



# City of Palo Alto

## City Council Staff Report

(ID # 6070)

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**Report Type: Action Items**

**Meeting Date: 9/28/2015**

**Summary Title: Charleston Arastradero Corridor Project**

**Title: Approval of the Preferred Concept Plan Line for the Charleston Arastradero Corridor Project**

**From: City Manager**

**Lead Department: Public Works**

### **Recommendation**

Staff recommends that the City Council review and approve the proposed Concept Plan Line for the Charleston-Arastradero Corridor, leading to final design and implementation of landscaped medians, bulb-outs, and other pedestrian and bicycle improvements consistent with the existing striping, which was approved for permanent retention in 2008 and 2012.

### **Executive Summary**

The Charleston–Arastradero Corridor is a heavily used residential arterial road serving as an east west connector for southern Palo Alto. Among other things, it services 11 schools, several parks, shopping centers and a library. Comprehensive Plan Policy T-40 prioritizes the safety and comfort of school children in street modification projects that affect school travel routes. Trial striping plans were previously implemented and approved for permanent retention throughout the corridor. The current phase of the project would install landscaped medians, bulb-outs, and enhanced bicycle and pedestrian improvements consistent with the existing striping/roadway configuration.

Throughout the planning process, staff continued to hear both from members of the community who want to roll back the prior improvements (increasing traffic capacity in recognition of existing and future traffic volumes), and from members of the community who embrace the current roadway configuration (wanting the corridor to function as a safe, residential arterial, with slow speeds and a residential character). These are two different visions for the Charleston-Arastradero Corridor. The latter has been the one adopted by the City first in 2008 and then in 2012, and would be supported by the proposed concept plan line.

Extensive public outreach was done to develop the preferred concept plan line to add landscaping and pedestrian/bicycle improvements to the corridor. The City hosted four community workshops, presented the plan to Palo Alto Pedestrian and Bicycle Advisory

Committee for comments twice, and developed a preferred plan line concept that was unanimously approved by the Planning and Transportation Commission. Highlights of the proposed plan include a new multiuse trail from Gunn High School to the Hetch-Hetchy Trail, bike lanes across El Camino Real, and new landscaped medians throughout the corridor.

An addendum has been prepared for the Mitigated Negative Declaration/Initial Study that was approved for the project in 2004 in compliance with the California Environmental Quality Act (CEQA). The changes to the project scope analyzed in 2004 are minor in nature and the preparers determined that the preparation of a new environmental document was not necessary for a project that will effectively perpetuate the existing roadway configuration. National Environmental Protection Act (NEPA) clearance is also necessary for the project due to federal grant funding received towards construction. Staff anticipates that the project will receive a Categorical Exclusion under NEPA.

Following approval of the concept plan line, the design team will begin working on a final design for implementation in the spring of 2017. Additional public outreach will be done to complete the design. Funding to complete the design has already been approved during the FY 2015 Capital Improvement Program budget process and construction funding has been identified in the Infrastructure Funding Plan to supplement the \$1.45 million the city has already received in grant funding.

There are two locations where the Concept Plan Line proposes minor striping modifications to improve vehicle flow. These striping changes will be considered for possible accelerated implementation following approval of the Concept Plan Line. The first location is on westbound Charleston approaching Alma Street, where the two lane approach will be extended to add more space for cars to line up in both lanes while waiting to cross the intersection. The other location is at the intersection of Charleston Road and Fabian Way, where the westbound merge will be shifted to the east side of Fabian Way and the left turn pocket will be added in the westbound direction.

## **Project Background**

The Charleston-Arastradero Corridor is a heavily used, 2.3 mile roadway servicing 11 schools, several parks, shopping centers, commercial uses, a library, day care centers, non-profits, and two community centers. The corridor extends from East Charleston Road at Fabian Way to Arastradero Road at Miranda Avenue. In 2003, Council directed staff to prepare a Charleston-Arastradero Corridor Plan to address school commute and other travel safety concerns for pedestrians, bicyclists and drivers, as well as to enhance residential amenities along the corridor, without inducing traffic to shift onto nearby residential streets and maintaining the ability to handle existing and projected traffic.

In 2004, Council approved a plan for a trial demonstration to reduce the four lane road to two lanes. In 2006, Phase 1 of the plan was implemented on Charleston Road from Fabian Way to El Camino Real together with improvements at the Gunn High School/Arastradero Road

intersection. Phase 2 of the improvements was implemented in 2010 on Arastradero Road between El Camino Real and Gunn High School. These trials were approved by Council for permanent retention in 2008 and 2012, respectively. Since that time, the project has secured \$1.45 million in grant funding for associated landscaping and pedestrian/bicycle improvements. The City Council included the Charleston/Arastradero Corridor in its Infrastructure Funding Plan, allocating the remaining \$7.5 million needed to fully fund the project through its construction.

The trial projects were implemented using pavement striping and markings without the use of hardscape improvements. This last phase of the project will complete hardscape elements and incorporate further improvements to enhance safety and address operational issues. The final phase will also identify opportunities for potential “green infrastructure” features to remove pollutants from stormwater and reduce stormwater runoff.  
(Refer to proposed concept plans in Attachment A)

## **Discussion**

Components of the proposed project are described below, along with the process used for developing and reviewing the Concept Plan Line.

### Concept Plan Line Development and Components

Approval of a Concept Plan Line is the first step in the design phase of a project. A Concept Plan Line identifies the approximate location of civil improvements along with improvement types, but excludes focused design details such as detailed hardscape and landscape measures. The Concept Plan Line identifies the locations of extensive civil improvements that influence the amount of review required for California Environmental Quality Act (CEQA) compliance. Development of a Concept Plan Line commonly requires three to four community meetings to help shape the location and types of improvements that each plan will include. Four community meetings were held for this project between 2014 and 2015. Each community meeting was attended by more than 40 residents. The meetings presented various options and concepts to the public and gathered feedback that was used to make improvements to the plan line.

The Charleston/Arastradero Conceptual Plan Line as shown in Attachment A includes two changes from the presentation to the Planning and Transportation Committee Meeting in April intended to address comments raised at the meeting. (The minutes from this meeting are linked [here](#).) The first change was in response to Community feedback that the median islands previously proposed for the intersection of Charleston Road and Grove Avenue/Sutherland Drive were not favored. After an internal discussion of the situation, staff decided to remove the proposed islands from the plan. Additionally, the landscaped median between Louis Road and Fabian Way has been shortened in order to allow for residents living on the westbound side of Charleston Road to access their homes when travelling east. Comments received at this meeting suggest that the plan line addresses most of the public’s concerns within the corridor that were expressed at previous meetings. Areas of continued concern include excessive delay during peak commute periods; illegal maneuvers by impatient drivers and student bicyclists;

and difficulty in making left turns from side streets onto the corridor during peak commute periods.

Listed below are highlighted components of the preferred Concept Plan Line at specific intersections/areas along the corridor:

- **Gunn High School**  
The plans adjust the existing “pork chop” islands for improved pedestrian crossing and adds a new 13 foot wide multi-use pathway on the eastbound side of the street from Gunn High School to existing trail to Los Altos (Hetch-Hetchy trail). It also adds a green surface treatment to the bike lane approaching the Gunn High School intersection in westbound direction and adds a new bicycle cross-walk from the multi-use trail to Gunn High School.
- **Terman Middle School**  
In the eastbound direction, the plan adds a dedicated right turn lane into Terman Middle School, a green bike lane between the through lane and right turn, and a bike ramp to the sidewalk ahead of the intersection. The ramp allows school-bound bicyclists travelling east to avoid having to weave with vehicles at the intersection. On the east side of the intersection the plan provides a bus bay and increases the size of the corner sidewalk area to provide more queuing space for bikes and pedestrians waiting to cross the street. To accommodate these improvements, the plan shifts the eastbound lane merge from after the intersection to before the intersection and removes 18 parking spaces on westbound Arastradero Road between Georgia Avenue and Willmar Drive. A parking survey conducted by volunteers at twenty various times between February 6 and March 2, 2015 indicated that cars were only parked on the section of the road designated for parking removal three times with the maximum number of spaces occupied during the survey being five.
- **Coulombe Avenue**  
The plan shortens the existing cross-walk distance by widening the sidewalk on the north-west corner and realigning the cross-walk to be perpendicular to the road. The plan also adds an additional cross-walk on the east side of the intersection.
- **Juana Briones Park**  
On the eastbound side of street, the plan widens the sidewalk to 10 feet between Terman Middle School and Suzanne Drive. On the westbound side, it incorporates a cycle track/bike lane which is separated from vehicle travel lanes by on-street parking spaces. During final design, measures will be incorporated to encourage student bicyclists to use Los Palos Avenue to enter Terman Middle School via an entrance at the back of the campus rather than riding on the sidewalk along Arastradero Road.
- **Clemon Avenue/Suzanne Drive**

The plan widens sidewalks on both sides of the street and adds a median island at the intersection with Suzanne Drive in order to provide a refuge for vehicles turning left onto or from Arastradero Road. During final design, measures to improve visibility of pedestrians using the crosswalk will be incorporated.

