



STUDY SESSION

Agenda Item # 2

AGENDA REPORT SUMMARY

Meeting Date: May 28, 2019

Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

Prepared by: Jaime O. Rodriguez, Consultant – Transportation Division

Reviewed by: Aida Fairman, Interim Engineering Services Director

Approved by: Chris Jordan, City Manager

Attachments:

1. Refined Plan Line Drawing, Cuesta Drive-Arboleda Drive, Complete Streets Commission
2. Final Plan Line Drawing, Cuesta Drive-Arboleda Drive with Survey Input
3. Sample Silent Resident Survey of Support
4. Traffic Study, Cuesta Drive-Arboleda Drive (excluding Exhibits)

Initiated by:

Collector Traffic Calming Plan, CIP: PL-01022

Previous Council Consideration:

Existing Capital Improvement Program, Collector Traffic Calming Plan, PL-1022, identifies Cuesta Drive for design of this project. City Council also authorized award of a design services consultant agreement with Alta Planning + Design on July 10, 2018.

Fiscal Impact:

The design phase of the Cuesta Drive-Arboleda Drive traffic calming project is already funded. Alta Planning + Design is the design team. They were awarded a contract on July 7, 2018 in the amount of \$135,010. \$21,000 of the current contract were used in the reinitiated planning phase discussed within this report. No additional funding is being requested to complete the design phase.

The estimated construction cost of the Final Plan Line Drawing (Attachment 2) is between \$500,000 to \$750,000 depending on pavement restoration completed as part of the project; this amount is currently unfunded.

Environmental Review:

Categorically exempt

Policy Question(s) for Council Consideration:

- The Collector Traffic Calming Plan (2011) identifies Raised Medians and Raised Intersections as feasible traffic calming devices for Cuesta Drive.

Reviewed By:

City Manager

CJ

City Attorney

CD

Finance Director

SE



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

- After initiation of the design phase of the project for Raised Intersections at Cuesta Drive & Arboleda Drive and Cuesta Drive and S. Clark Avenue, the project was reinitiated into a Planning Phase for traffic calming devices on both Cuesta Drive and Arboleda Drive.
- The City Council is being asked to approve a Final Conceptual Plan Line drawing developed through an extensive community engagement process and authorize staff to complete the design phase of the Cuesta Drive-Arboleda Drive traffic calming project.
- New proposed traffic calming devices include Speed Tables along Cuesta Drive, Speed Humps on Arboleda Drive, and new Multi-Way Stops on and along Cuesta Drive, Arboleda Drive, and Campbell Avenue.

Summary:

- The Refined Conceptual Plan Line drawing for the Cuesta Drive-Arboleda Drive traffic calming project deviates from the current Collector Traffic Calming Plan (2011).
- City Council is being asked to approve of the Final Conceptual Plan Line that was developed through a reinitiated Planning Phase through an extensive community engagement process.
- City staff administered a Resident Survey of Support of residents living on Cuesta Drive, Arboleda Drive, and Campbell Avenue where traffic calming measures are proposed. The Resident Survey of Supports finds an overwhelming number of residents on each of the streets support the installation of the improvements. The Final Plan Line drawing for the Cuesta Drive-Arboleda Drive project includes additional input received during the Resident Survey of Support process.
- Traffic Calming treatments along Arboleda Drive, a local residential street, are recommended for funding and installation as part of this project through the Collector Traffic Calming Plan, PL-01022.

Staff Recommendation:

Authorize staff to complete the design phase of the Cuesta Drive-Arboleda Drive Traffic Calming Project using the Final Plan Line Drawings as a basis for the final design



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

Purpose

To provide the City Council with an update on the reinitiated Planning Phase of the Cuesta Drive-Arboleda Drive traffic calming project and to request City Council support on new recommended traffic calming devices for the Cuesta Drive-Arboleda Drive neighborhood so that final design can proceed.

Background

The Cuesta Drive traffic calming project, initiated in the Fall 2018, was started using the recommendations of the Collector Traffic Calming Plan (2011) for either Raised Intersections or Raised Medians as feasible traffic calming devices for the portion of Cuesta Drive between S El Monte Avenue and Springer Road. Raised intersections at the intersections of Cuesta Drive & Arboleda Drive and Cuesta Drive & S Clark Avenue were identified as the appropriate traffic calming devices.

During the first community open house meeting and Complete Streets Commission meeting for the project on January 23, 2019 the commission and residents expressed concern regarding the two raised intersection tables alone not being effective enough to adequately reduce vehicle speeds along Cuesta Drive. In addition, residents along Arboleda Drive, San Luis Avenue, S Clark Avenue, Benvenue Avenue, and Paco Avenue expressed concerns regarding spillover traffic from Cuesta Drive if any traffic calming measures were deployed without complementary traffic calming measures on their streets. Arboleda Drive residents expressed the greatest amount of concern at the January 23, 2019 meeting as their street is immediately adjacent to Cuesta Drive and with a direct connection from Springer Road.

City staff decided to reinitiate the planning phase for the project in February 2019 and to include Arboleda Drive for accompanying traffic calming measures as part of a base project. An expanded data collection effort to document existing traffic volumes and vehicle's speeds on all project and adjacent streets was also initiated to help advise the planning phase and to measure any future traffic spillover upon implementation.

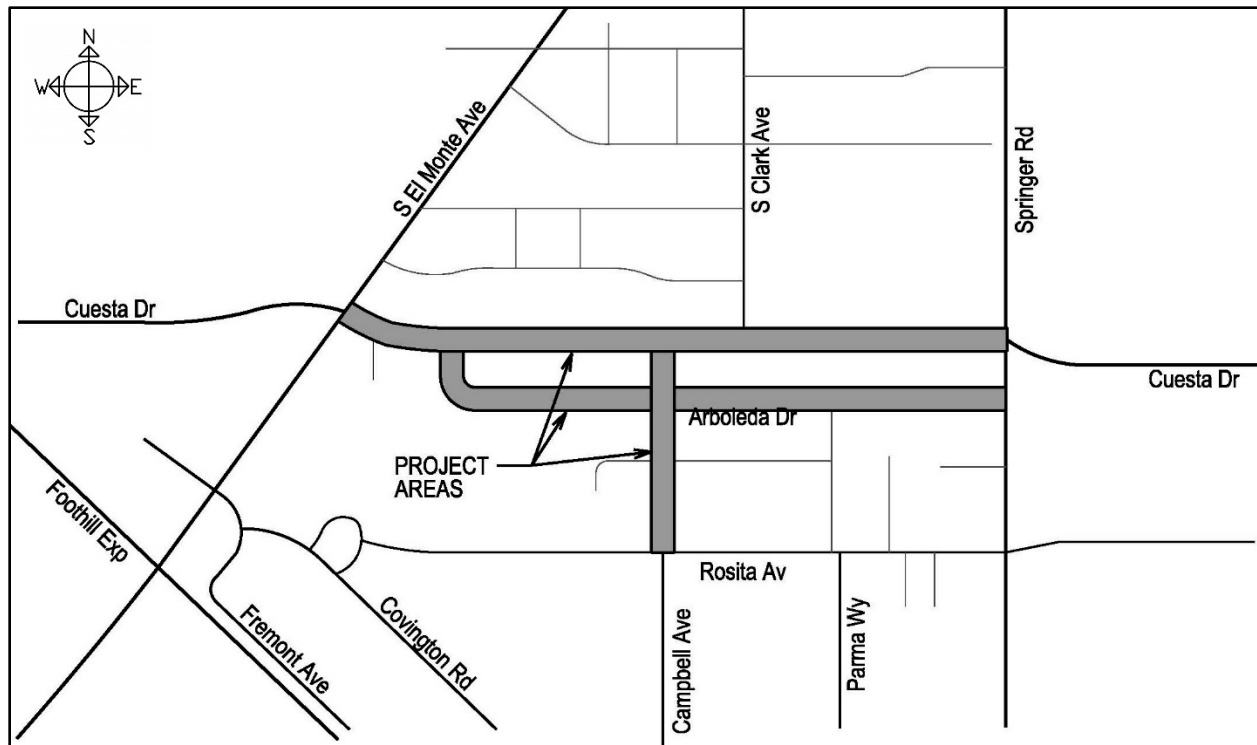
A second community open house meeting, along with an accompanying Complete Streets Commission meeting, was held on March 27, 2019. Residents were presented with three different concept plans at that time identifying varying traffic calming measures including speed tables along Cuesta Drive, speed humps along Arboleda Drive, and varying crosswalk and Multi-Way Stop treatments in efforts to address not only vehicle speeds but also enhance bicycle/pedestrian pathway options and Safe Routes to School alternatives for access to Covington Elementary School.

