersection V/C	0.823											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.390

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	1073	130	36	1092	141	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1073	130	36	1092	141	97
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	268	33	9	273	35	24
Total Analysis Volume [veh/h]	1073	130	36	1092	141	97
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.24	0.02	0.21	0.08	0.04
Intersection LOS	A					
Intersection V/C	0.390					

APPENDIX D-II

**EXISTING WITH PROJECT
TRAFFIC CONDITIONS**

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.393

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1023	23	12	643	48	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1023	23	12	643	48	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	256	6	3	161	12	4
Total Analysis Volume [veh/h]	1023	23	12	643	48	15
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.31	0.01	0.19	0.03	0.01
Intersection LOS	A					
Intersection V/C	0.393					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	450	643	362	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	450	643	362	242
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	74	113	161	91	61
Total Analysis Volume [veh/h]	161	297	450	643	362	242
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.09	0.26	0.19	0.18	0.18
Intersection LOS	A					
Intersection V/C	0.580					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.839

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	5	1362	872	194	724	7	9	7	6	519	4	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1362	872	194	724	7	9	7	6	519	4	189
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	341	218	49	181	2	2	2	2	130	1	47
Total Analysis Volume [veh/h]	5	1362	872	194	724	7	9	7	6	519	4	189
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.27	0.51	0.11	0.14	0.14	0.01	0.01	0.01	0.15	0.15	0.11
Intersection LOS	D											
Intersection V/C	0.839											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	1341	379	114	700	224	146
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1341	379	114	700	224	146
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	335	95	29	175	56	37
Total Analysis Volume [veh/h]	1341	379	114	700	224	146
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.34	0.07	0.14	0.13	0.02
Intersection LOS	A					
Intersection V/C	0.586					

Intersection Level Of Service Report
Intersection 5: Paseo De Colinas at Project Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Base Volume Input [veh/h]	0	1041	651	2	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1041	651	2	0	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	260	163	1	0	1
Total Analysis Volume [veh/h]	0	1041	651	2	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.41
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.45
d_A, Approach Delay [s/veh]	0.00		0.00		10.41	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Paseo De Colinas at Project Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Base Volume Input [veh/h]	0	1041	649	0	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1041	649	0	0	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	260	162	0	0	1
Total Analysis Volume [veh/h]	0	1041	649	0	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.40
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.45
d_A, Approach Delay [s/veh]	0.00		0.00		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.330

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	802	26	33	897	27	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	802	26	33	897	27	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	7	8	224	7	4
Total Analysis Volume [veh/h]	802	26	33	897	27	17
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.24	0.02	0.26	0.02	0.01
Intersection LOS	A					
Intersection V/C	0.330					

Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.599

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	110	381	363	487	599	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	381	363	487	599	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	95	91	122	150	41
Total Analysis Volume [veh/h]	110	381	363	487	599	162
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.11	0.21	0.14	0.22	0.22
Intersection LOS	A					
Intersection V/C	0.599					

Intersection Level Of Service Report
Intersection 3: Golden Lantern at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.801

Intersection Setup

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Golden Lantern			Golden Lantern			Paseo De Colinas			Paseo De Colinas		
Base Volume Input [veh/h]	16	911	686	165	1114	4	5	5	22	789	7	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	911	686	165	1114	4	5	5	22	789	7	184
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	228	172	41	279	1	1	1	6	197	2	46
Total Analysis Volume [veh/h]	16	911	686	165	1114	4	5	5	22	789	7	184
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.18	0.40	0.10	0.22	0.22	0.00	0.02	0.02	0.23	0.23	0.11
Intersection LOS	D											
Intersection V/C	0.801											

Intersection Level Of Service Report
Intersection 4: Golden Lantern at Shark Bay

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.432

Intersection Setup

Name	Golden Lantern		Golden Lantern		Shark Bay	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	Golden Lantern		Golden Lantern		Shark Bay	
Base Volume Input [veh/h]	1048	169	63	1069	180	124
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1048	169	63	1069	180	124
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	262	42	16	267	45	31
Total Analysis Volume [veh/h]	1048	169	63	1069	180	124
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal Group	6	0	5	2	7	4
Auxiliary Signal Groups						4,5
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.24	0.04	0.21	0.11	0.04
Intersection LOS	A					
Intersection V/C	0.432					

Intersection Level Of Service Report
Intersection 5: Paseo De Colinas at Project Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 1	
Base Volume Input [veh/h]	0	820	928	8	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	820	928	8	0	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	205	232	2	0	1
Total Analysis Volume [veh/h]	0	820	928	8	0	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.67
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.28
d_A, Approach Delay [s/veh]	0.00		0.00		11.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Paseo De Colinas at Project Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Project Driveway 2	
Base Volume Input [veh/h]	0	820	934	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	820	934	0	0	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	205	234	0	0	1
Total Analysis Volume [veh/h]	0	820	934	0	0	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.66
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.28
d_A, Approach Delay [s/veh]	0.00		0.00		11.66	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

APPENDIX E

QUEUING CALCULATION WORKSHEETS

APPENDIX E-1

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	5.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.395