- El Camino Real

The plan provides new bike lanes in each direction across the intersection by narrowing the eastbound sidewalk and the travel lanes in both directions as they approach the intersection. The plan eliminates the “pork chop” island on the southeast corner of the intersection and adds a raised crosswalk across the slip ramp in the southwest corner of the intersection in order to slow the high speed right-turning traffic. The plan line also includes a bike box beside the southwest “pork chop” island to allow bicyclists to make a two-stage left turn from southbound El Camino Real onto eastbound Charleston Road if they choose. Improvements at this intersection are subject to review and approval by Caltrans.

- Wilkie Way

The plan adds new left-turn pockets on Charleston Road in both directions.

- Ruthelma Avenue

The plan calls for a new pedestrian-activated flashing beacon at the existing cross-walk.

- Alma Street

On the west side of Alma Street, the plan adds a new concrete median down Charleston Road from just west of Park Boulevard up to the train tracks. This new median prevents left turns from and onto Park Boulevard, thus improving the flow of through traffic on Charleston Road. The new median may have a small opening to allow bicycles to cross when it is safe to do so. The project also includes four quadrant gates and other safety improvements at the railroad crossing. These improvements can potentially help meet the requirements needed for a future “quiet zone” classification. Further discussion will be held with Caltrain and California Public Utilities Commission to identify appropriate improvements. On the east side of Alma Street, the plan extends the two-lane approach to the intersection by approximately 500 feet in order to decrease the length of the queue of vehicles crossing or turning onto Alma Street.

- Carlson Court

The plan widens sidewalks at three corners of the intersection to reduce pedestrian crossing distances and to discourage U-turn movements at this intersection. U-turns are accommodated in both directions at the intersection of Charleston Road and Mumford Place and also at the intersection of Charleston Road and Nelson Drive. The sidewalk along the westbound lanes is being widened between Carlson Court and the multi-use trail adjacent to Hoover Elementary School in order to accommodate the high volume of student two-way bicycle traffic between Carlson Court and the multi-use trail.

- Hoover Elementary School

The plan provides a new landscaped median island down the center of Charleston Road between Carlson Court and Nelson Drive. The median island prevents preclude left-turn and U-turn movements from eastbound Charleston Road. Median openings are proposed to accommodate left-turns onto eastbound Charleston Road from both the Hoover Elementary School driveway and the Stevenson House driveway. The signal at Nelson Drive is being modified to have a protected left-turn phase for both eastbound and westbound traffic, and the storage length for the eastbound left-turn/U-turn lane has been lengthened to more than 300 feet. The north side of the intersection is being modified to make it clear to vehicles heading northbound on Nelson Drive that a through-movement at the intersection is provided only for bicyclists.

- Middlefield Road

Currently, Charleston Road is a two-lane road on both approaches to the Middlefield Road intersection and widens to four lanes for approximately 600 feet at the intersection. The proposed plan line adds dedicated right turn lanes in both directions by shifting the westbound lane merge from after the intersection at Middlefield Road to before. To improve bike safety, curb modifications are being implemented to allow bicyclists to be able to maintain a straight path through the intersection. This requires right-turning vehicles to slowly cross the bike lanes as they enter the right-turn lanes. Green bike lanes are being incorporated to improve visibility of bicyclists in weaving or potential conflict areas.

- Sutherland Drive/Grove Avenue

The design initially provided new landscaped medians to improve safety of left-turning movements from Charleston Road on to the side streets. The proposed improvements allowed for left-turns out of the side streets but not into them for every direction. Left-turns into the side streets were to be accommodated by the use of U-turn maneuvers at a mid-block location near Charleston Court for westbound traffic and at Louis Road for eastbound traffic. The proposed islands were removed from the plan in response to the negative community feedback. The plan now calls for a new pedestrian crossing with a median refuge area.

- Louis Road

The plan widens this intersection to provide space for eastbound vehicle U-turns. Additionally, it provides a new traffic signal to help vehicles, bikes, and pedestrians to safety cross Charleston Road or to make the left turn onto Charleston Road from Louis Road. The proposed signal has received mixed reviews from the nearby residents and signal alternatives will be considered. The plan adds a green bike lane on southbound Louis Road which improves safety for bicyclists by providing a place to wait to cross Charleston Road out of the way of left turning or right turning vehicles. The existing median refuge islands for bicyclists are being enlarged.

- Fabian Way

In the eastbound direction, the plan adds a dedicated left-turn lane for vehicles as well as a separate left-turn lane for bicyclists. Additionally, it provides a new cross-walk across Charleston Road on the east side of the intersection. On southbound Fabian Way, the plan adds a bike lane between the right turn lane and the through lane. A separate City project will install bike lanes on Charleston Road east of Fabian Way in both directions.

### Concept Plan Line Review

The conceptual plan lines were reviewed by Palo Alto Pedestrian and Bicycle Advisory Committee (PABAC) in November 2014 and February 2015. PABAC members provided their thoughts and comments on the features/treatments/concepts/improvements proposed, and provided input on their individual preferences for certain features. In addition, staff presented the proposed improvements at City/School Traffic Safety Committee and Parent Teacher Association (PTA) meetings at Gunn High School, Terman Middle School, Hoover Elementary School, and Fairmeadow Elementary School in February and March of 2015. The PTAs all supported the plan line and thought the improvements would be beneficial to the students and users of the corridor. Numerous comments and suggestions from PABAC, the community and from Planning and Transportation Commission were provided through the meetings. These comments and the response to the comments are included as Attachment B.

The preferred plan line alternative was presented to the City's Planning and Transportation Commission (PTC) in April 2015. The response from the Commissioners was very positive and the preferred plan line concept was approved unanimously. The PTC's primary request was for the report transmitting the Concept Plan Line to Council to include additional data that has been assembled previously to support the project. The PTC also requested that staff provide updated traffic counts to allow comparison of current counts to the past.

In response to the request for information from previous reports, staff has provided a link to the [Council Staff Report](#) from 2008 when Council approved the trial striping plan and also the [Staff Report](#) from 2012 when Council approval the Arastradero trial striping plan. Links are provided in Attachment C. Updated traffic counts are described below.

### Traffic Impacts of Previously Implemented Striping Changes

In response to the PTC's request, staff directed the project's traffic engineering consultant to take additional vehicle counts on Arastradero Road and along selected nearby streets that have been counted in the past. The data taken from May 2015 compared to counts in Spring of 2012, Fall of 2011 and prior to the initial striping changes indicates that AM peak traffic has increased on Georgia Avenue but has remained consistent or has been reduced on Maybell Avenue and Donald Drive. This data shows that cut through traffic has not increased significantly because of earlier phases of the project. The increase on Georgia Avenue is best explained by an increase of Gunn parents utilizing Georgia Avenue to drop off their high school students. This data is combined with the previous counts on a graphic included in Attachment D.

The graph included in Attachment D shows the hourly traffic demands throughout the day for a typical weekday. As shown in the chart, there is a heavy westbound peak hour during the AM School peak period, and a longer duration PM peak for the eastbound direction. While traffic conditions slow during the AM and PM peak periods to the peak hour traffic, the AM peak hour delays and queuing are exacerbated by an all-pedestrian phase at the intersection of Donald/Terman and Arastradero. Traffic operating conditions generally improve upon termination of the all-pedestrian phase around 8:15 AM.

#### Traffic Impacts of Proposed Concept Plan Line

A traffic impact analysis (Appendix A of Attachment E) was conducted to analyze the expected effect of the proposed Concept Plan Line improvements along the corridor with respect to existing conditions and determined that the project would not trigger any significant impacts. The study did not evaluate increasing capacity for future growth in traffic volumes.

The City funded an update to its traffic model as part of the ongoing Comprehensive Plan update, and this model anticipates that traffic volumes will increase by 15 to 55 percent along the Arastradero Corridor during the peak periods by the future year 2030. Because Arastradero Road already operates near capacity in the peak hour, the likely result will be a lengthening of the peak period, which can be expected to start earlier and end later unless there is a successful shift away from single occupant vehicles in the region.