The refined concept plan line (Attachment 1) for the Cuesta Drive-Arboleda Drive traffic calming project was presented to the Complete Streets Commission on April 24, 2019. The City also initiated a Silent Resident Survey of Support for the project that includes mailer surveys sent to all residents and property owners along project limits of Cuesta Drive, Arboleda Drive, and Campbell Avenue.



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

Cuesta Drive-Arboleda Drive Project Limits Map



Discussion/Analysis

The refined conceptual plan line drawing for the Cuesta Drive-Arboleda Drive traffic calming project (Attachment 1) was presented to the Complete Streets Commission at their April 28, 2019 meeting identifies Speed Tables along Cuesta Drive, Speed Humps along Arboleda Drive, and new Multi-Way Stop and signage & striping changes along the project area as preferred traffic calming measures.

Silent Resident Survey of Support

The City released a Silent Resident Survey of Support to residents living on Cuesta Drive, Arboleda Drive, and Campbell Avenue within the project limits. There are a total of 135 parcels within the project area but a total of 154 surveys were sent out on April 17, 2019; the additional surveys are likely from rental units with home owners at different addresses. Initially, the City asked residents to respond back by May 1, 2019 but following input from residents and the commissioners at the April 24, 2019 Complete Streets Commission, the City released a second round of surveys on April 30th to households that had not responded by May 1, 2019, a total of 64 follow-up surveys were sent at that time with a return request date of May 17, 2019.



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

A copy of the Silent Resident Survey of Support is provided in Attachment 3. The survey asks residents to indicate their support for the proposed improvements and to sign and return the survey using a self-addressed stamped envelope provided by the City. Several residents helped organize responses and returned the surveys directly to the City.

The result of the Silent Survey of Support below shows overwhelming resident support for the installation of the traffic calming measures in the Refined Concept Plan Line.

Silent Resident Survey of Support Results

Street Segment	No. of Households ¹	YES	NO	% Support ²
Cuesta Dr (W El Monte Ave to Springer Rd)	64	47	4	92% ³
Arboleda Dr (Cuesta Dr to Springer Rd)	64	45	7	87% ³
Campbell Ave (Arboleda Dr to Rosita Ave)	17	8	4	67% ³

1. Survey Responses for Households at Project Intersections were counted towards up to two streets.

2. % Support based on total number of responses per street segment.

3. Survey results as of May 17, 2019.

As the Silent Survey of Support was being administered, residents provided additional input to help refine the plan line drawing. The comments varied from minor adjustments to the position of speed tables or speed humps to better accommodate driveway access to suggestions on roadway marking adjustments to help preserve the neighborhood character of each street.

The Final Concept Plan Line drawing for the Cuesta Drive-Arboleda Drive project is provided in Attachment 2, this is the plan line drawing that is being presented to the City Council for consideration of approval so that final design may proceed.

A detailed description of the Final Plan Line drawing is provided below.

Summary of Recommended Traffic Calming Improvements

- 1) Cuesta Drive, Shelby Lane to Arboleda Drive
A raised speed table is recommended mid-block between Shelby Lane and Arboleda Drive along Cuesta Drive.



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

- 2) Cuesta Drive and Arboleda Drive
Painted intersection returns with oversized raised pavement markers are recommended to help tighten the intersection returns along the west side of Cuesta Drive to slow down vehicles as motorists turn onto Arboleda Drive.
- 3) Cuesta Drive, Arboleda Drive to Campbell Avenue
Two raised speed tables are recommended between Arboleda Drive and Campbell Avenue. The speed tables will be spaced approximately 350 ft apart.
- 4) Cuesta Drive and Campbell Avenue
This is an existing Multi-Way Stop controlled intersection. A new raised speed table that doubles as a marked crosswalk will be provided at the existing crosswalk location on the west leg of the intersection. High-visibility bike markings will be provided across the Campbell Avenue approach.
- 5) Cuesta Drive – Campbell Avenue to S. Clark Avenue (North side)
Students walking to Covington School from north of Cuesta Drive walk along the north side of Cuesta Drive between S. Clark Avenue and Campbell Avenue. Options to provide a consistent with pathway will be explored during the final design. Currently there is an asphalt berm that separates the roadway from adjacent parking. Removal of the asphalt berm will be explored to expand a shared parking/bike-ped pathway.
- 6) Cuesta Drive and S. Clark Avenue
New Multi-Way Stop controls are recommended for this intersection. A marked crosswalk will be provided along the west leg of the intersection. Community input recommended a marked crosswalk along the east leg of the intersection, but driveway conflicts prohibit crosswalk placement along the east leg.
- 7) Cuesta Drive, S. Clark Avenue to Springer Road
Two raised speed tables are recommended between S Clark Avenue and Springer Road. The speed tables will be spaced approximately 400 ft apart.
- 8) Cuesta Drive and Springer Road
The existing median island on the west leg will be maintained in its current location with no changes. The City presented various alternatives to the community including an option to provide a bulb-out along the northeast corner of the intersection and an option to provide a single lane for the southbound approach from Los Altos towards Mountain View. The traffic study for the project found the intersection Level of Service (LOS) to be negatively impacted if a single southbound lane were provided and the community support for changes were not sufficient enough to justify further changes at the intersection.



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

- 9) Arboleda Drive, Cuesta Drive to School crossing
Initially, edge lines and center lines were being considered in this section on Arboleda Drive but residents were consistent in their feedback during the support survey that they preferred not to have edge lines along Arboleda Drive in efforts to preserve the residential character of their street. The Final Plan Line removes the edge lines as requested by the residents. The center line will be maintained through the curve in the roadway per industry standard but the center line will be moved slightly north to take advantage of a wider pavement section; this will also better accommodate parking on both sides of the street with bike-pedestrian traffic. A speed table is proposed at the school crossing location
- 10) Arboleda Drive, School crossing to Campbell Avenue
Two raised speed humps are recommended between the School crossing and Campbell Avenue. The speed humps will be spaced approximately 250 ft apart.
- 11) Arboleda Drive and Campbell Avenue
A new Multi-Way Stop will be provided with marked high-visibility crosswalks.
- 12) Arboleda Drive, Campbell Avenue to Parma Way
Two raised speed humps are recommended between the Campbell Avenue and Parma Way. The speed humps will be spaced approximately 250 ft apart.
- 13) Arboleda Drive and Parma Way
Centerline striping improvements are recommended to help provide awareness regarding the intersection approach to motorists on Arboleda Drive.
- 14) Arboleda Drive, Parma Way to Springer Road
Two raised speed humps are recommended between Parma Way and Springer Road. The speed humps will be spaced approximately 250 ft apart.
- 15) Arboleda Drive and Springer Road
Painted intersection returns with oversized raised pavement markers are recommended to help tighten the intersection returns along the west side of Springer Road.
- 16) Campbell Avenue and Los Pajaros Court-Glen Alto Drive
Painted high-visibility crosswalks across the Los Pajaros Court and Glen Alto Drive approaches will be provided.
- 17) Campbell Avenue and Rosita Avenue
A new Multi-Way Stop will be provided with marked high-visibility crosswalks.



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

Traffic Data and Traffic Study Findings

The findings of the traffic data collection effort were presented at the April 24, 2019 Complete Streets Commission meeting.