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1006	50	9	638	59	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1006	50	9	638	59	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	265	13	2	168	16	8
Total Analysis Volume [veh/h]	1059	53	9	672	62	33
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	51	0	10	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	1	77	5	5
g / C, Green / Cycle	0.79	0.79	0.01	0.85	0.06	0.06
(v / s)_i Volume / Saturation Flow Rate	0.30	0.30	0.01	0.19	0.03	0.02
s, saturation flow rate [veh/h]	1870	1839	1781	3560	1781	1589
c, Capacity [veh/h]	1478	1454	26	3025	110	98
d1, Uniform Delay [s]	2.81	2.83	43.93	1.26	41.08	40.49
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.76	7.56	0.17	4.51	2.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.38	0.34	0.22	0.57	0.34
d, Delay for Lane Group [s/veh]	3.55	3.60	51.49	1.43	45.60	42.50
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.14	2.16	0.25	0.43	1.46	0.75
50th-Percentile Queue Length [ft/ln]	53.55	54.08	6.30	10.73	36.51	18.72
95th-Percentile Queue Length [veh/ln]	3.86	3.89	0.45	0.77	2.63	1.35
95th-Percentile Queue Length [ft/ln]	96.38	97.35	11.34	19.31	65.72	33.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.57	3.60	51.49	1.43	45.60	42.50
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.57		2.09		44.52	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.10					
Intersection LOS	A					
Intersection V/C	0.395					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.645	1.991
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1044	1266	555
d_b, Bicycle Delay [s]	10.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.477	2.121	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	449	640	361	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	449	640	361	242
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	78	118	168	95	64
Total Analysis Volume [veh/h]	169	313	473	674	380	255
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	44	76	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	30	83	49	49
g / C, Green / Cycle	0.14	0.14	0.29	0.79	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.27	0.19	0.17	0.19
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1638
c, Capacity [veh/h]	475	386	510	2800	865	757
d1, Uniform Delay [s]	41.08	43.96	36.43	2.95	18.28	18.82
k, delay calibration	0.11	0.11	0.24	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	4.11	14.83	0.20	1.20	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.81	0.93	0.24	0.37	0.42
d, Delay for Lane Group [s/veh]	41.53	48.08	51.25	3.15	19.48	20.53
Lane Group LOS	D	D	D	A	B	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.95	4.02	13.21	1.18	4.92	5.13
50th-Percentile Queue Length [ft/ln]	48.72	100.60	330.28	29.59	123.04	128.24
95th-Percentile Queue Length [veh/ln]	3.51	7.24	19.17	2.13	8.56	8.84
95th-Percentile Queue Length [ft/ln]	87.70	181.09	479.30	53.27	214.00	221.10

Movement, Approach, & Intersection Results

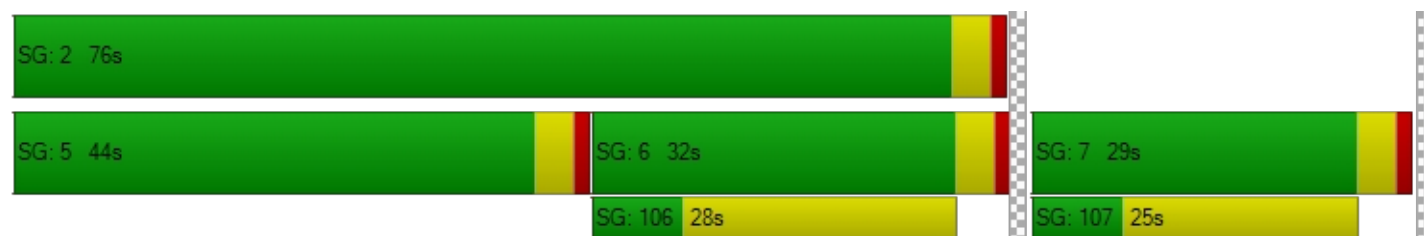
d_M, Delay for Movement [s/veh]	41.53	48.08	51.25	3.15	19.65	20.53
Movement LOS	D	D	D	A	B	C
d_A, Approach Delay [s/veh]	45.78		22.99		20.00	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	27.00					
Intersection LOS	C					
Intersection V/C	0.644					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.07	42.07	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.661	2.845	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	476	1372	533
d_b, Bicycle Delay [s]	30.47	5.18	28.23
I_b,int, Bicycle LOS Score for Intersection	1.560	2.506	2.083
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	4.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.345

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	702	34	31	960	26	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	702	34	31	960	26	18
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	185	9	8	253	7	5
Total Analysis Volume [veh/h]	739	36	33	1011	27	19
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	47	0	14	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	3	78	4	4
g / C, Green / Cycle	0.78	0.78	0.04	0.86	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.02	0.28	0.02	0.01
s, saturation flow rate [veh/h]	1870	1840	1781	3560	1781	1589
c, Capacity [veh/h]	1461	1437	69	3078	83	74
d1, Uniform Delay [s]	2.72	2.73	42.39	1.16	41.54	41.41
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	0.46	5.08	0.29	2.23	1.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.27	0.48	0.33	0.32	0.26
d, Delay for Lane Group [s/veh]	3.16	3.19	47.48	1.44	43.77	43.20
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.43	1.44	0.81	0.47	0.63	0.44
50th-Percentile Queue Length [ft/ln]	35.73	35.97	20.23	11.74	15.66	11.00
95th-Percentile Queue Length [veh/ln]	2.57	2.59	1.46	0.85	1.13	0.79
95th-Percentile Queue Length [ft/ln]	64.32	64.74	36.41	21.14	28.18	19.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.17	3.19	47.48	1.44	43.77	43.20
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.17		2.90		43.53	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					
Intersection V/C	0.345					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.651	1.977
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	955	1266	555
d_b, Bicycle Delay [s]	12.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.199	2.421	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.662