An issue of concern to the community heard at the public meetings is the general growth in traffic as a result of the strong economy, the increase in employment and other factors. The Charleston/Arastradero project does not significantly affect vehicle capacity in the corridor, but will continue and enhance changes that were made in 2006 and 2010. Those changes reflected the vision for the corridor established in the Comprehensive Plan, the Bicycle/Pedestrian Transportation Plan and other City Council actions. The project will include some traffic operations upgrades and also will improve bike and pedestrian facilities, thus providing positive benefits for all modes.

The general growth in traffic is a regional and citywide issue, which the City needs to address as a community regardless of the actions undertaken in this corridor. This effort needs to include increased Caltrain capacity, citywide bicycle facility improvements, expanded commuter and community shuttle service, trip reduction strategies for new and existing employment and efforts such as the Transportation Management Association. The City Council has recently asked staff to work with Stanford to achieve a meaningful shift to alternative modes at the Research Park. In addition, current planning efforts such as the Comprehensive Plan update and Greenhouse Gas Reduction strategies will address longer term efforts to manage vehicle traffic.

## **Next Steps**



Following approval of the Concept Plan Line the design team will start work on the detailed design for the entire corridor between Charleston Road at Fabian Way and Arastradero Road at Miranda Avenue. The project will be designed to allow its construction in phases that will also correspond to the grant funding for the project.

Two locations on the corridor where the Concept Plan Line proposes striping modifications to improve vehicle flow are being considered for possible accelerated implementation. The first location is on westbound Charleston approaching Alma Street where the two lane approach will be extended to add more space for cars to line up in both lanes while waiting to cross the intersection. The other location is the intersection of Charleston Road and Fabian Way where the westbound merge will be shifted to the east side of Fabian Way and the left turn pocket will be added in the westbound direction. Upon approval of the Concept Plan Line, these two locations of lane reconfigurations will be implemented in Fall 2015 or Summer 2016 in coordination with street maintenance contracts.

### **Resource Impact**

This project is anticipated to cost \$11.3 million and be completed over a period of several years. Funding for the design contract with Mark Thomas & Company in the amount of \$736,765 was approved in March 2014 for preliminary design through environmental assessment. Of that amount, \$335,000 was funded by the Charleston Road-Arastradero Road Traffic Impact Fee Fund. An additional \$500,000 was approved in the FY 2015 Capital Project Budget to complete the design and prepare construction documents. The estimated construction cost for the Charleston-Arastradero Corridor Project is \$10 million. Staff has secured two construction funding grants for this project to date. The first is a Caltrans Safe Routes to School (SR2S) Grant in the amount of \$450,000 which was awarded in 2012 for improvements from Middlefield Road to Alma Street. The second grant is a Valley Transportation Authority – Vehicle Emissions Reductions Based at Schools (VERBS) grant awarded in 2013 in the amount of \$1,000,000 for construction of improvements on Arastradero Road between Georgia Avenue and Maybell Avenue, including repaving of the Los Altos Trail between Arastradero Road and Adobe Creek. As part of the recently approved 2016 Adopted Budget and 2016-2020 Capital Improvement Program, the remaining project costs were programmed in the Capital Improvement Fund through Fiscal Year 2020. This project was included in the June 2014 City Council approved Infrastructure Plan, supported by various sources including transfers from the Stanford University Medical Center Development Agreement Fund, transient occupancy tax receipts, and accumulated savings in the Infrastructure Reserve.

### **Policy Implications**

Approval of the plan line is consistent with City policies and previous Council direction.

The Bicycle and Pedestrian Transportation Plan 2012 (BPTP) lays out the development of the Bicycle Boulevard network and prioritizes corridors for development of these facilities. BPTP

objectives that are furthered by the development of the Charleston/Arastradero Corridor Project include:

Objective 1: Double the rate of bicycling for both local and total work commutes by 2020 (to 15% and 5%, respectively).

Objective 2: Convert discretionary vehicle trips into walking and bicycling trips in order to reduce City transportation-related greenhouse gas (GHG) emissions 15% by 2020.

Objective 3: Develop a core network of shared paths, bikeways, and traffic-calmed streets that connects business and residential districts, schools, parks and open spaces to promote healthy, active living.

Objective 4: Plan, construct and maintain 'Complete Streets' that are safe and accessible to all modes and people of all ages and abilities.

Objective 5: Promote efficient, sustainable and creative use of limited public resources through integrated design and planning.

The Comprehensive Plan also contains goals, policies and programs that support the development of the Charleston/Arastradero Corridor Project, many of which are listed below. The Comprehensive Plan also includes policies that recognize the desire to accommodate existing traffic capacity (see Policy T-30: "The City has designated some streets as residential arterials to recognize that they carry large volumes of through-traffic... The City's objective is to address the desires of residents of these streets who would like to have slower speeds, safer conditions for bicyclists and pedestrians, and aesthetic improvements. This must be done economically and without appreciably reducing traffic capacity...").

Overall, the City Council has found the Charleston/Arastradero Corridor Project to be generally consistent with the Comprehensive Plan as a whole based on goals and policies such as these:

Goal T-1: Less Reliance on Single-Occupant Vehicles.

Goal T-3: Facilities, Services and Programs that Encourage and Promote Walking and Bicycling.

Goal T-4: An Efficient Roadway Network for All Users.

Goal T-6: A High Level of Safety for Motorists, Pedestrians, and Bicyclists on Palo Alto Streets

Policy T-14: Improve pedestrian and bicycle access to and between local destinations, including public facilities, schools, parks, open space, employment districts, shopping centers, and multi-modal transit stations.

Policy T-25: When constructing or modifying roadways, plan for usage of the roadway space by all users, including motor vehicles, transit vehicles, bicyclists and pedestrians.

Policy T-39: To the extent allowed by law, continue to make safety the first priority of citywide transportation planning. Prioritize pedestrian, bicycle, and automobile safety over vehicle level of service at intersections.

Policy T-40: Continue to prioritize the safety and comfort of school children in street modification projects that affect school travel routes.

Program T-19: Develop, periodically update and implement a bicycle facilities improvement program and a pedestrian facilities improvement program that identify and prioritize critical pedestrian and bicycle links to parks, schools, retail centers and civic facilities.

Program T-33: Develop comprehensive roadway design standards and criteria for all types of roads. Emphasize bicycle and pedestrian safety and usability in these standards.

Program T-41: The following roadways are designated as residential arterials. Treat these streets with landscaping, medians, and other visual improvements to distinguish them as residential streets, in order to reduce speeds.

- Middlefield Road (between San Francisquito Creek and San Antonio Road)
- University Avenue (between San Francisquito Creek and Middlefield Road)
- Embarcadero Road (between Alma Street and West Bayshore Road)
- Charleston / Arastradero Roads (between Miranda Avenue and Fabian Way)

## **Environmental Review**

The Charleston-Arastradero Corridor Project will be funded from both local and federal sources. Therefore, compliance with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) is required.

For CEQA compliance, the City prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the Project in 2004 and the Project was approved by the City Council. A link to the 2004 IS/MND is included in Attachment C. In addition, the project was discussed in the 2012 Mitigated Negative Declaration for the Bicycle and Pedestrian Transportation Plan. As stated above under *Project Background*, the largest components of the Project, namely the identified reduction in through traffic lanes from four to two along Arastradero and Charleston Roads,

were previously implemented on a trial basis and subsequently made permanent. In addition, the improvements at the entrances to Gunn High School and Hoover Elementary School were implemented.

Most of the remaining components of the approved Project, all of which are relatively minor in scope, have not been implemented. These improvements include bulb outs, new and improved bicycle facilities, new and upgraded crosswalks, raised pedestrian refuges, modifications to intersection geometry, addition of trees and landscaping, and additional lighting at various locations along the 2.3-mile Corridor. The improvements that constitute the proposed Concept Plan Line represent refinements and modifications to this list of not-yet-implemented components of the approved Project, and would not appreciably affect traffic capacity.

Under staff direction, the environmental compliance specialists on the consultant team undertook a preliminary review of the proposed Concept Plan Line improvements in order to compare them to the list of not-yet-implemented components of the approved Project, and also to determine if any of the proposed improvements will result in new and/or significantly greater environmental impacts than those identified in the Project's 2004 IS/MND. Based on this review, it was concluded that implementation of the proposed Concept Plan Line improvements would not result in significant environmental impacts that are different from, or substantially greater than, those identified in the 2004 Initial Study/MND; therefore, a new environmental document is not required. An Addendum to the Final Initial Study/MND was prepared and has been reviewed by staff from the Planning and Community Environment Department and the City Attorney's Office. The Addendum to the Final Initial Study / MND is attached to this report as Attachment E.