Traffic data collected includes vehicle speed/volume tube counts along the following locations:

- Cuesta Drive
- Arboleda Drive
- Campbell Avenue
- S. Clark Avenue
- San Luis Avenue
- Benveneu Avenue
- Paco Drive

Turning movement count data was also collected at select intersections that include pedestrian and bicycle count data:

- Cuesta Drive and S. El Monte Avenue
- Cuesta Drive and Springer Road
- Cuesta Drive and S. Clark Avenue
- Arboleda Drive and Campbell Avenue
- Arboleda Drive and Springer Road
- Campbell Avenue and Rosita Avenue

The traffic data shows the highest 85th percentile speeds and volumes along Cuesta Drive at 36 MPH and 9,186 average daily vehicles. 85th percentile speeds and volumes along Arboleda Drive were upwards of 34 MPH with an average daily traffic count of 516 vehicles.

The traffic report (Attachment 4) was not available during the April 24, 2019 meeting of the Complete Streets Commission. The exhibits section of the traffic report are excluded from this staff report due to the sheet size of all the exhibits. The complete exhibits section is available online at the project's website at www.losaltosca.gov/CuestaDrive-ArboledaDrive.

The traffic reports findings were presented to the commission and do support the following recommendations:

1. Installation of Traffic Calming measures including speed tables along Cuesta Drive and speed humps along Arboleda Drive.
2. Multi-Way Stops at Cuesta Drive and S. Clark Avenue, Arboleda Drive and Campbell Avenue, and Campbell Avenue and Rosita Avenue
3. Maintenance of existing eastbound Cuesta Drive approach at Springer Road.



Subject: Cuesta Drive-Arboleda Drive Traffic Calming Project

Cuesta Drive Pavement Preservation Treatments

Prior to the initiation of the Cuesta Drive collector traffic calming project, the portion of Cuesta Drive between S. El Monte Avenue and Campbell Avenue was scheduled for microsurface treatment as part of the Fiscal Year 2018-19 Annual Street Resurfacing Program. Pavement preservation treatments were initiated in April 2019 with the removal of existing roadway markings. Application of the new microsurface treatment and roadway markings will continue through June 2019.

The microsurface pavement treatments are consistent with pavement treatments being considered as part of the Cuesta Drive traffic calming project.

Options

- 1) Approve the Final Plan Line Drawing for Cuesta Dr-Arboleda Dr-Campbell Ave – this option includes authorizing staff to proceed with the development of Plans, Specifications & Estimates (PS&E) construction documents for the traffic calming treatments along Cuesta Dr, Arboleda Dr, and Campbell Ave as shown in Attachment 2

Advantages: Proposed improvements are consistent with resident support; traffic calming measures will help reduce vehicle speeds on project streets

Disadvantages: Traffic calming measures impact both commuters and residents; construction Phase is not funded but estimated cost of this option is up to \$750,000 depending on the amount of pavement restoration completed with the project

- 2) Continue with Original Design with Two Intersection Raised Tables on Cuesta Drive only

Advantages: Improvements are consistent with prior Collector Street Policy (2011)

Disadvantages: Improvements will likely not result in a reduction in vehicle speeds along Cuesta Drive; no improvements along Arboleda Drive or any other adjacent street; Cost of this option is estimated at upwards of \$1,500,000

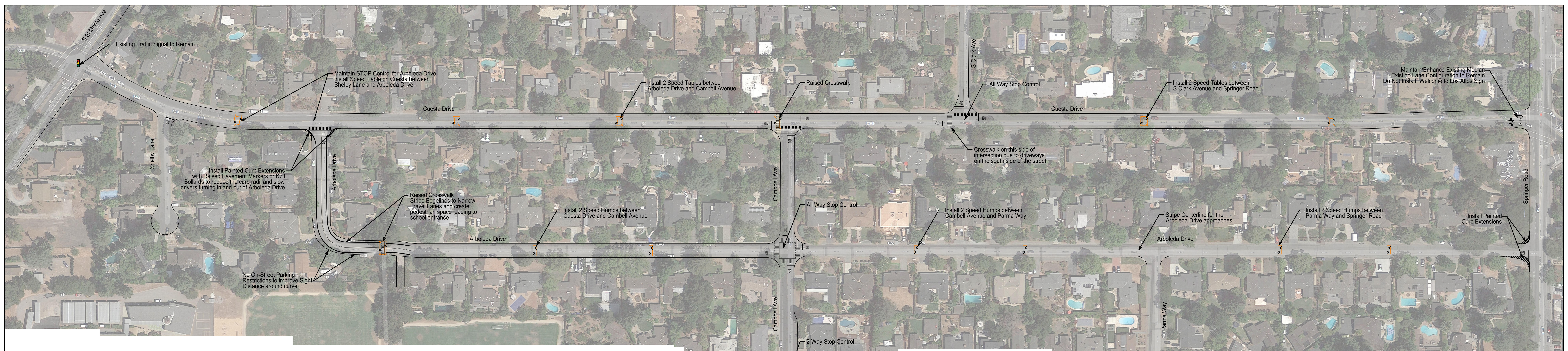
- 3) Do Nothing – this option includes making no changes along any of the project streets and leaving them in their current existing condition

Advantages: None

Disadvantages: No change in vehicle speeds along any project street

Recommendation

The staff recommends Option 1.



Existing Traffic Signal to Remain

Maintain STOP Control for Arboleda Drive
Install Speed Table on Cuesta between
Shelby Lane and Arboleda Drive

Install 2 Speed Tables between
Arboleda Drive and Cambell Avenue

Raised Crosswalk

All Way Stop Control

Install 2 Speed Tables between
S Clark Avenue and Springer Road

Maintain/Enhance Existing Median
Existing Lane Configuration to Remain
Do Not Install "Welcome to Los Altos Sign"

Install Painted Curb Extensions
with Raised Pavement Markers or K71
Bollards to reduce the curb radii and slow
drivers turning in and out of Arboleda Drive

Raised Crosswalk
Stripe Edgelines to Narrow
Travel Lanes and create
pedestrian space leading to
school entrance