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↶↶↶↶		↶		↶	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	130	388	330	424	628	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	388	330	424	628	162
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	102	87	112	165	43
Total Analysis Volume [veh/h]	137	408	347	446	661	171
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	34	66	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	21	71	46	46
g / C, Green / Cycle	0.17	0.17	0.22	0.74	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.04	0.15	0.19	0.13	0.22	0.24
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1744
c, Capacity [veh/h]	600	488	387	2643	903	842
d1, Uniform Delay [s]	33.79	37.96	36.16	3.61	16.33	16.68
k, delay calibration	0.11	0.11	0.17	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	3.85	11.11	0.14	1.69	2.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.84	0.90	0.17	0.46	0.49
d, Delay for Lane Group [s/veh]	33.98	41.80	47.27	3.75	18.02	18.75
Lane Group LOS	C	D	D	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.32	4.62	8.56	0.88	5.81	5.99
50th-Percentile Queue Length [ft/ln]	32.94	115.39	214.07	21.88	145.34	149.69
95th-Percentile Queue Length [veh/ln]	2.37	8.14	13.36	1.58	9.77	10.00
95th-Percentile Queue Length [ft/ln]	59.30	203.47	334.04	39.38	244.20	250.02

Movement, Approach, & Intersection Results

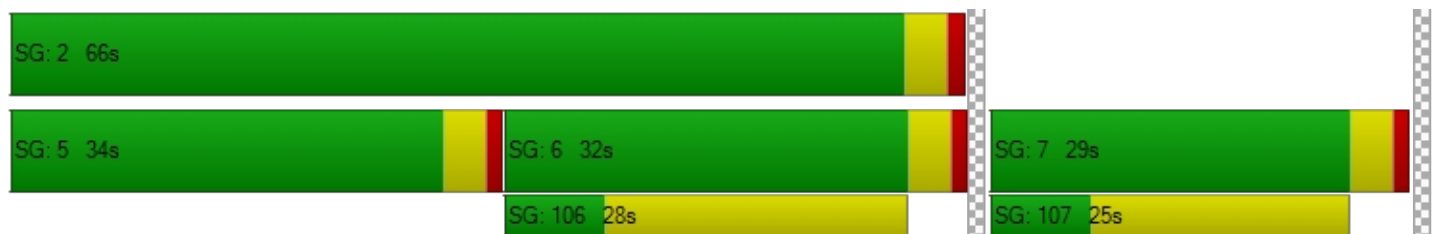
d_M, Delay for Movement [s/veh]	33.98	41.80	47.27	3.75	18.29	18.75
Movement LOS	C	D	D	A	B	B
d_A, Approach Delay [s/veh]	39.84		22.79		18.39	
Approach LOS	D		C		B	
d_I, Intersection Delay [s/veh]	25.38					
Intersection LOS	C					
Intersection V/C	0.662					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.613	2.847	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	526	1305	589
d_b, Bicycle Delay [s]	25.80	5.74	23.63
I_b,int, Bicycle LOS Score for Intersection	1.560	2.214	2.246
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E-II

**EXISTING WITH PROJECT
TRAFFIC CONDITIONS**

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	4.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.381

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1024	20	12	643	46	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1024	20	12	643	46	14
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	269	5	3	169	12	4
Total Analysis Volume [veh/h]	1078	21	13	677	48	15
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	51	0	10	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	2	77	5	5
g / C, Green / Cycle	0.79	0.79	0.02	0.86	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.29	0.30	0.01	0.19	0.03	0.01
s, saturation flow rate [veh/h]	1870	1857	1781	3560	1781	1589
c, Capacity [veh/h]	1483	1473	35	3052	96	86
d1, Uniform Delay [s]	2.73	2.74	43.58	1.13	41.41	40.68
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	0.73	6.32	0.17	3.96	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.37	0.37	0.22	0.50	0.17
d, Delay for Lane Group [s/veh]	3.45	3.47	49.90	1.30	45.36	41.63
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.06	2.06	0.35	0.35	1.13	0.34
50th-Percentile Queue Length [ft/ln]	51.39	51.59	8.63	8.83	28.28	8.44
95th-Percentile Queue Length [veh/ln]	3.70	3.71	0.62	0.64	2.04	0.61
95th-Percentile Queue Length [ft/ln]	92.50	92.87	15.54	15.89	50.90	15.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.46	3.47	49.90	1.30	45.36	41.63
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.46		2.22		44.48	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.39					
Intersection LOS	A					
Intersection V/C	0.381					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.647	1.971
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1044	1266	555
d_b, Bicycle Delay [s]	10.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.466	2.129	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↶↶↶↶↶↶		↶↶		↶↶	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	450	643	362	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	450	643	362	242
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	78	118	169	95	64
Total Analysis Volume [veh/h]	169	313	474	677	381	255
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	44	76	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	30	83	48	48
g / C, Green / Cycle	0.14	0.14	0.29	0.79	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.27	0.19	0.17	0.19
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1638
c, Capacity [veh/h]	475	386	511	2800	864	757
d1, Uniform Delay [s]	41.08	43.96	36.40	2.95	18.32	18.87
k, delay calibration	0.11	0.11	0.24	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	4.11	14.88	0.20	1.21	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.81	0.93	0.24	0.37	0.42
d, Delay for Lane Group [s/veh]	41.53	48.08	51.28	3.16	19.53	20.58
Lane Group LOS	D	D	D	A	B	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.95	4.02	13.24	1.19	4.94	5.15
50th-Percentile Queue Length [ft/ln]	48.72	100.60	331.11	29.76	123.44	128.66
95th-Percentile Queue Length [veh/ln]	3.51	7.24	19.21	2.14	8.58	8.87
95th-Percentile Queue Length [ft/ln]	87.70	181.09	480.32	53.56	214.55	221.68