Analyses required for NEPA compliance, to be specified by Caltrans on behalf of the Federal Highway Administration, will be undertaken. Under staff direction, the consultant team will prepare the necessary analyses for the project. Given the nature and scope of the proposed improvements, both the consultant team and staff anticipate that Caltrans will determine that a Categorical Exclusion under NEPA (analogous to a Categorical Exemption under CEQA) is applicable because the proposed improvements consist of landscaping and pedestrian/bicycle improvements that will not materially affect traffic operations or capacity.

**Attachments:**

- A - Concept Plan Line (DOCX)
- B - Responses to Public Comments (PDF)
- C - Links to Resource Materials (DOCX)
- D - Arastradero Road Traffic Counts and Hourly Traffic Graph (PDF)
- E - CEQA Addendum and Traffic Report (PDF)

# Attachment A

## Concept Plan Lines

### Part 1 of 3 Concept Plan Lines

<https://www.cityofpaloalto.org/civicax/filebank/documents/49060>

### Part 2 of 3 Concept Plan Lines

<https://www.cityofpaloalto.org/civicax/filebank/documents/49061>

### Part 3 of 3 Concept Plan Lines

<https://www.cityofpaloalto.org/civicax/filebank/documents/49062>

#	Public Comment	Response
1	Concern of Removal of Left turn out of Young Life Preschool and church and how much traffic is using the driveway	Left turning vehicles from the preschool driveway and from Georgia Avenue face each other in the two-way-left-turn lane, creating unsafe conditions. Traffic counts show 6 and 21 vehicles making these movements respectively during morning, midday, and evening peak travel times combined. The design accommodates left-turn movement for the larger volume of left-turning vehicles from Georgia Avenue.
2	Backup along Alma Street/Caltrain Intersection because of the Caltrain traffic	The signal phasing and timing were set to optimize operations at this intersection, given the constraint of signal preemption by Caltrain. Unless this crossing is grade-separated, Caltrain operation will continue affect operations at this intersection.
3	Safety along the railroad crossing on Charleston with bicyclists and vehicles but still giving bicyclists a head start before vehicles at the intersection	For eastbound Charleston Road, the project proposes to pull back the signal stop line to be before the railroad crossing gate. If bicyclists are allowed to pull forward past the tracks during red light, they will be in danger of being hit by passing trains.
4	Left turn restrictions along Charleston frontage into residences and the for the Unitarian Universalist Church, requiring a U-turn at various locations	Addition of landscaped medians will resulting in a safer and more aesthetically pleasing corridor but will require many drivers to make U-turns to get to their destination. U-turns are provided at some locations in order to accommodate this need.
5	Concern that the Charleston/Middlefield intersection is the most dangerous for bicyclists	New green bike lanes are proposed to be to the left of the dedicated right turn lanes in order to prevent conflicts between right turning vehicles and bikes.
6	Concern about future growth at the Stanford Research Park and impact to the traffic conditions on the corridor	This project will not materially reduce the capacity or degrade the vehicle flow of the roadway. The striping plan installed in the past is considered the existing condition for this project.
7	Concern vehicle travel time has increased along corridor from this project	This project will not materially reduce the capacity or degrade the vehicle flow of the roadway. The striping plan installed in the past is considered the existing condition for this project.

Charleston / Arastradero Corridor Project

Public comments and Responses from 2/15 PABAC Meeting, 3/15 Community Work Shop, and 4/15 PTC Meeting

8	Congestion on Arastradero from Terman Middle School to Foothill because of parent drop-offs along the corridor.	A new dedicated right hand turn lane has been provided to decrease congestion on Arastradero due to Terman drop-offs.
9	Vehicles are parking on bike lanes along westbound Arastradero Road.	Parking will be eliminated along some portion of westbound Arastradero and the new striping plan will allow for ample space of parked vehicles.
10	Left turns from Alta Mesa Avenue onto WB Arastradero is impossible during peak hours.	Adding a signal at Alta Mesa is not feasible due to the proximity to El Camino Real.
11	Add more traffic calming devices at Ruthelma/Charleston intersection and make more pedestrian and bicycle friendly	Push button activated flashing beacon are proposed for this pedestrian crossing.
12	Concern of too much cut through surrounding neighborhoods near Alma to avoid the Alma/Charleston Rd intersection	The westbound approach to Alma Street will be restriped to have two lanes for an additional 500' to decrease congestion.
13	Backup along Alma Street/Caltrain Intersection because of the Caltrain preemption.	The westbound approach to Alma Street will be restriped to have two lanes for an additional 500' to decrease congestion.
14	Concern to be able to turn left at Sutherland.	A modification to the Charleston/Sutherland/Grove intersection aimed at improving safety for left-turning vehicles was proposed. However, due to requests by residents in the area, the proposed improvement has been removed from the project.
16	Concern if it is possible to make a U-turn at Montrose/Louis/Charleston intersection.	The intersection was designed to allow for eastbound vehicles to have enough space to make a U-turn.
17	Concern about getting into driveways because medians are added in corridor.	Addition of landscaped medians will resulting in a safer and more aesthetically pleasing corridor but will require many drivers to make U-turns to get to their destination. U-turns are provided at some locations in order to accommodate this need.

18	Traffic conditions have worsened since the 2004 environmental document was prepared. This study should consider the increase in traffic due to the changing land use near the Charleston-Arastradero corridor and the cut-through traffic that result from congestion on the corridor.	The data taken from May 2015 compared to counts in Spring of 2012, Fall of 2011 and prior to the initial striping changes indicates that AM peak traffic has increased on Georgia Avenue but has remained consistent or has been reduced on Maybell Avenue and Donald Drive. This data shows that cut through traffic has not increased because of earlier phases of the project. The increase on Georgia Avenue is best explained by an increase of Gunn parents utilizing Georgia Avenue to drop off their high school students.
19	The Charleston/Louis signal was not part of the pilot project. What is the justification for this signal, and how does it operate? Concern that the signal will worsen congestion on westbound Charleston due to its proximity to the Charleston/Fabian signal.	The signal has been proposed as a response to community concerns about the difficulty of making left-turn movements from southbound Louis Road to Charleston Road. The signal will be interconnected with the Fabian Way signal for better operation. Eastbound Charleston traffic will be stopped only when pedestrians and bicyclists cross Charleston Road.
20	Concern about drivers aggressively overtaking other vehicles on stretches leading up to lane reduction merges.	Currently, at the Donald/Terman intersection and the Middlefield the road turns from one lane to two lanes just before the intersection and narrow down to one lane right after the intersection. The project proposes to eliminate these merge areas on the eastbound at Terman and as well as westbound at Middlefield. Some of the remaining sections are longer stretches of two lane roads merging to one lane. At these locations, the project will provide enough distance for the merges to happen in a safe manner.