Install 2 Speed Humps between
Cuesta Drive and Cambell Avenue

All Way Stop Control

Install 2 Speed Humps between
Cambell Avenue and Parma Way

Stripe Centerline for the
Arboleda Drive approaches

Install 2 Speed Humps between
Parma Way and Springer Road

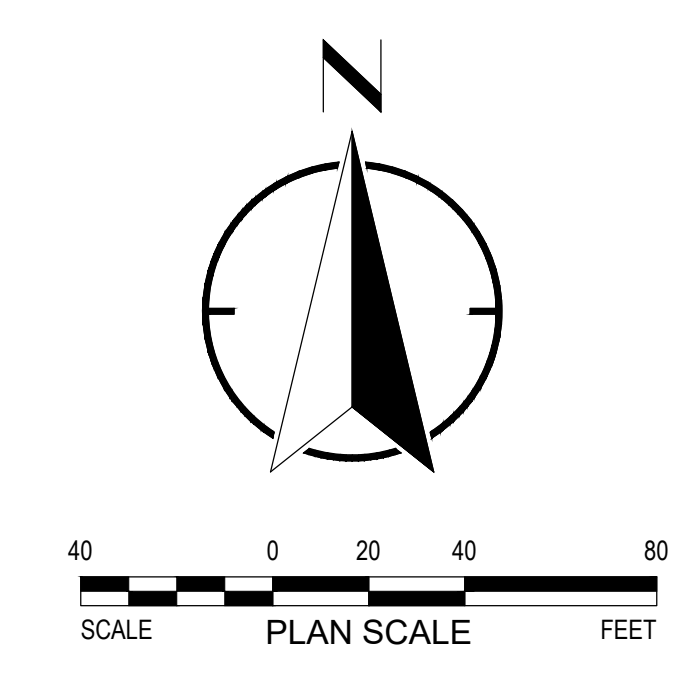
Install Painted
Curb Extensions

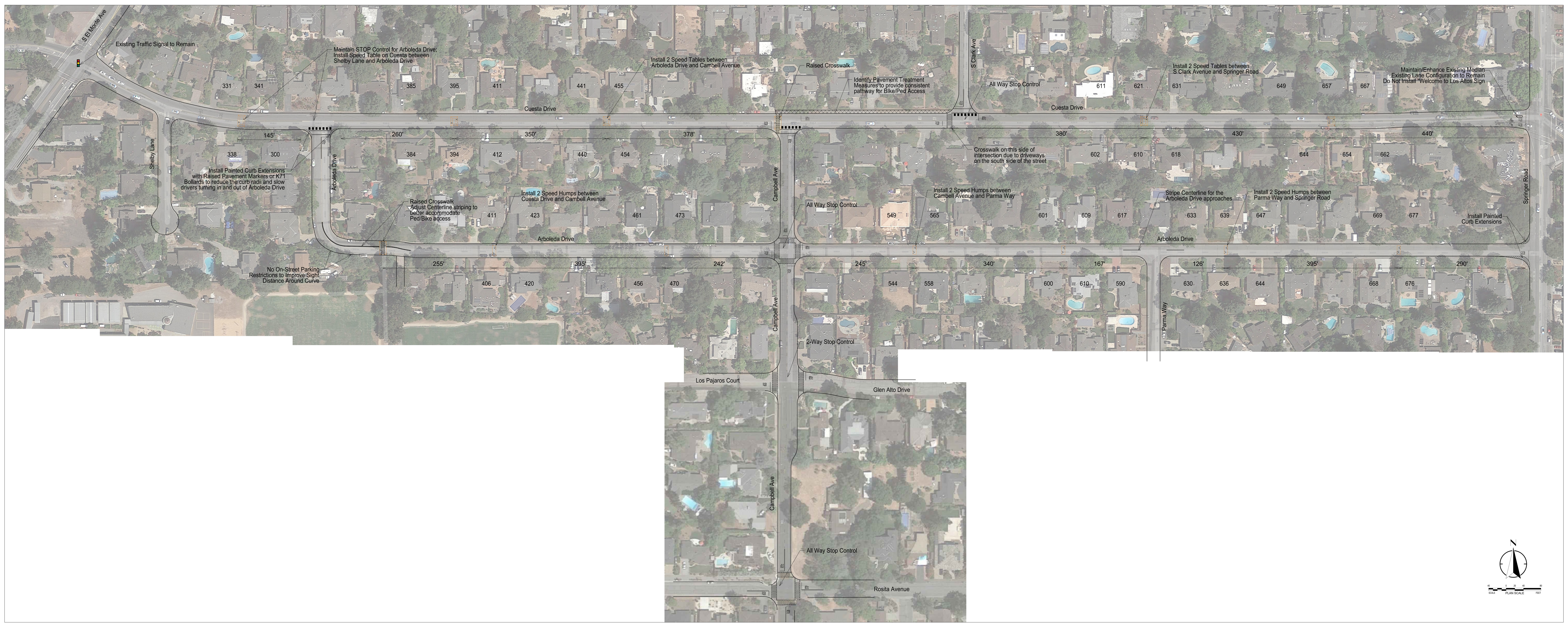
No On-Street Parking
Restrictions to improve Sight
Distance around curve



2-Way Stop Control

All Way Stop Control





Existing Traffic Signal to Remain

Maintain STOP Control for Arboleda Drive:
Install Speed Table on Cuesta between
Shelby Lane and Arboleda Drive

Install 2 Speed Tables between
Arboleda Drive and Cambell Avenue

Raised Crosswalk

Identify Pavement Treatment
Measures to provide consistent
pathway for Bike/Ped Access

All Way Stop Control

Install 2 Speed Tables between
S Clark Avenue and Springer Road

Maintain/Enhance Existing Median
Existing Lane Configuration to Remain
Do Not Install "Welcome to Los Altos Sign"

145'

260'

350'

378'

380'

430'

440'

Install Painted Curb Extensions
with Raised Pavement Markers or K71
Bollards to reduce the curb radii and slow
drivers turning in and out of Arboleda Drive

Raised Crosswalk
Adjust Centerline striping to
better accommodate
Ped/Bike access

Install 2 Speed Humps between
Cuesta Drive and Cambell Avenue

All Way Stop Control

Install 2 Speed Humps between
Cambell Avenue and Parma Way

Stripe Centerline for the
Arboleda Drive approaches

Install 2 Speed Humps between
Parma Way and Springer Road

Install Painted
Curb Extensions

No On-Street Parking
Restrictions to Improve Sight
Distance Around Curve

255'

395'

242'

245'

340'

167'

126'

395'

290'

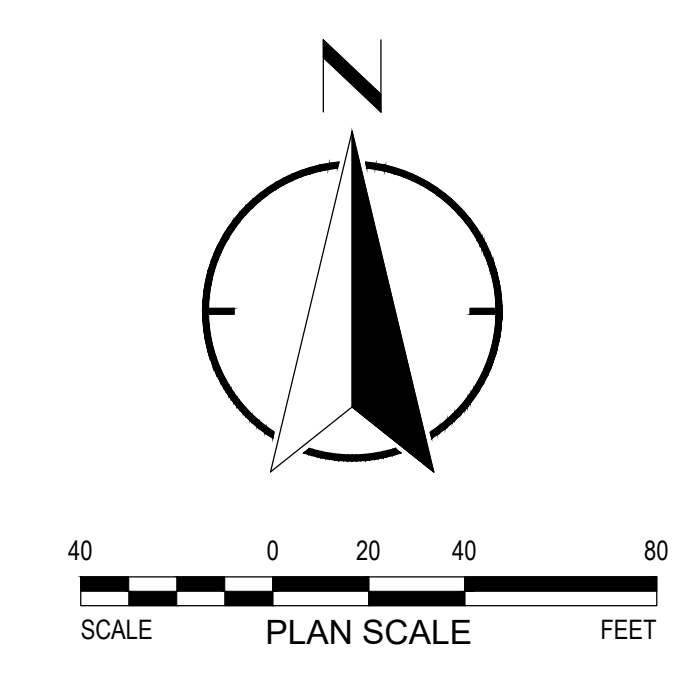
Los Pajaros Court

Glen Alto Drive

Campbell Ave

All Way Stop Control

Rosita Avenue





Your Feedback is Requested - Resident Silent Survey of Support for: **Cuesta Drive – Arboleda Drive Traffic Calming Project**

The City of Los Altos is working with residents of both Cuesta Drive and Arboleda Drive to identify traffic calming improvements between S El Monte Avenue and Springer Road to help reduce vehicle speeds along both streets and to enhance bicycle and pedestrian facilities for the community. A refined conceptual plan has been prepared based on community feedback gathered over the past few months and is now available on the City's project webpage at:

www.losaltosca.gov/CuestaDrive-ArboledaDrive

Please review the updated conceptual plan online and return the Resident Silent Survey of Support (below) by April 30, 2019 using the enclosed self-addressed stamped envelope.

The City needs to hear from you to ensure that residents living on streets where improvements are proposed are supportive of the planned improvements before they are deployed. Resident support in the amount of at least 66.66% for each street is required for improvements to be installed. Each street will be surveyed separately so that installation can be considered individually. Installation of the improvements will be funded by the City. The results of the silent survey will be discussed at both the April 24, 2019 Complete Streets Commission meeting and a future City Council meeting.

The Proposed Plan

Traffic calming measures identified in the plan include Raised Speed Tables along Cuesta Drive spaced approximately 400-FT apart, Speed Humps along Arboleda Drive spaced approximately 250-FT apart, and new Multi-Way STOP controls along both corridors including Campbell Avenue. Be sure to review detailed plans available at www.losaltosca.gov/CuestaDrive-ArboledaDrive.

Tear along Line and Return to the City of Los Altos

Resident Silent Survey of Support for: «SITUS_ADDR_FULL», Los Altos, CA 94024

I have reviewed the Refined Conceptual Plan Line drawings for traffic calming improvements on and along Cuesta Drive, Arboleda Drive, and Campbell Avenue. My support for these improvements is identified below:

- YES, I support installation of the proposed traffic calming improvements
- NO, I do not support installation of the proposed traffic calming improvements

Signature of Home Owner or Resident (Circle One)



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EXECUTIVE SUMMARY

Introduction

Cuesta Drive and Arboleda Drive are both two-lane roadways that runs through the City of Los Altos, CA. The Cuesta Drive Traffic Calming Project (Project) includes the addition of traffic calming measures along both corridors and Campbell Avenue including: Speed Tables along Cuesta Drive, Speed Humps along Arboleda Drive, new Multi-Way STOP Controls at select intersections, and signage & striping improvements. The proposed improvements, provided in **Appendix E**, were developed as part of an extensive community engagement process.