Movement, Approach, & Intersection Results

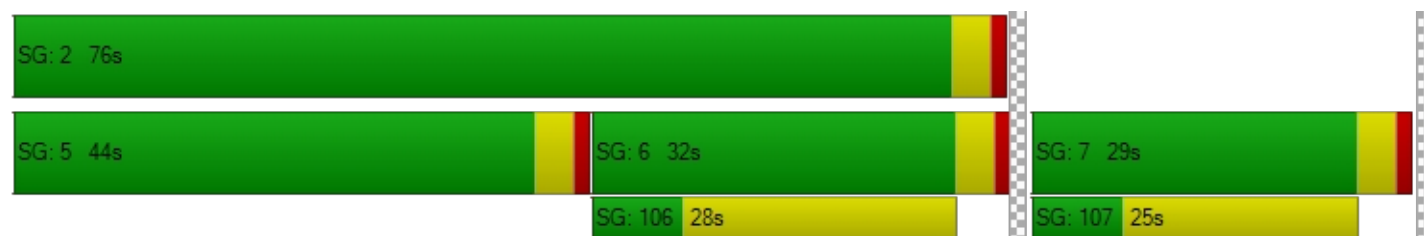
d_M, Delay for Movement [s/veh]	41.53	48.08	51.28	3.16	19.70	20.58
Movement LOS	D	D	D	A	B	C
d_A, Approach Delay [s/veh]	45.78		22.97		20.06	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	27.00					
Intersection LOS	C					
Intersection V/C	0.645					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.07	42.07	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.661	2.847	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	476	1372	533
d_b, Bicycle Delay [s]	30.47	5.18	28.23
I_b,int, Bicycle LOS Score for Intersection	1.560	2.509	2.084
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	4.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.346

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	707	34	33	962	26	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	707	34	33	962	26	18
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	186	9	9	253	7	5
Total Analysis Volume [veh/h]	744	36	35	1013	27	19
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	47	0	14	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	4	78	4	4
g / C, Green / Cycle	0.78	0.78	0.04	0.86	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.02	0.28	0.02	0.01
s, saturation flow rate [veh/h]	1870	1840	1781	3560	1781	1589
c, Capacity [veh/h]	1458	1435	71	3078	83	74
d1, Uniform Delay [s]	2.76	2.77	42.32	1.16	41.54	41.41
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	0.47	5.12	0.29	2.23	1.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.27	0.49	0.33	0.32	0.26
d, Delay for Lane Group [s/veh]	3.21	3.24	47.44	1.44	43.77	43.20
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.46	1.47	0.86	0.47	0.63	0.44
50th-Percentile Queue Length [ft/ln]	36.47	36.71	21.40	11.78	15.66	11.00
95th-Percentile Queue Length [veh/ln]	2.63	2.64	1.54	0.85	1.13	0.79
95th-Percentile Queue Length [ft/ln]	65.65	66.09	38.53	21.20	28.18	19.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.22	3.24	47.44	1.44	43.77	43.20
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.22		2.98		43.53	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.08					
Intersection LOS	A					
Intersection V/C	0.346					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.653	1.978
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	955	1266	555
d_b, Bicycle Delay [s]	12.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.203	2.424	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↶↶↶↶		↶		↶	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	130	388	335	426	631	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	388	335	426	631	162
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	102	88	112	166	43
Total Analysis Volume [veh/h]	137	408	353	448	664	171
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	34	66	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	21	71	46	46
g / C, Green / Cycle	0.17	0.17	0.22	0.74	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.04	0.15	0.20	0.13	0.22	0.24
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1744
c, Capacity [veh/h]	600	488	393	2643	897	837
d1, Uniform Delay [s]	33.79	37.96	36.01	3.61	16.56	16.91
k, delay calibration	0.11	0.11	0.18	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	3.85	11.55	0.14	1.73	2.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.84	0.90	0.17	0.47	0.50
d, Delay for Lane Group [s/veh]	33.98	41.80	47.55	3.75	18.30	19.04
Lane Group LOS	C	D	D	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.32	4.62	8.75	0.88	5.89	6.07
50th-Percentile Queue Length [ft/ln]	32.94	115.39	218.72	21.99	147.35	151.78
95th-Percentile Queue Length [veh/ln]	2.37	8.14	13.60	1.58	9.88	10.11
95th-Percentile Queue Length [ft/ln]	59.30	203.47	339.99	39.58	246.89	252.80