## Attachment C – Links to resource materials

Staff Report for Planning and Transportation Hearing, April 29, 2015

Link: <https://www.cityofpaloalto.org/civicax/filebank/documents/47044>

Planning and Transportation Commission – Meeting minutes, April 29, 2015

Link: <http://www.cityofpaloalto.org/civicax/filebank/documents/47936>

Staff Report from 2008 Charleston Road Striping Trial Approval

Link: <http://www.cityofpaloalto.org/civicax/filebank/documents/11911>

Staff Report from 2008 PTC Meeting on Charleston Road Trial Striping

Link: <http://www.cityofpaloalto.org/civicax/filebank/documents/11791>

Staff Report from 2012 Arastradero Road Striping Trial Approval

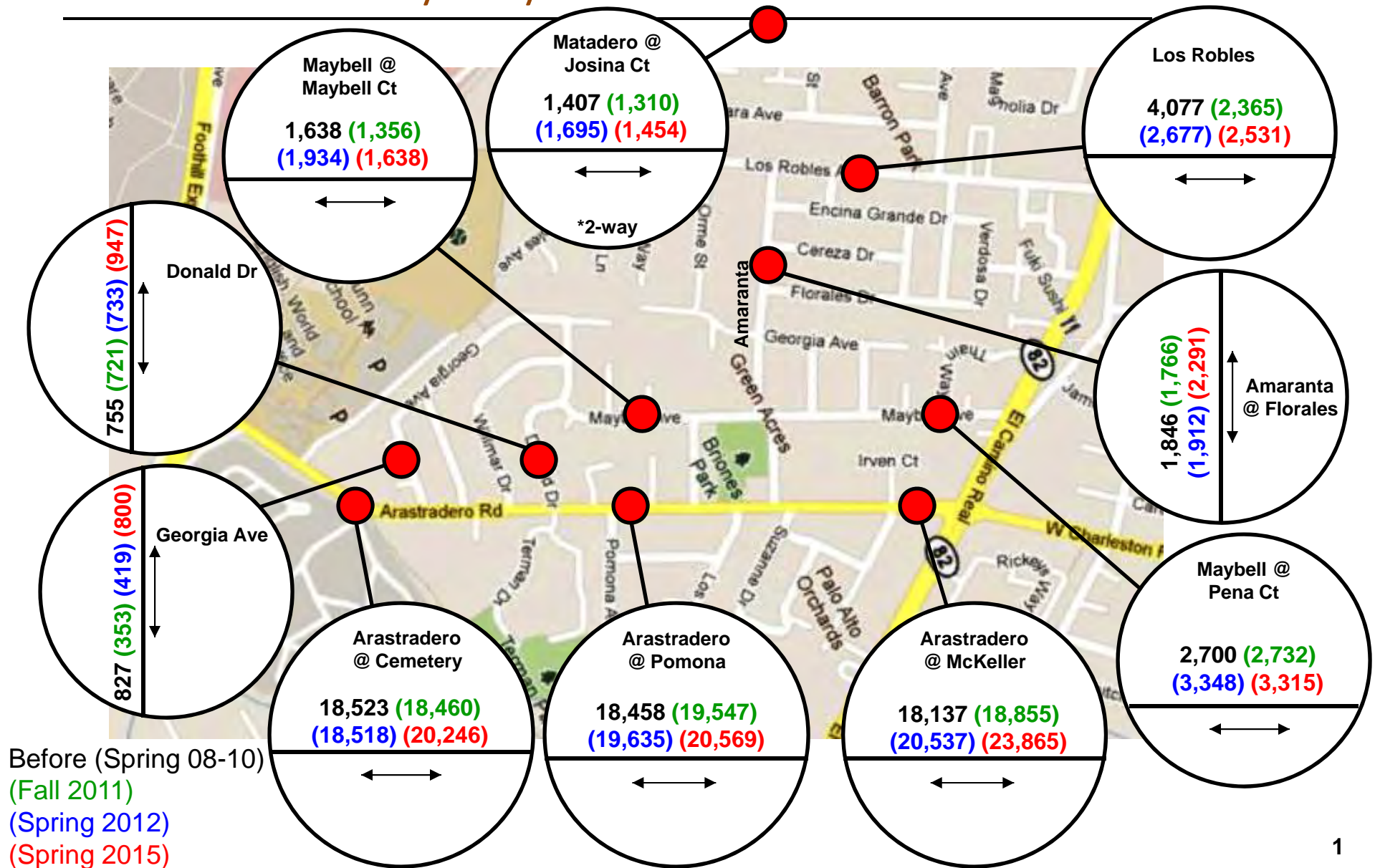
Link: <http://www.cityofpaloalto.org/civicax/filebank/documents/31304>