This analysis evaluates the Existing traffic conditions and a comparison Project analysis where improvements are proposed. The analysis focuses on a Level of Service (LOS) comparison, as a measure of Delay. The analysis also includes the processing of Establishment Criteria where Multi-Way STOP controls are proposed against industry-standard measures.

The purpose of the Project is to provide enforceable vehicle speeds on Cuesta Drive, provide complementary traffic calming measures along Arboleda Drive, increase accessibility to biking and walking in the neighborhood, and to document street characteristics of adjacent streets for future comparison.

Scope of Work

This traffic analysis includes a review and operational analysis of the Cuesta Drive corridor (S. El Monte Ave. to Springer Rd.), Arboleda Drive corridor (Cuesta Dr. to Springer Rd.), and several adjacent intersections within the surrounding neighborhood, with respect to mobility of people walking, bicycling, and driving. Specifically, Alta has performed an existing conditions operational analysis and an analysis of the operational impacts from the proposed roadway changes, as well as Multi-Way STOP control warrant analyses for the intersections where a change to a Multi-Way Stop control is proposed. LOS, delay, and queueing were evaluated to assess the operational impacts as they can provide a quantitative comparison between the existing and proposed conditions.

For the purposes of this analysis, the proposed Project consists of introducing new intersection controls, adding new crosswalks at specific intersections, and implementing traffic calming measures along Cuesta Drive and Arboleda Drive all in order to reduce vehicle speeds. The impacts of these improvements were assessed at the following intersections:

1. Cuesta Drive & S. El Monte Avenue
2. Cuesta Drive & Arboleda Drive
3. Cuesta Drive & Campbell Avenue
4. Cuesta Drive & S. Clark Avenue
5. Cuesta Drive & Springer Road
6. Arboleda Drive & Campbell Avenue
7. Arboleda Drive & Springer Road
8. Campbell Avenue & Rosita Avenue

Conclusions and Recommendations

The Project intersections currently operate at an acceptable Level of Service (LOS D or better) in the Existing condition and are expected to continue to do so under the Project conditions, with the exception of Cuesta Drive & Springer Rd (where the existing and proposed conditions experience a LOS F).

Three new Multi-Way STOP controls are recommended based on the findings from the warrants completed as part of this analysis: Cuesta Drive & S Clark Avenue, Arboleda Drive & Campbell Avenue, and Campbell Avenue & Rosita Avenue

It is recommended that the City pursue the installation of the proposed new Multi-Way STOP control intersections pending the community engagement process of resident support. The proposed traffic calming measures along Cuesta Drive and Arboleda Drive are also recommended including Speed Table and Speed Humps respectively.

The intersection of Cuesta Drive & Springer Road was analyzed to consider a reduction in the number of lanes on the eastbound approach of Cuesta Drive from the existing 2-lanes to 1-lane but this not recommended due to significant impacts to LOS at the intersection.

See the **Conclusions and Recommendation Section** at the end of this report for further details.

Traffic Analysis

The following section summarizes the results of a preliminary traffic analysis for implementing the proposed Project conditions at the study intersections.

Currently, the existing Project Area consists of signalized and stop controlled intersections. Cuesta Drive is categorized as a collector road according to the City of Los Altos General Plan, Circulation Element (2002). Springer Road and El Monte Avenue are also collector roads, while other corridors in the Project Area, including Arboleda Drive and Campbell Ave., are considered local roads.

The traffic analysis is based upon observed physical conditions, 12-hour turning movement counts collected March 12, 2019, and 24-hour speed counts collected on March 12, 2019. Detailed summaries of the collected data can be found in Appendix A.

Alta performed an analysis of the operational impacts from the proposed Project conditions. Level of Service (LOS), approach/intersection delay, and queuing were the primary conditions evaluated to assess the operational impacts.

Existing Traffic Analysis

Capacity analyses were performed for the existing AM and PM peak hour periods using Synchro software (v.10) to determine the LOS and delay for each of the study intersections. LOS analysis can help determine the ability of an intersection to accommodate vehicular traffic volume demand and the effect of changes to the number of lanes or storage capacity of turn pockets. The analysis uses Highway Capacity Manual (HCM) 2010 methodology, and accounts for roadway characteristics such as intersection geometry, traffic control devices, and traffic (vehicle and pedestrian) volumes.

LOS is defined by letter characters that range from A to F, with A representing the best traffic operating conditions that have little or no delay to vehicles utilizing the intersection and F characterizing poor conditions that have significant delay. LOS A through D are typically considered acceptable operations, while LOS E is representative of conditions where improvements could be needed if traffic volumes are expected to significantly increase in the future. LOS F is considered failing operations indicating the demand exceeds the capacity of the intersection as it is currently designed, and significant delays can be expected.

Additionally, a change in a LOS from A, B, C, or D to an E or F between the existing and Project conditions at signalized intersections may be considered significant and can indicate impacts resulting from the proposed Project conditions. Under these circumstances, improvements may be needed, in the form of traffic control modification, geometric changes, or a combination of both, for the purpose of reducing vehicle delay. This is supported by the City of Los Altos General Plan, which identifies the performance criterion at city-controlled intersections is LOS D or better. The delay limits for each LOS category, based on the HCM, are shown in **Table 1** below:

Table 1: Level of Service Delay Limits

Level of Service (LOS)	Signalized Intersection Delay per Vehicle (sec/veh)	Unsignalized Intersection Delay per Vehicle (sec/veh)
A	≤10.0	≤10.0
B	10.1 - 20.0	10.1 - 15.0
C	20.1 - 35.0	15.1 - 25.0
D	35.1 - 55.0	25.1 - 35.0
E	55.1 - 80.0	35.1 - 50.0
F	> 80.0	> 50.0

The existing conditions Synchro model incorporated all available traffic data including turning movement counts for all road users, heavy vehicle percentages, signal phases, vehicle speeds, and lane configuration data. The results of the Existing Conditions Analysis can be found in **Table 2**. A detailed LOS summary can be seen in the attached reports, in **Appendix B**.

Table 2: Peak Hour Intersection LOS – Existing Conditions (2018)

ID	Intersection	Existing Conditions 2018				
		Traffic Control	A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
1	Cuesta Dr & S. El Monte Ave	Traffic Signal	12.8	B	11.3	B
2	Cuesta Dr & Arboleda Dr	1-Way Stop	16.2	C	15.0	C
3	Cuesta Dr & Campbell Ave	All Way Stop	18.3	C	13.3	B
4	Cuesta Dr & S. Clark Ave	1-Way Stop	14.6	B	13.6	B
5	Cuesta Dr & Springer Rd	All Way Stop	N/A	F	N/A	F
6	Arboleda Dr & Campbell Ave	2-Way Stop	11.6	B	11.0	B
7	Arboleda Dr & Springer Rd	1 Way Stop	19.7	C	N/A	F
8	Campbell Ave & Rosita Ave	2-Way Stop	B	13.5	B	10.5

Notes:

- HCM LOS 2010 Methodology was used.
- Delay is presented in seconds per vehicle; LOS = Level of Service
- Delay is average vehicle delay.
- Delay for two-way stop-controlled intersections is reported as the worst movement’s delay.
- Delay for signalized intersections and all-way stop controlled intersections is average vehicle delay.
- N/A for a stop-controlled intersection is a reported delay greater than 50.
- N/A for a signalized intersection is a reported delay greater than 80.

As shown in **Table 2**, the existing conditions operational analysis indicated that all of the intersections, except for two, operate at LOS D or better. The two intersections with existing operations below LOS D during the peak hour periods of the day are:

- Cuesta Dr & Springer Rd LOS F in AM and PM
- Arboleda Dr & Springer Rd LOS F in the PM

Queuing Analysis

Queuing analyses were performed for the existing AM and PM peak hour periods using Synchro software (v.10) and its associated modelling Software; Sim Traffic (v.10) to determine the 95th percentile queue lengths for each approach of the study intersections.