Movement, Approach, & Intersection Results

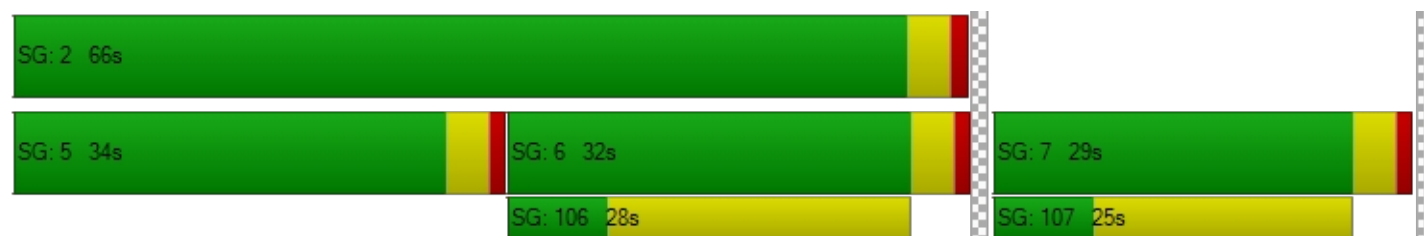
d_M, Delay for Movement [s/veh]	33.98	41.80	47.55	3.75	18.57	19.04
Movement LOS	C	D	D	A	B	B
d_A, Approach Delay [s/veh]	39.84		23.05		18.67	
Approach LOS	D		C		B	
d_I, Intersection Delay [s/veh]	25.57					
Intersection LOS	C					
Intersection V/C	0.667					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.615	2.850	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	526	1305	589
d_b, Bicycle Delay [s]	25.80	5.74	23.63
I_b,int, Bicycle LOS Score for Intersection	1.560	2.220	2.248
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E-III

**SCHOOL PEAK HOUR EXISTING TRAFFIC
CONDITIONS**

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	5.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.395

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1006	50	9	638	59	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1006	50	9	638	59	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	265	13	2	168	16	8
Total Analysis Volume [veh/h]	1059	53	9	672	62	33
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	51	0	10	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	1	77	5	5
g / C, Green / Cycle	0.79	0.79	0.01	0.85	0.06	0.06
(v / s)_i Volume / Saturation Flow Rate	0.30	0.30	0.01	0.19	0.03	0.02
s, saturation flow rate [veh/h]	1870	1839	1781	3560	1781	1589
c, Capacity [veh/h]	1478	1454	26	3025	110	98
d1, Uniform Delay [s]	2.81	2.83	43.93	1.26	41.08	40.49
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.76	7.56	0.17	4.51	2.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.38	0.34	0.22	0.57	0.34
d, Delay for Lane Group [s/veh]	3.55	3.60	51.49	1.43	45.60	42.50
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.14	2.16	0.25	0.43	1.46	0.75
50th-Percentile Queue Length [ft/ln]	53.55	54.08	6.30	10.73	36.51	18.72
95th-Percentile Queue Length [veh/ln]	3.86	3.89	0.45	0.77	2.63	1.35
95th-Percentile Queue Length [ft/ln]	96.38	97.35	11.34	19.31	65.72	33.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.57	3.60	51.49	1.43	45.60	42.50
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.57		2.09		44.52	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.10					
Intersection LOS	A					
Intersection V/C	0.395					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.645	1.991
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1044	1266	555
d_b, Bicycle Delay [s]	10.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.477	2.121	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	449	640	361	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	449	640	361	242
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	78	118	168	95	64
Total Analysis Volume [veh/h]	169	313	473	674	380	255
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	44	76	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	30	83	49	49
g / C, Green / Cycle	0.14	0.14	0.29	0.79	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.27	0.19	0.17	0.19
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1638
c, Capacity [veh/h]	475	386	510	2800	865	757
d1, Uniform Delay [s]	41.08	43.96	36.43	2.95	18.28	18.82
k, delay calibration	0.11	0.11	0.24	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	4.11	14.83	0.20	1.20	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.81	0.93	0.24	0.37	0.42
d, Delay for Lane Group [s/veh]	41.53	48.08	51.25	3.15	19.48	20.53
Lane Group LOS	D	D	D	A	B	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.95	4.02	13.21	1.18	4.92	5.13
50th-Percentile Queue Length [ft/ln]	48.72	100.60	330.28	29.59	123.04	128.24
95th-Percentile Queue Length [veh/ln]	3.51	7.24	19.17	2.13	8.56	8.84
95th-Percentile Queue Length [ft/ln]	87.70	181.09	479.30	53.27	214.00	221.10