2004 Mitigated Negative Declaration

Link: <http://www.cityofpaloalto.org/civicax/filebank/documents/5270>

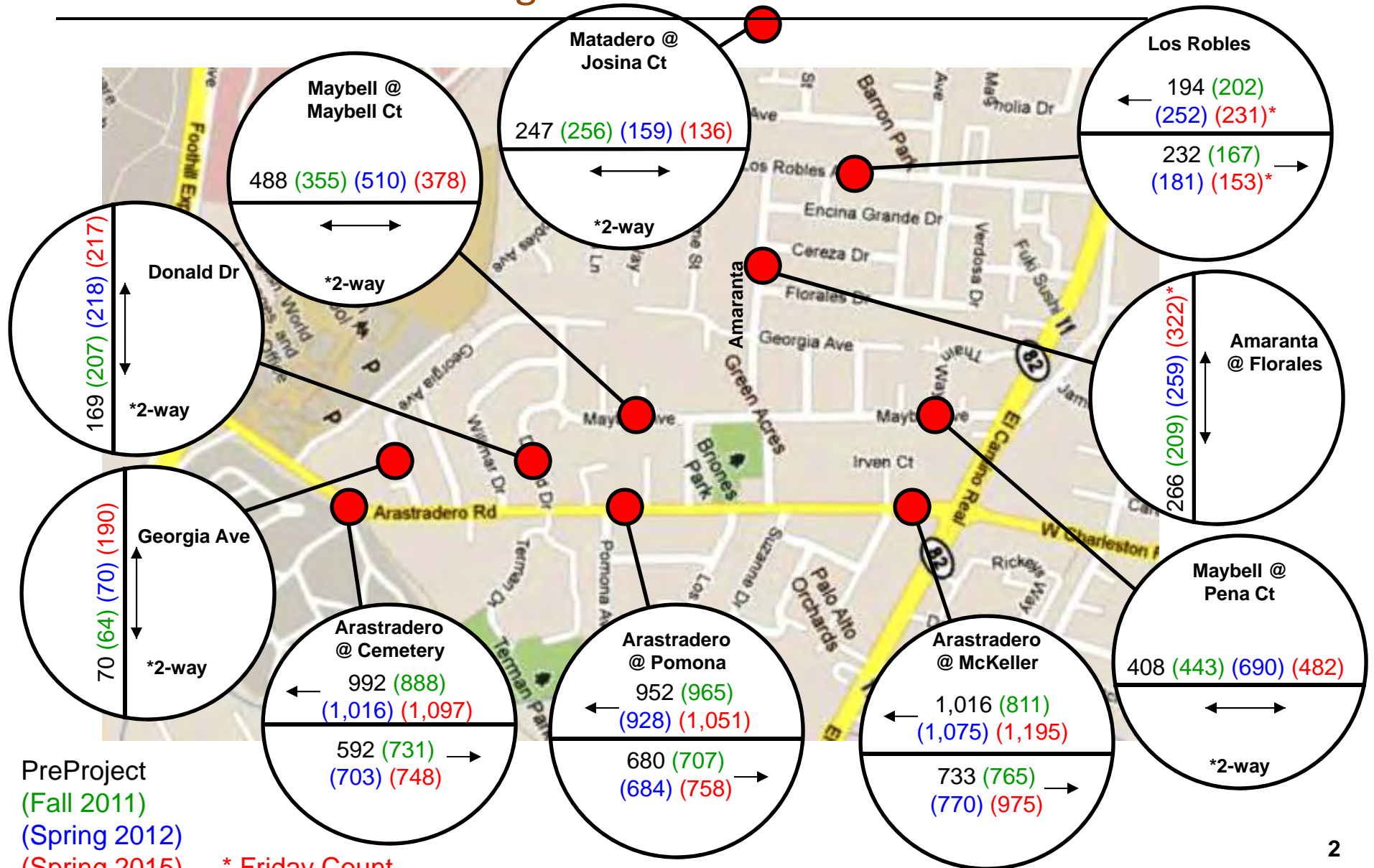
# Daily Traffic Count Comparison

## Combined Two-Way Daily Traffic Movements



# AM Peak Hour Traffic Comparison

## Traffic Movements during AM School Commute



PreProject

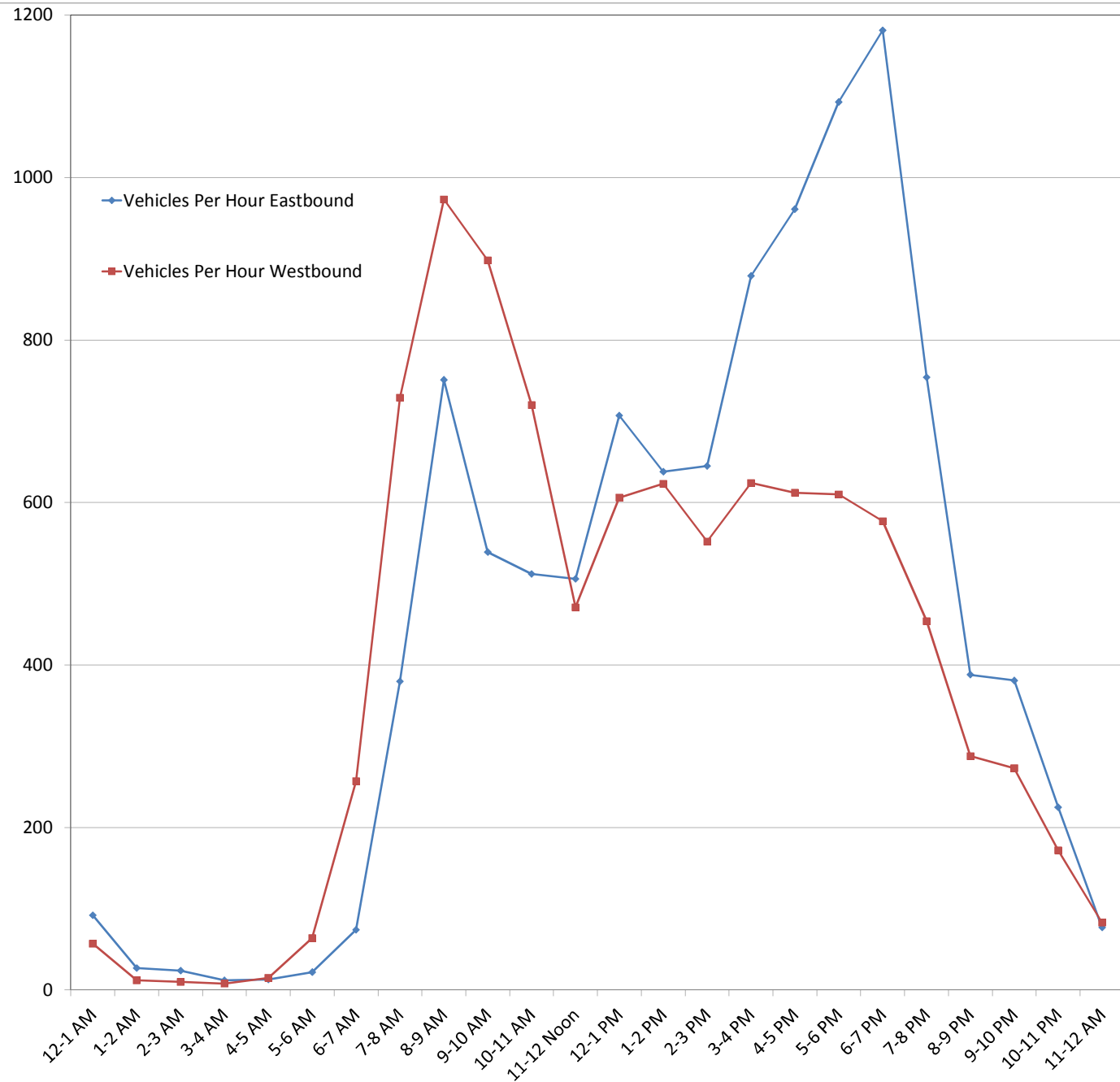
(Fall 2011)

(Spring 2012)

(Spring 2015)

\* Friday Count

Arastradero Road Hourly Vehicle Traffic



# CHARLESTON-ARASTRADERO CORRIDOR PLAN

## ADDENDUM TO THE FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (SCH# 2003082062, Palo Alto 03-EIA-16)

City of Palo Alto Public Project File No. PE-13011

CITY OF PALO ALTO

August 2015

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## SECTION 1.0 INTRODUCTION

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### 1.1 Purpose of an Addendum

This document is an Addendum to the Final Initial Study/Mitigated Negative Declaration (IS/MND) that was prepared for the Charleston-Arastradero Corridor Plan (the “Corridor Plan”) in January 2004 in compliance with the California Environmental Quality Act (CEQA) (SCH# 2003082062; City of Palo Alto 03-EIA-16). The purpose of this Addendum is to disclose the potential for environmental impacts to result from proposed modifications to the approved Corridor Plan, which are described in detail in Section 3.0 of this Addendum.

Section 15162 of the CEQA Guidelines states that when an environmental impact report (EIR) has been certified or a Negative Declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the Lead Agency (in this case the City of Palo Alto) determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:
  - a. The project will have one or more significant effects not discussed in the previous EIR or Negative Declaration;
  - b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
  - d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.



Section 15164 of the CEQA Guidelines states that the Lead Agency or a responsible agency may prepare an Addendum to a previously-certified EIR or Negative Declaration if some changes or additions are necessary, but that none of the conditions described in §15162 (above) calling for preparation of a subsequent EIR have occurred.

## **1.2 Determination**

As noted on the previous page and as described more fully in Section 2 of this Addendum, many components of the Corridor Plan, which was originally approved in 2004, have been implemented. The environmental impacts of the yet-to-be-implemented components of the Corridor Plan, the design of some of which has been changed, is the subject of this Addendum.

Based on the project description, plans, and knowledge of the project site from previous and current environmental studies, the City of Palo Alto has concluded:

- the implementation of the remaining components of the Corridor Plan would not result in any new significant impacts that were not previously disclosed in the 2004 IS/MND; and
- the implementation of the remaining components of the Corridor Plan would not result in a substantial increase in the magnitude of any impacts already identified in the 2004 IS/MND.

For these reasons, a supplemental or subsequent EIR or Negative Declaration is not required and this Addendum to the 2004 IS/MND has been prepared for the proposed project.

## SECTION 2.0 OVERVIEW OF THE CHARLESTON-ARASTRADERO CORRIDOR PLAN

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In 2004, the Palo Alto City Council approved the Charleston-Arastradero Corridor Plan (the “Corridor Plan”), consisting of various roadway modifications and streetscape improvements to a 2.3 mile continuous segment of Arastradero Road and Charleston Road. As shown in Figure 3, *Aerial Photograph and Surrounding Land Uses*, the project limits are Miranda Avenue to the west and Fabian Way to the east. The project limits also include the existing Los Altos – Palo Alto Bicycle Path that extends along the border of Terman Park and Alta Mesa Memorial Park from Arastradero Road to the Palo Alto/Los Altos boundary.

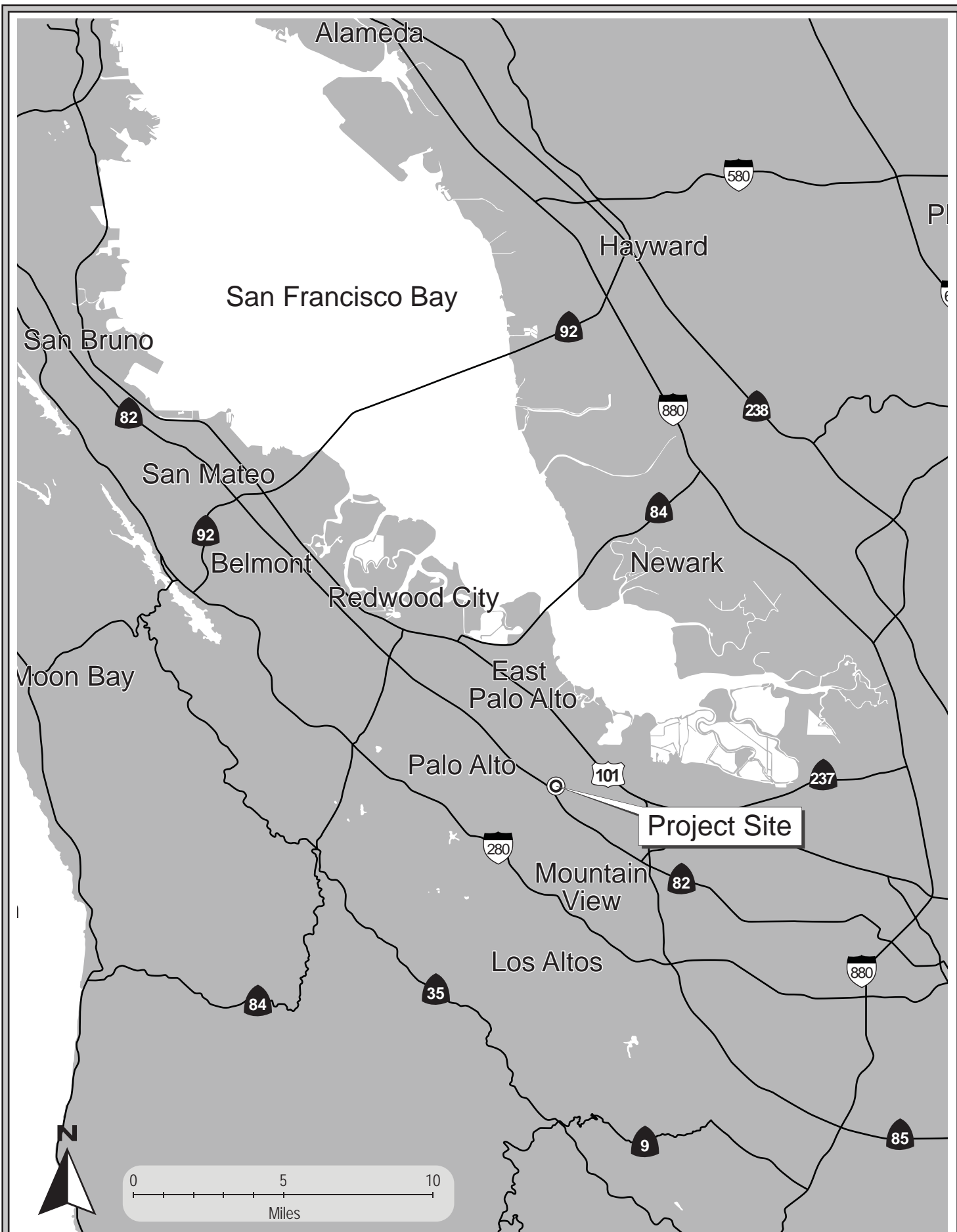
The approved project includes a range of modifications to the Charleston-Arastradero Corridor including reduction in the number of through lanes from four to two at most locations; traffic signal relocation and modification; intersection design modifications; bicycle lane striping; median construction and landscaping; sidewalk widening and reconstruction; utility and drainage modifications; and repaving of the existing road. All work will occur within the existing rights-of-way.