Queue lengths are used to assess the amount of congestion that is predicted to occur at intersections, and determine if the queues will result in the blockage of adjacent intersections, major driveways, or other ingress/egress points. ‘Spill-over’ from one intersection into another intersection caused by excessive queuing can hinder the operating capacity of the overall network, creating ‘congestion swelling’ at various adjoining intersections. Intersection blocking can also result in vehicles illegally stopping in an intersection due to queues, which can create unnecessary delays for all movements. Blocked intersections create more dangerous conditions for all users, but especially for bicyclists and pedestrians who may have their paths of travel blocked, and may not be able to predict the actions of vehicles that are within the blocked intersections.

The purpose of the queuing analysis for this project is to assess the current queuing conditions, compare them to the predicted queuing of the project conditions to assess the impacts of the project, and determine if queues caused by the project conditions result in the blocking of signalized or all-ways stop controlled intersections in the Project Area (particularly, Cuesta Dr. at S. El Monte Ave., Cuesta Dr. at Campbell Ave., and Cuesta Dr. at Springer Rd.).

When reporting queue lengths, 95th percentile queues are used. These queues represent the ‘worst-case scenario’ that may be experienced on an average day for an intersection. Queue lengths were averaged between 5 separate hour-based model runs, with 15-minute seeding periods for the models, in order to ensure a higher accuracy of the results. Queueing models are simulations generated by Sim Traffic, based upon the Synchro models generated for the LOS analysis.

The results of the Existing Conditions Queuing Analysis can be found in **Table 3**. A detailed queuing summary can be seen in the attached reports, in **Appendix B**.

Table 3: Peak Hour Intersection Queueing – Existing Conditions (2018)

ID	Intersection	Existing Conditions 2018		
		Traffic Control	A.M. Queue (FT)	P.M. Queue (FT)
1	Cuesta Dr. & S. El Monte Ave.	Signal	205	144
2	Cuesta Dr & Arboleda Dr	1-Way Stop	38	33
3	Cuesta Dr & Campbell Ave	All Way Stop	118	132
4	Cuesta Dr & S. Clark Ave	1-Way Stop	57	54
5	Cuesta Dr & Springer Rd	All Way Stop	297	341
6	Arboleda Dr & Campbell Ave	2-Way Stop	46	47
7	Arboleda Dr & Springer Rd	1 Way Stop	126	91
8	Campbell Ave & Rosita Ave	2-Way Stop	59	47

Notes: table is labeled LOS but shows queue lengths

- *Queue lengths are reported in feet (ft.).*
- *Reported intersection queue lengths are the 95th percentile for the worst approach lane of the intersection.*
- *-E- for an intersection indicates that the queue lengths exceed the Project Area or reach a signalized intersection.*

As shown in **Table 3**, the queue lengths of the existing conditions do not generate a ‘spill-over’ condition for either the AM or PM peak hours for any intersections within the Project Area, when compared to the distances between intersections. The intersection with the largest queues is Cuesta Dr & Springer Rd at 341-FT in the PM peak hour but the closest adjacent intersection at Cuesta Dr & S Clark Ave is approximately 1,300-FT away. These queues reported are for the westbound approach in the AM peak hour, and the eastbound approach for the PM peak hour. These queues may generate temporary blockages of resident driveways. The extent of these queue lengths is related to the failing LOS and delay from each intersection.

Speed Analysis

Speed data was collected for streets within the Project Area. The locations where these speeds were collected, as well as the 85th percentile speeds that were observed, can be found in **Table 4**.

Table 4: 85th Percentile Speed Collection Data within Project Area

ID	Street	Cross-streets Between	Direction 1 (MPH)	Direction 2 (MPH)
A	Cuesta Dr	Arboleda Dr & Campbell Ave	34.6 (EB)	34.2 (WB)
B	Cuesta Dr	S. Clark Ave & Springer Rd	36.1 (EB)	35.1 (WB)
C	Arboleda Dr	Cuesta Dr & Campbell Ave	31.4 (EB)	27.5 (WB)
D	Arboleda Dr	Parma Wy & Springer Rd	33.8 (EB)	30.6 (WB)
E	Campbell Ave	Arboleda Dr & Glen Alta Dr	32.7 (NB)	31.4 (SB)

Notes:

- *Speeds shown represent 85th percentile speeds as calculated from consecutive 24-hour counts performed at the identified locations*
- *Speeds shown are per direction of travel*
- *EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound)*
- ***Bolden*** *represents non-enforceable 85th percentile speeds*

Along Cuesta Drive, the primary project corridor, the 85th percentile speeds range between 34.2-MPH and 36.1-MPH in the eastbound and westbound directions. The current 25-MPH posted speed limit is not enforceable as it would be considered a Speed Trap.

The local streets studied also have 85th percentile speeds exceeding 25-MPH but are enforceable without the need for an Engineering & Traffic Survey (Speed Survey) by Prima Facie definition within the California Vehicle Code.

Proposed Conditions Traffic Analysis

Operational analyses were performed for the proposed condition AM and PM peak hour periods using Synchro software (v.10) to determine the LOS and delay for each of the study intersections with the proposed conditions. The analyses used the same methodology and inputs as those outlined in the Existing Traffic Analysis section, with the exception that the inputs changed to meet the proposed conditions outlined below. The delay limits for each LOS category remains the same as thresholds outlined in **Table 1**.

The proposed conditions included the following changes:

- All-way Stop control at Cuesta Drive at S. Clark Avenue
- All-way stop control at Arboleda Drive at Campbell Avenue
- All-way stop control at Rosita Avenue at Campbell Avenue
- Traffic calming along Cuesta Drive and Arboleda Drive to reduce 85th percentile speeds to an enforceable speed (<30 MPH) in the form of speed humps and speed tables
- Removal of the eastbound right-turn lane at Cuesta Drive at Springer Road

These conditions were modelled by changing the control types at the intersection with an all-way stop control conversion, reducing the modelled travel speeds to 25 MPH, and removing the eastbound right turn lane from the intersection of Cuesta Dr. at Springer Rd [which approach?].

The resulting intersection LOS for the study intersections are summarized in **Table 5**. A detailed LOS summary can be seen in the attached reports, in **Appendix B**.

Table 5: Peak Hour Intersection LOS - Existing Plus Project Conditions

ID	Intersection	Existing Conditions 2018				Existing Plus Project Conditions 2018					
		Traffic Control	A.M. Peak		P.M. Peak		Traffic Control	A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Cuesta Dr & S. El Monte Ave	Signal	12.8	B	11.3	B	Signal	12.8	B	11.3	B
2	Cuesta Dr & Arboleda Dr	1-Way Stop	16.2	C	15.0	C	1-Way Stop	16.2	C	15.0	C
3	Cuesta Dr & Campbell Ave	All-Way Stop	18.3	C	13.3	B	All-Way Stop	18.3	C	13.3	B
4	Cuesta Dr & S. Clark Ave	1-Way Stop	14.6	B	13.6	B	All-Way Stop	13.4	B	11.3	B
5	Cuesta Dr & Springer Rd	All-Way Stop	N/A	F	N/A	F	All-Way Stop	N/A	F	N/A	F
6	Arboleda Dr & Campbell Ave	2-Way Stop	11.6	B	11.0	B	All-Way Stop	8.8	A	8.1	A
7	Arboleda Dr & Springer Rd	1-Way Stop	19.7	C	N/A	F	1-Way Stop	19.7	C	N/A	F
8	Rosita Ave & Campbell Ave	2-Way Stop	B	13.5	B	10.5	All-Way Stop	8.9	A	7.9	A

Notes:

- *HCM LOS 2010 Methodology was used.*
- *Delay is presented in seconds per vehicle; LOS = Level of Service*
- *Delay is average vehicle delay.*
- *Delay for two-way stop-controlled intersections is reported as the worst movement’s delay.*
- *Delay for signalized intersections and all-way stop controlled intersections is average vehicle delay.*
- *N/A for a stop-controlled intersection is a reported delay greater than 50.*
- *N/A for a signalized intersection is a reported delay greater than 80.*
- **Bolden** indicates a change in LOS or change in control type.