Movement, Approach, & Intersection Results

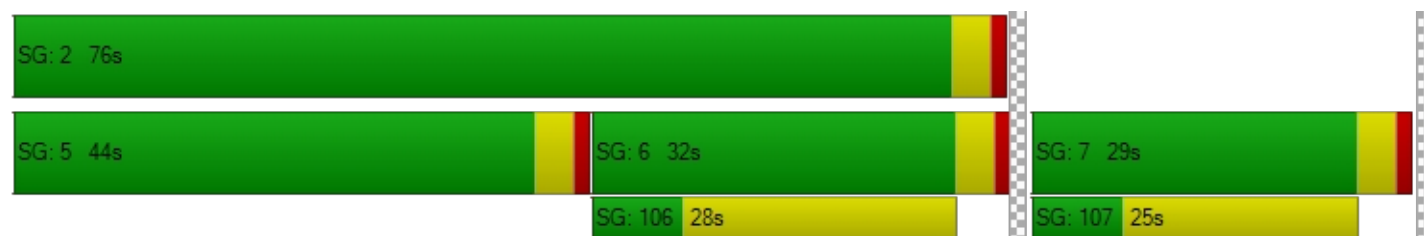
d_M, Delay for Movement [s/veh]	41.53	48.08	51.25	3.15	19.65	20.53
Movement LOS	D	D	D	A	B	C
d_A, Approach Delay [s/veh]	45.78		22.99		20.00	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	27.00					
Intersection LOS	C					
Intersection V/C	0.644					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.07	42.07	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.661	2.845	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	476	1372	533
d_b, Bicycle Delay [s]	30.47	5.18	28.23
I_b,int, Bicycle LOS Score for Intersection	1.560	2.506	2.083
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	6.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.371

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	780	75	48	878	76	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	75	48	878	76	34
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	205	20	13	231	20	9
Total Analysis Volume [veh/h]	821	79	51	924	80	36
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	22	0	10	32	58	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	68	68	4	76	6	6
g / C, Green / Cycle	0.75	0.75	0.05	0.85	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25	0.03	0.26	0.04	0.02
s, saturation flow rate [veh/h]	1870	1814	1781	3560	1781	1589
c, Capacity [veh/h]	1405	1363	88	3008	118	105
d1, Uniform Delay [s]	3.67	3.70	41.90	1.46	41.10	40.16
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.60	0.65	5.99	0.27	6.63	1.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.33	0.58	0.31	0.68	0.34
d, Delay for Lane Group [s/veh]	4.27	4.35	47.89	1.73	47.73	42.07
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.20	2.23	1.24	0.72	1.93	0.81
50th-Percentile Queue Length [ft/ln]	54.93	55.69	31.08	18.11	48.31	20.25
95th-Percentile Queue Length [veh/ln]	3.96	4.01	2.24	1.30	3.48	1.46
95th-Percentile Queue Length [ft/ln]	98.88	100.24	55.95	32.60	86.97	36.45

Movement, Approach, & Intersection Results

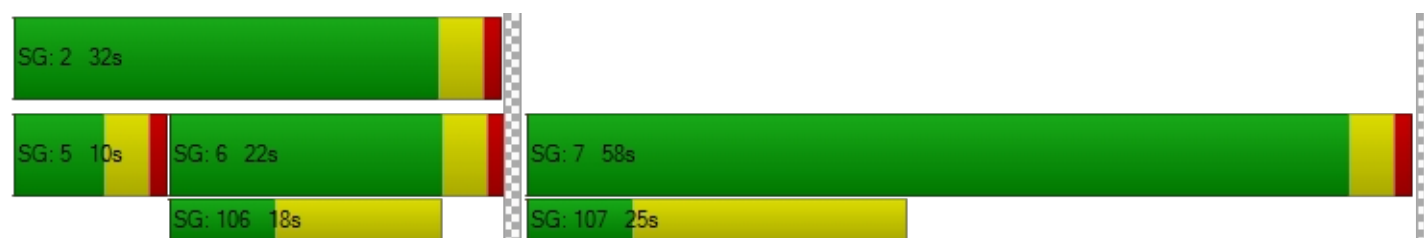
d_M, Delay for Movement [s/veh]	4.31	4.35	47.89	1.73	47.73	42.07
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	4.31		4.14		45.97	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	6.66					
Intersection LOS	A					
Intersection V/C	0.371					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.657	2.020
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	622	1200
d_b, Bicycle Delay [s]	28.81	21.37	7.21
I_b,int, Bicycle LOS Score for Intersection	2.302	2.364	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↶↶↶↶		↶		↶	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	110	381	358	485	596	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	381	358	485	596	162
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	100	94	128	157	43
Total Analysis Volume [veh/h]	116	401	377	511	627	171
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	34	66	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	22	71	45	45
g / C, Green / Cycle	0.17	0.17	0.23	0.75	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.03	0.14	0.21	0.14	0.21	0.23
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1738
c, Capacity [veh/h]	590	480	416	2653	878	816
d1, Uniform Delay [s]	33.82	38.11	35.40	3.60	17.00	17.36
k, delay calibration	0.11	0.11	0.21	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	3.90	13.25	0.16	1.70	2.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.84	0.91	0.19	0.45	0.49
d, Delay for Lane Group [s/veh]	33.98	42.02	48.64	3.76	18.70	19.45
Lane Group LOS	C	D	D	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.11	4.55	9.50	1.00	5.71	5.88
50th-Percentile Queue Length [ft/ln]	27.83	113.65	237.51	25.03	142.63	146.91
95th-Percentile Queue Length [veh/ln]	2.00	8.04	14.56	1.80	9.62	9.85
95th-Percentile Queue Length [ft/ln]	50.09	201.07	363.88	45.05	240.56	246.30