The purpose of the Corridor Plan is to address vehicle, bicycle and pedestrian safety, as well as to enhance the residential character of the corridor.

Following the 2004 approval, the largest components of the Corridor Plan, namely the identified reduction in through traffic lanes from four to two along Arastradero and Charleston Roads, were implemented on a trial basis and subsequently made permanent by the Palo Alto City Council. In addition, the improvements at the entrances to Gunn High School and Hoover Elementary School that are part of the project were implemented.

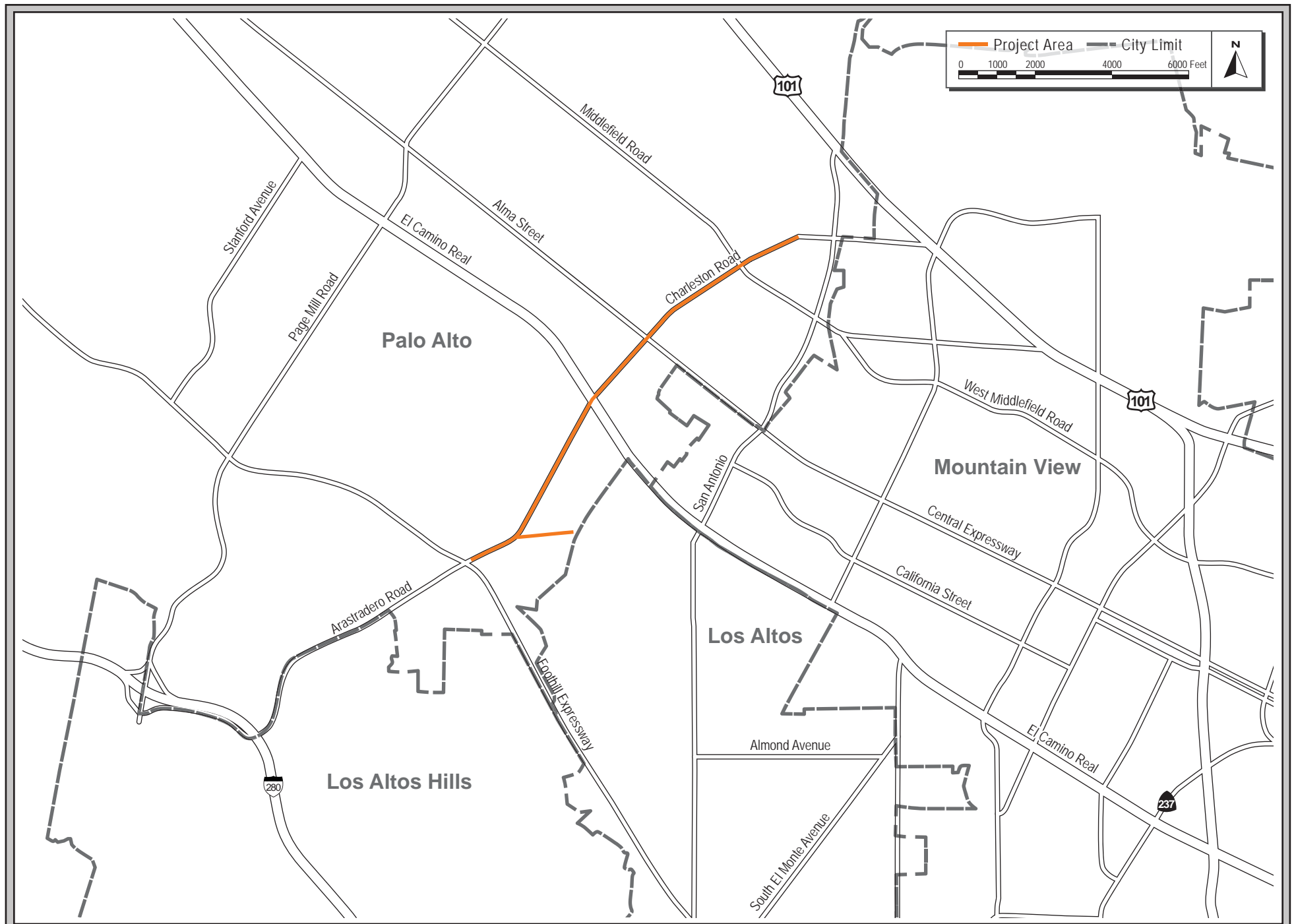
Most of the remaining components of the approved Corridor Plan, all of which are relatively minor in scope, have not been implemented. These improvements include sidewalk bulbouts, new and improved bicycle facilities, new and upgraded crosswalks, raised pedestrian refuges, modifications to intersection geometry, addition of trees and landscaping, and additional lighting at various locations along the 2.3-mile Corridor. The improvements represent refinements and modifications to this list of not-yet-implemented components of the approved Corridor Plan. Such refinements and modifications to the scope of the approved Corridor Plan are based on updated evaluations of existing conditions with the lane reductions in place and substantial input from the community in a series of workshops.

The text below provides a description of these yet-to-be-completed components of the Corridor Plan.



REGIONAL MAP

FIGURE 1



VICINITY MAP

FIGURE 2







## SECTION 3.0 PROJECT DESCRIPTION

---

### 3.1 Overview of the Proposed Project

Roadway improvements that are proposed for the entire project corridor include pavement resurfacing, striping for Class II bicycle lanes, and re-striping existing features on the roadway. Improvements to stormwater drainage systems and streetlight infrastructure, landscaping, relocation of utilities to accommodate the project design, and replacement of rolled curb with vertical curb are also included throughout the project corridor. Modifications to traffic signal timing will be implemented, as necessary, to accommodate these improvements. Unless otherwise noted, these improvements are proposed for the entire Charleston-Arastradero Corridor and are not repeated in the description below.

For the purpose of describing the proposed improvements, the project corridor is divided into the following five segments, in order from west to east.

1. Arastradero Road: Miranda Avenue – Hubbartt Drive
2. Arastradero Road: Hubbartt Drive – El Camino Real (SR 82)
3. West Charleston Road: El Camino Real (SR 82) – Alma Street
4. East Charleston Road: Alma Street – Middlefield Road
5. East Charleston Road: Middlefield Road – Fabian Way

### 3.2 Project Description

#### 3.2.1 Arastradero Road: Miranda Avenue – Hubbartt Drive

The westernmost proposed improvement is the modification of the Arastradero Road/Gunn High School intersection. Improvements at this location would include reconfiguration of the existing island at the entrance to the high school, widening the sidewalk at the northwest corner of the intersection, and relocation of the existing traffic signal to conform to the modified intersection design. A new bicycle/pedestrian path would be constructed along the south side of Arastradero Road between Gunn High School and the existing Los Altos – Palo Alto Bicycle Path. Utilities such as fire hydrants and street lights may need to be relocated to accommodate the portions of the path along the south side of Arastradero Road.

New landscaped medians would be constructed on Arastradero Road near the driveway to the Alta Mesa Memorial Park, the entrance to the Los Altos – Palo Alto Bicycle Path, and the intersection with Georgia Avenue.

The proposed improvements on the existing Los Altos – Palo Alto Bicycle Path (only working within the Palo Alto City Limits) include reconstruction of the existing asphalt and the construction of pedestrian lighting along the path.

### **3.2.2      Arastradero Road: Hubbartt Drive – El Camino Real (SR 82)**

The intersection of Arastradero Road and Terman Drive/Donald Drive would be modified to bring the eastbound through lane merge to the west side of the intersection in order to provide a dedicated right-turn lane into Terman Middle School. As with the rest of the project alignment, Class II bicycle lanes would be striped along the outside of each through-lane in both directions. The eastbound bike lane would be located between the single through lane and the new right-turn lane in order to avoid conflicts between vehicles turning right into the school and bicyclists. Sidewalks on the south side of Arastradero Road would be reconstructed and widened from Willmar Drive eastward until approximately 400 feet east of the intersection with Suzanne Drive, which would require removal of one tree. Sidewalks on the north side of Arastradero Road would be widened at the corners of the intersections with King Arthurs Court, Cherry Oaks Place, Coulombe Drive, and Clemo Avenue. Landscaped medians would be constructed in place of existing striping at various locations between Cherry Oaks Place and El Camino Real.