As shown in **Table 5**, the proposed Project conditions operational analysis indicates that all intersections are expected to operate acceptably (LOS D or better) with the exception of the intersections of Cuesta Dr & Springer Rd and Arboleda Dr & Springer Rd. The LOS for these two intersections remain the same as the existing conditions.

As can be seen at the intersections of Cuesta Dr & Arboleda Dr and Cuesta Dr & Campbell Ave, the change in the modelling speed for the two corridors, as well as the inclusion of crosswalks at these intersections, do not have any measurable impact on the reported LOS or delay.

The Project improvements also increase operational characteristics for the intersections of Cuesta Dr & S. Clark Ave, Arboleda Dr & Campbell Ave, and Campbell Ave where the proposed Multi-Way STOP condition helps to better facilitate traffic improving the overall delay experienced by motorists at the intersections. Two of these intersections (Arboleda Avenue & Campbell Ave and Campbell Ave & Rosita Ave) experience a positive change in LOS from B to A, in both the AM and PM peak hours for the intersections. The intersection of Cuesta Dr & S. Clark Ave experienced a reduction in average vehicle delay, and the LOS remains the same for both AM and PM peak hours.

The introduction of the Multi Way STOP controls at these intersections reduces the delay of the minor street approaches. The major street approaches receive some increase in delay, due to the change from free-flowing traffic, where delay can only occur for left-turning vehicles, or be created by pedestrian conflicts, to stop controlled, where every vehicle must stop at the intersection, and give the right of way to vehicles already at the intersection from other approaches. The minor street approaches then receive a decrease in average vehicle delay, as their opportunity for making their movement increases. Due to the low volume of vehicles on both corridors (minus peak hours of the day), and the ratio of traffic volumes between the major and minor street approaches, the intersections experience an overall increase in operational conditions.

See **Appendix B** for detailed LOS summaries, and see **page 11** for the detailed discussion on the **Multi Way Stop Control Analysis** conducted as part of this report.

Queuing Analysis

Table 6: Peak Hour Intersection Queue - Existing Plus Project Conditions

ID	Intersection	Existing Conditions 2018			Existing Plus Project Conditions 2018		
		Traffic Control	A.M. Queue (FT)	P.M. Queue (FT)	Traffic Control	A.M. Queue (FT)	P.M. Queue (FT)
1	Cuesta Dr & S. El Monte Ave	Signal	205	144	Signal	208	151
2	Cuesta Dr & Arboleda Dr	1-Way Stop	38	33	1-Way Stop	39	34
3	Cuesta Dr & Campbell Ave	All-Way Stop	118	132	All-Way Stop	114	132
4	Cuesta Dr & S. Clark Ave	1-Way Stop	57	54	All-Way Stop	76	78
5	Cuesta Dr & Springer Rd	All-Way Stop	297	341	All-Way Stop	752	-E-
6	Arboleda Dr & Campbell Ave	2-Way Stop	46	47	All-Way Stop	56	53
7	Arboleda Dr & Springer Rd.	1-Way Stop	126	91	1-Way Stop	157	101
8	Campbell Ave & Rosita Ave	2-Way Stop	59	47	All-Way Stop	56	52

Notes:

- Queue lengths are reported in feet (ft.).
- Reported intersection queue lengths are the 95th percentile for the worst approach lane of the intersection.
- **-E-** for an intersection indicates that the queue lengths exceed the Project Area or reach a signalized intersection.
- **Bolden** indicates a significant change in queue length or change in control type.

As shown in **Table 6**, the intersection of Cuesta Dr & Springer Rd experiences a significant increase in queue lengths for both AM and PM peak hours as a result of the proposed lane removal. Both reported queues for the intersection under project conditions are for the eastbound approach. The PM peak hour queue length exceeds the length between the intersections with Springer Rd and S. Clark Ave on Cuesta Dr, which results in queues ‘spilling-over’ to the intersection of S. Clark Ave. and hindering operational conditions for that intersection. Both queue lengths also block minor drive-way access along the corridor, preventing left-turn ingress into the driveways from opposing traffic. These queues are not expected to frequently clear, and create impacts to the roadway operation that are not accounted for in the model by blocking these driveways.

The significant impact on these queues is a result of the existing failing LOS and delay for the intersection of Cuesta Dr at Springer Rd, in combination with the removal of the right-turn turn bay at the intersection as proposed.

Stop Warrant Analyses

All-way Stop Warrant analyses were performed for the intersections identified in the Project area that would experience a change in intersection control type, from 1-way or 2-way stop controls to all-way stop controls. These intersections include:

- **4:** Cuesta Dr & S. Clark Ave
- **6:** Arboleda Dr & Campbell Ave
- **8:** Rosita Ave & Campbell Ave

Stop warrant analyses are based upon the 2014 California - Manual on Uniform Traffic Control Devices (CA-MUTCD).

Section 2B.07 of the CA-MUTCD, titled “Multi-Way Stop Applications,” identifies the criteria used to establish whether or not a multi-way stop control is warranted at an intersection. These criteria include:

- A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
- B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation.¹
- C. Minimum volumes:
 1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; *and*
 2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; *but*
 3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.
- D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

The CA-MUTCD also identifies the following as optional criteria to consider for the all-way stop analyses:

- The need to control left turn conflicts
- The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes
- Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersections unless conflicting cross traffic is also required to stop; and
- An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

For the purpose of this study, the optional criteria will be considered.

All three intersections identified above were assessed with these criteria. Traffic volume, speed, and delay data were used from the counts from the LOS and queuing analyses of this report, and the crash data was provided by the City of Los Altos Police Department. See **Appendix A** for detailed count data and **Appendix D** for collisions data. The results of the analysis can be found in **Table 9**. See **Appendix C** for detailed stop warrant worksheets.

¹ Such crashes include right-turn and left-turn collisions, as well as right-angle collisions.

City of Los Altos, Stop Control Policies & Precedence

The City of Los Altos has an established STOP Sign Policy. The policy indicates that any intersection considered for a STOP sign within the City limits shall be analyzed through an engineering study, in accordance with the criteria established by the CAMUTCD. In addition, the City identifies the following criteria that may also be assessed in a stop-control analysis:

- **Unusual Intersection Geometrics** – Installation of a STOP sign may be justified where unusual intersection design or geometrics (horizontal and/or vertical curves, or intersection offsets) require the installation of a stop sign.
- **Visible Signs** – Installation of a STOP sign may be justified where visible signs of potential traffic problems exist, such as, skid marks, evidence of fixed object collisions, etc.
- **Volume Equilibrium** – Installation of a STOP sign may be justified if the intersection approach volumes for the minor/major legs near equilibrium (45%/55%).

The City also identifies that if the following criteria are met, the intersection may be considered to be in a residential area and the volume warrant thresholds may be reduced by 60% of the MUTCD values:

1. Both streets have residential frontages with existing 25 mph speed limits
2. Neither street is classified as a collector or arterial street within the General Plan Circulation Element
3. Both streets are two-lane streets
4. No existing stop sign or signal is located on the more heavily traveled street within a distance of 200 feet, minimum
5. Intersection with streets extending 500 feet or more away from the intersection on at least three sides
6. Installation of a multi-way stop is compatible with the overall traffic circulation needs for the residential area

City policy, which is supported by the CA-MUTCD policies, establishes that even if an intersection meets one or more of the criteria for a Multi-Way STOP control intersection, it does not necessarily justify the installation of the STOP signs. Los Altos Public Works Department reserves the right to exercise engineering judgment on a case-by-case basis to determine if the need for STOP signs is justified based on which criteria and considerations are satisfied. The purpose of this Multi-Way STOP control analysis is to identify which criteria are met, and provide recommendations to the City of Los Altos in regards to the installation of Multi-Way STOP controls.