Movement, Approach, & Intersection Results

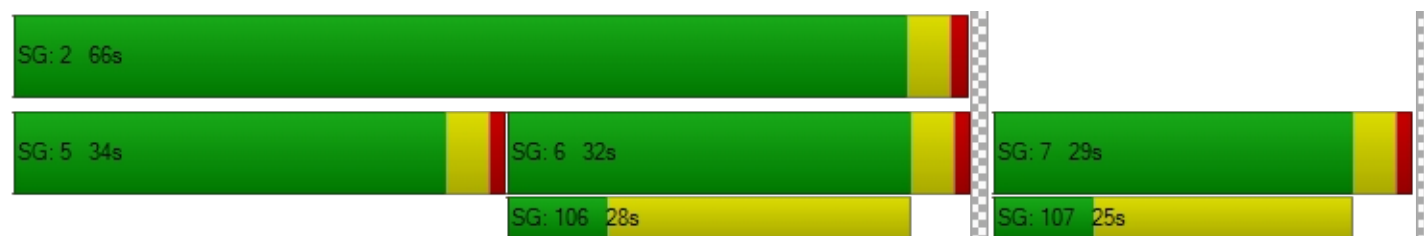
d_M, Delay for Movement [s/veh]	33.98	42.02	48.64	3.76	18.97	19.45
Movement LOS	C	D	D	A	B	B
d_A, Approach Delay [s/veh]	40.21		22.82		19.08	
Approach LOS	D		C		B	
d_I, Intersection Delay [s/veh]	25.55					
Intersection LOS	C					
Intersection V/C	0.668					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.614	2.863	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	526	1305	589
d_b, Bicycle Delay [s]	25.80	5.74	23.63
I_b,int, Bicycle LOS Score for Intersection	1.560	2.292	2.218
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E-IV

**SCHOOL PEAK HOUR EXISTING WITH PROJECT
TRAFFIC CONDITIONS**

Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	4.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.381

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	1024	20	12	643	46	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1024	20	12	643	46	14
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	269	5	3	169	12	4
Total Analysis Volume [veh/h]	1078	21	13	677	48	15
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	51	0	10	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	2	77	5	5
g / C, Green / Cycle	0.79	0.79	0.02	0.86	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.29	0.30	0.01	0.19	0.03	0.01
s, saturation flow rate [veh/h]	1870	1857	1781	3560	1781	1589
c, Capacity [veh/h]	1483	1473	35	3052	96	86
d1, Uniform Delay [s]	2.73	2.74	43.58	1.13	41.41	40.68
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	0.73	6.32	0.17	3.96	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.37	0.37	0.22	0.50	0.17
d, Delay for Lane Group [s/veh]	3.45	3.47	49.90	1.30	45.36	41.63
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.06	2.06	0.35	0.35	1.13	0.34
50th-Percentile Queue Length [ft/ln]	51.39	51.59	8.63	8.83	28.28	8.44
95th-Percentile Queue Length [veh/ln]	3.70	3.71	0.62	0.64	2.04	0.61
95th-Percentile Queue Length [ft/ln]	92.50	92.87	15.54	15.89	50.90	15.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.46	3.47	49.90	1.30	45.36	41.63
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.46		2.22		44.48	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.39					
Intersection LOS	A					
Intersection V/C	0.381					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.647	1.971
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1044	1266	555
d_b, Bicycle Delay [s]	10.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.466	2.129	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	161	297	450	643	362	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	297	450	643	362	242
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	78	118	169	95	64
Total Analysis Volume [veh/h]	169	313	474	677	381	255
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	44	76	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	30	83	48	48
g / C, Green / Cycle	0.14	0.14	0.29	0.79	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.27	0.19	0.17	0.19
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1638
c, Capacity [veh/h]	475	386	511	2800	864	757
d1, Uniform Delay [s]	41.08	43.96	36.40	2.95	18.32	18.87
k, delay calibration	0.11	0.11	0.24	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	4.11	14.88	0.20	1.21	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.81	0.93	0.24	0.37	0.42
d, Delay for Lane Group [s/veh]	41.53	48.08	51.28	3.16	19.53	20.58
Lane Group LOS	D	D	D	A	B	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.95	4.02	13.24	1.19	4.94	5.15
50th-Percentile Queue Length [ft/ln]	48.72	100.60	331.11	29.76	123.44	128.66
95th-Percentile Queue Length [veh/ln]	3.51	7.24	19.21	2.14	8.58	8.87
95th-Percentile Queue Length [ft/ln]	87.70	181.09	480.32	53.56	214.55	221.68

Movement, Approach, & Intersection Results

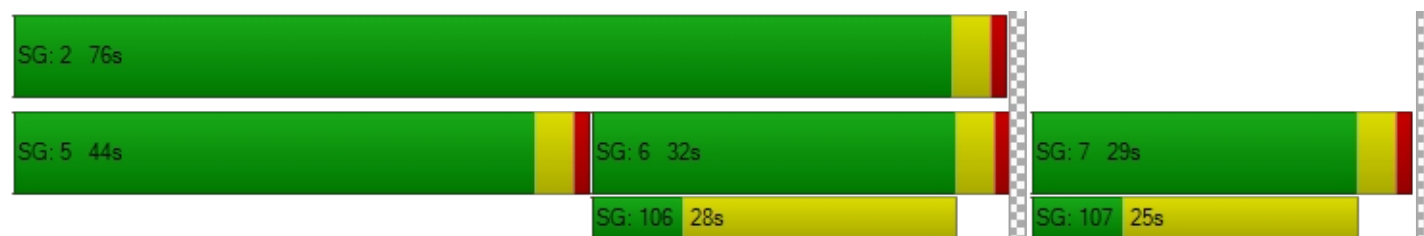
d_M, Delay for Movement [s/veh]	41.53	48.08	51.28	3.16	19.70	20.58
Movement LOS	D	D	D	A	B	C
d_A, Approach Delay [s/veh]	45.78		22.97		20.06	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	27.00					
Intersection LOS	C					
Intersection V/C	0.645					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.07	42.07	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.661	2.847	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	476	1372	533
d_b, Bicycle Delay [s]	30.47	5.18	28.23
I_b,int, Bicycle LOS Score for Intersection	1.560	2.509	2.084
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Paseo De Colinas at Del Cerro

Control Type:	Signalized	Delay (sec / veh):	4.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.324

Intersection Setup

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Paseo De Colinas		Paseo De Colinas		Del Cerro	
Base Volume Input [veh/h]	802	26	33	897	27	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	802	26	33	897	27	17
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	211	7	9	236	7	4
Total Analysis Volume [veh/h]	844	27	35	944	28	18
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	6	10	6	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	51	0	10	61	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	11	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	4	78	4	4
g / C, Green / Cycle	0.78	0.78	0.04	0.86	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.23	0.24	0.02	0.27	0.02	0.01
s, saturation flow rate [veh/h]	1870	1850	1781	3560	1781	1589
c, Capacity [veh/h]	1458	1443	71	3078	83	74
d1, Uniform Delay [s]	2.84	2.85	42.32	1.13	41.57	41.38
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	0.54	5.12	0.26	2.35	1.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.30	0.49	0.31	0.34	0.24
d, Delay for Lane Group [s/veh]	3.37	3.39	47.44	1.38	43.92	43.05
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.68	1.69	0.86	0.43	0.65	0.42
50th-Percentile Queue Length [ft/ln]	42.09	42.29	21.40	10.67	16.27	10.40
95th-Percentile Queue Length [veh/ln]	3.03	3.04	1.54	0.77	1.17	0.75
95th-Percentile Queue Length [ft/ln]	75.75	76.12	38.53	19.20	29.29	18.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.38	3.39	47.44	1.38	43.92	43.05
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	3.38		3.03		43.58	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.18					
Intersection LOS	A					
Intersection V/C	0.324					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.68	34.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.658	1.975
Crosswalk LOS	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1044	1266	555
d_b, Bicycle Delay [s]	10.28	6.06	23.48
I_b,int, Bicycle LOS Score for Intersection	2.278	2.367	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cabot Road at Paseo De Colinas

Control Type:	Signalized	Delay (sec / veh):	25.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↶↶↶↶		↶		↶	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	Cabot Road		Paseo De Colinas		Paseo De Colinas	
Base Volume Input [veh/h]	110	381	363	487	599	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	381	363	487	599	162
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	100	96	128	158	43
Total Analysis Volume [veh/h]	116	401	382	513	631	171
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Protected	Permissive	Permissive	Permissive
Signal Group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	6	0	6	10	10	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	29	0	34	66	32	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	18	0	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	22	71	44	44
g / C, Green / Cycle	0.17	0.17	0.24	0.75	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.03	0.14	0.21	0.14	0.21	0.23
s, saturation flow rate [veh/h]	3459	2813	1781	3560	1870	1739
c, Capacity [veh/h]	590	480	421	2653	873	812
d1, Uniform Delay [s]	33.82	38.11	35.27	3.60	17.20	17.56
k, delay calibration	0.11	0.11	0.22	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	3.90	13.60	0.16	1.74	2.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.84	0.91	0.19	0.46	0.49
d, Delay for Lane Group [s/veh]	33.98	42.02	48.86	3.77	18.94	19.71
Lane Group LOS	C	D	D	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.11	4.55	9.66	1.01	5.78	5.96
50th-Percentile Queue Length [ft/ln]	27.83	113.65	241.46	25.15	144.60	148.96
95th-Percentile Queue Length [veh/ln]	2.00	8.04	14.76	1.81	9.73	9.96
95th-Percentile Queue Length [ft/ln]	50.09	201.07	368.88	45.26	243.21	249.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.98	42.02	48.86	3.77	19.22	19.71
Movement LOS	C	D	D	A	B	B
d_A, Approach Delay [s/veh]	40.21		23.02		19.33	
Approach LOS	D		C		B	
d_I, Intersection Delay [s/veh]	25.70					
Intersection LOS	C					
Intersection V/C	0.673					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.615	2.866	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	526	1305	589
d_b, Bicycle Delay [s]	25.80	5.74	23.63
I_b,int, Bicycle LOS Score for Intersection	1.560	2.298	2.221
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