According to City Policy, if the criteria of a STOP-control analysis is not met, the City may approve the installation of a STOP sign if the following findings may be made:

- Installation of the STOP sign will not prevent the street from operating consistent with its functional classification level (arterial, collector or local street) as defined in the General Plan Circulation Element.
- Installation of the STOP sign will not unduly restrict the delivery of emergency services to the surrounding neighborhood.
- Installation of the STOP sign will not create any potentially hazardous conflicts with driveways near the intersection.
- Installation of a STOP sign will not create any significant queuing at the intersection.
- Installation of a STOP sign is not expected to result in additional accidents at the intersection.
- The installation of a STOP sign will not adversely affect any adjacent controlled intersection.
- There are no other feasible methods to successfully address the traffic issues associated with the request for the stop sign.

In addition to the City's STOP Sign Policy, STOP signs are also identified in the City of Los Altos Neighborhood Traffic Management Program (2005) as a Category I Neighborhood Traffic Management Device. However, it identifies that a STOP sign may not be installed as a stand-alone traffic calming measure, used as a 'speed breaker,' but identifies that corridor traffic calming measures shall be installed in conjunction with STOP signs. It also identifies that STOP signs should only be installed when they meet the city policies, outlined above.

Table 7: Multi-Way STOP Establishment Criteria Findings (2019)

ID	Intersection	Criteria Met?						
		Existing Controls	A Interim to Traffic Signal	B ² Crash History	C Volume Thresholds	D ² Volume Thresholds 80%	E Qualitative Factors	All-Way STOP Installation Recommended
4	Cuesta Dr & S. Clark Ave	1-Way Stop	No	No	No	No	Yes	Yes
6	Arboleda Dr & Campbell Ave	2-Way Stop	No	No	No	No	Yes	Yes
8	Rosita Ave & Campbell Ave	1-Way Stop	No	No	No	No	Yes	Yes

As shown in **Table 7**, all three intersections analyzed for all-way stop controls met the criteria for Section E (*optional criteria*) as set forth by the CAMUTCD.

- **The intersection of Cuesta Dr & S. Clark Ave. meets Criteria E.B., in regards to pedestrian conflicts.** This intersection is identified as a safe route to school in the SRTS Maps for Blach Intermediate School and Covington Elementary School (*both updated October 2014*). Roadway geometry on Cuesta Dr requires pedestrians from S Clark Ave to cross Cuesta Dr and walk on the south side of the street. This requires students to cross the non-controlled, major approaches of the intersection. Community members identified this route as one of the more popular routes amongst Covington Elementary School students during public outreach events.
- **The intersection of Arboleda Dr & Campbell Ave meets Criteria E.B., in regards to pedestrian conflicts.** It is a part of the SRTS maps for Blach Intermediate School and Covington Elementary School. Covington Elementary School also has a back entrance on Arboleda Dr that the public has identified as a popular point of access. In order to access this entrance, any students east of Campbell Ave would need to cross Campbell Ave, and this intersection represents the most convenient location. This is supported by the pedestrian counts taken at the intersection (See **Appendix A** for detailed count data), which shows pedestrians crossing all legs of the intersection.
- **The intersection of Campbell Ave & Rosita Ave meets Criteria E.B., in regards to pedestrian conflicts.** This intersection is identified as a safe route to school in the SRTS Maps for Blach Intermediate School and Covington Elementary School, similar to Cuesta Dr & S. Clark Ave, and both route maps recommend crossing Campbell Ave, which is the uncontrolled corridor of the intersection. This intersection also has a Class I, shared use path terminate at its northwest corner. This may be considered unique geometry for the intersection and a pedestrian generator. Covington Elementary School Campus is also less than 500 feet from the intersection, which is considered a major, nearby pedestrian generator.

² Collision data provided by the City of Los Altos Police Department did not include collision types. As a conservative approach, it was assumed that all collisions reported, unless involving fixed objects, at the study locations were possible to be mitigated by the all-way stop control. Even with this assumption, the collision volumes were not high enough to trigger Warrants B or D for any intersection, in accordance with the CAMUTCD criteria, which means that the collision types do not affect the outcomes defined in this study.

Data Collection Beyond the Project Area

As part of the data collection process, 24-hour vehicle volumes and 85th percentile speeds were collected at adjacent neighborhood corridors (Benvenue Ave, San Luis Ave, Paco Dr, and S. Clark Ave). This data was collected with the purpose of establishing a baseline of the existing conditions, which will be compared to the conditions after the project is completed. The data was also collected in order to inform the City of existing volumes and speeds on these corridors, for future considerations of traffic calming measures. The 85th percentile speeds and 24-hour volumes can be found in Table 8:

Table 8: 85th Percentile Speed Collection Data within Project Area

ID	Street	Cross-streets Between	Volume (VPD)	Direction 1 (MPH)	Direction 2 (MPH)
F	Paco Dr	Ramon Dr & Silva Dr	228	28.7 (EB)	28.7 (WB)
G	Paco Dr	S. Clark Ave & Springer Rd	443	33.4 (EB)	31.4 (WB)
H	S. Clark Ave	San Luis Ave & Benvenue Ave	1493	29.1 (NB)	30.0
I	San Luis Ave	Lerida Ave & S. El Monte Ave	259	25.6 (EB)	25.8 (WB)
J	San Luis Ave	S. Clark Ave & Amador Ave	186	27.7 (EB)	25.5 (WB)

Notes:

- *Speeds shown represent 85th percentile speeds as calculated from consecutive 24-hour counts performed at the identified locations*
- *Volumes represent vehicles per day as observed from consecutive 24-hour counts performed at the identified locations*
- *Speeds shown are per direction of travel*
- *Volumes shown are for both directions of travel*
- *EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound)*
- ***Bolden*** *represents non-enforceable 85th percentile speeds*

The local streets studied beyond the project area also have 85th percentile speeds exceeding 25-MPH but are enforceable without the need for an Engineering & Traffic Survey (Speed Survey) by Prima Facie definition within the California Vehicle Code.

Conclusions and Recommendations

The traffic analysis conducted herein provides insight on how the proposed Refined Concept Plan Line for the Cuesta Dr-Arboleda Dr traffic calming project would operate compared to the existing street conditions.

The Project Conditions result in acceptable operational level of service and delay at most locations, including locations where Multi-Way STOP controls are proposed. **Alta recommends implementing the following Project conditions throughout the project area:**

- Traffic calming measure along Cuesta Drive and Arboleda Drive including Speed Tables on Cuesta Drive and Speed Humps on Arboleda Drive
- Proposed crosswalks
- Multi-WAY STOP controls at Cuesta Dr & S. Clark Ave
- Multi-Way STOP controls at Arboleda Dr & Campbell Ave
- Multi-Way STOP controls at Rosita Ave & Campbell Ave

It is recommended that the City of Los Altos considers all three proposed Multi-Way STOP controls, per City policy.

The three proposed Multi-Way STOP controls are along the SRTS maps for two separate neighborhood schools, and implementing the proposed STOP controls will offer the benefit of deterring vehicles from using Arboleda Dr and Campbell Avenue as an alternative route from Cuesta Drive, once these traffic calming measures are installed. The balancing of traffic calming measures between Arboleda Drive, Campbell Avenue, and Cuesta Drive is designed so that the existing preferred routes for vehicles does not change due to the project conditions. The Multi-Way STOP control is part of this balanced traffic calming design and is predicted to help ensure the preferred circulation of traffic through the neighborhood.

Not all of the proposed Project improvements are recommended by this report without further investigation. Specifically, no changes to the intersection of Cuesta Dr & Springer Rd are recommended at this time due to impacts to intersection LOS and queue impacts. The analysis considered as part of this study that considers a reduction in the amount of eastbound lanes from two to one on the Cuesta Dr approach shows this option as not feasible. Alternative considerations for the Cuesta Dr & Springer Rd can include treatments such as traffic signal controls but this is an option not considered by the community engagement process for the Cuesta Dr-Arboleda Dr traffic calming project so this was not analyzed as part of this study.

Implementing the proposed traffic calming measures along Cuesta Drive (Speed Tables spaced at ~400-FT) and Arboleda Drive (Speed Humps spaced at ~250-FT) is recommended in order to achieve the project goals of reaching an enforceable 85th percentile speed on Cuesta Drive and preserving Arboleda Drive from potential traffic spillover. It is recommended that the City continues to monitor speeds and volumes at the study locations after the installation of the project in order to continue to assess the project impacts.