### **3.2.3      West Charleston Road: El Camino Real (SR 82) – Alma Street**

Modifications to the Arastradero Road/West Charleston Road/El Camino Real (State Route 82) intersection would consist of sidewalk width reduction and reconstruction on the south side of Arastradero Road, reconstruction of the island on the west side of the intersection, removal of the island on the east side of the intersection, and widening of the sidewalks at the northeast and southeast corners. Existing signal poles would be replaced or relocated to accommodate the new intersection design, and a raised crosswalk would be constructed at the southwest corner of the intersection to connect the sidewalk with the island.

Arastradero Road becomes West Charleston Road east of El Camino Real. The Corridor Plan includes new left-turn only lanes at both the eastbound and westbound approaches of West Charleston Road at the West Charleston Road/Wilkie Way intersection. The existing traffic signal phasing and mast arms would be modified to accommodate the protected left-turn movements.

Other proposed modifications to West Charleston Road within this segment include installation of two raised medians west of Wilkie Way, one east of Wilkie Way, and construction of a raised median from west of Park Boulevard to Alma Street. The new raised median from west of Park Boulevard to Alma Street would restrict vehicle movements to right-turn-in-or-out-only between Park Boulevard West Charleston Road, but would allow left-turns for bicyclists. Pedestrian-activated flashing beacons would be added at the existing crosswalk east of Ruthelma Avenue and

the sidewalk at the southwest corner of the Park Boulevard intersection would be reconstructed and widened. Modifications/upgrades to the railroad crossing gates may also be implemented.

### **3.2.4      East Charleston Road: Alma Street – Middlefield Road**

The only modifications to the Charleston Road/Alma Street intersection would be striping for eastbound and westbound bicycle lanes as well as restriping the existing crosswalks. New raised medians would be constructed on East Charleston Road immediately east of Alma Street, and pedestrian-activated flashing beacons would be added to the existing crosswalks at the Wright Place intersection. Three landscaped medians would be constructed in place of existing median striping between Alma Street and Carlson Court.

Modifications at the East Charleston Road/Carlson Court intersection include the widening and reconstruction of the sidewalk at the southwest and southeast corners of the intersection, with possible relocation or replacement of signal poles. The sidewalks on the north side of East Charleston Road would be widened between Carlson Court and the bicycle/pedestrian path adjacent to Herbert Hoover Elementary School, as well as at the approach to the east of the school driveway.

Raised medians would be constructed in place of existing median striping between Carlson Court and Nelson Drive. The sidewalk at the southwest corner of the Nelson Drive intersection would be reconstructed and widened along with the sidewalk on the south side of East Charleston Road in front of the Charleston Shopping Center. A raised median and striping would be added to the existing bicycle/pedestrian path that makes up the fourth leg of the East Charleston Road/Nelson Drive intersection.

### **3.2.5      East Charleston Road: Middlefield Road – Fabian Way**

The westbound merge would be relocated to the east side of the Middlefield Road intersection in order to add a dedicated right-turn lane with a bicycle lane between the through lane and right-turn lane in both directions. Associated modifications to signal phasing and mast arms would be included to accommodate the new intersection design. East of the intersection, the proposed project would include widening and reconstruction of sidewalks on the north side of East Charleston Road at the intersection with Charleston Court.

Raised medians would be constructed in place of the existing striped medians between Charleston Court and Fabian Way. The sidewalk at the southwest corner of East Charleston Road/Sutherland Drive would be widened and a crosswalk with a median refuge would be installed for pedestrians crossing East Charleston Road. An ADA curb ramp would be installed at the north side of the crosswalk, which would result in the removal of one tree. The intersection of East Charleston



Road/Louis Road-Montrose Avenue would be modified by reconstructing the sidewalk at the northwest corner, widening the intersection, and installing a new traffic signal. The south side of East Charleston Road would be widened and the sidewalks reconstructed along the curve between the Louis Road and Fabian Way intersections.

The merge of westbound East Charleston Road as it approaches Louis Road would be relocated to east of the East Charleston Road/Fabian Way intersection. This modification would allow for a dedicated left-turn pocket and left-turn bike lane to be added to the intersection of eastbound East Charleston Road at Fabian Way. The westbound approach to the intersection would then feature one left-turn, one through, one bike lane, and one right-turn lane. Modifications to the signal mast arms may be required in order to accommodate the new signal phasing.

### **3.2.6            Depths of Excavation**

The estimated depths of excavation for the above-described project components are:

- New/Relocated Signal Poles:            12-15 feet
- Sidewalk reconstruction:                1.5 feet
- Pavement (roadway) widening:        2 feet
- Drainage Improvements:                5-10 feet
- Tree Planting:                            4 feet
- Street Lights:                              6 feet
- Pedestrian Lights:                        3 feet

### **3.2.7            Right-of-Way and Easements**

All of the above-described elements would be constructed within existing City of Palo Alto rights-of-way. No permanent right-of-way acquisition or temporary construction easements are needed for the project.

## SECTION 4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED CHANGES TO THE CHARLESTON/ARASTRADERO CORRIDOR PLAN

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*[Introductory Note: This analysis is intended to augment the 2004 Charleston/Arastradero Corridor Plan Initial Study/Mitigated Negative Declaration (“2004 IS/MND”) and should be taken together with the project description and analysis contained therein. With one exception noted below, the analysis of environmental impacts in this document follows the same order and addresses the same topics as those contained in the 2004 IS/MND. One section has been added to address greenhouse gas emissions, the analysis of which was not required under CEQA when the 2004 IS/MND was prepared.]*

### 4.1 Aesthetics

The proposed modifications to the Charleston/Arastradero Corridor Plan (“Corridor Plan”) would not introduce any new visual elements with the potential to affect views or scenic routes. Similar to the approved Corridor Plan, the proposed project includes replacement of roadway paving with “greenery” such as landscaped medians, street trees, and median island trees. The addition of landscaping to the medians of the otherwise wide, paved corridor would be a substantial improvement in the visual character of the roadway.

The implementation of the remaining components of the Corridor Plan is expected to result in the removal of eight trees. This is consistent with the tree removal anticipated in the 2004 IS/MND. The proposed project includes new tree plantings in greater numbers than those removed and would comply with all applicable tree protection mitigation measures identified in the 2004 IS/MND. Therefore, the loss of eight trees would not be a new or substantially greater aesthetic impact than the approved Corridor Plan.

***Conclusion:** The proposed changes to the Corridor Plan would not result in any new significant or substantially greater aesthetic and visual impacts than those described in the 2004 IS/MND.*

### 4.2 Agricultural Resources

There is no farmland or forestland in the vicinity of the project alignment. Modifications to the design of the approved Corridor Plan would not cause any impacts to agricultural or forest resources.

***Conclusion:** As with the approved Corridor Plan, the proposed project would not result in any impacts to agricultural or forest resources.*

### 4.3 Air Quality

The approved Corridor Plan would not result in an increase in trip generation and included no new sources of air pollution emissions. Proposed modifications to the Corridor Plan would not generate vehicle trips or add sources of emissions. Therefore, the proposed modifications to the Corridor Plan would not have any new or more substantial impacts on long-term air emissions in the region and in Palo Alto.

Short-term air quality impacts from construction-related dust and emissions were identified as potentially significant in the 2004 IS/MND. Best Management Practices were incorporated into the 2004 project to mitigate temporary air quality impacts to less than significant levels and would also be implemented for the currently-proposed project.

***Conclusion:** Implementation of Best Management Practices to reduce air emissions during construction would mitigate short-term air quality impacts to less than significant levels. The proposed project would not increase traffic in the area. Therefore, the proposed modifications to the Corridor Plan would not result in new or substantially greater impacts than would the approved Corridor Plan.*

### 4.4 Biological Resources

The approved Corridor Plan was anticipated to result in the removal of street and landscape trees along the Charleston-Arastradero Corridor, though one of the goals of the project was to plant more trees than were removed. No impacts to protected or designated trees were identified. Mitigation to avoid impacts to trees to-be-preserved as well as to avoid impacts to tree nesting birds was included in the 2004 IS/MND.

The currently proposed project would remove up to eight landscape and street trees. Based on the 2004 IS/MND, none of the trees to be removed from the project corridor are designated or protected trees. More street and landscape trees would be planted along the project corridor than would be removed, and the tree preservation and bird nest protection mitigation measures identified in the 2004 IS/MND would also be incorporated into the project. Therefore, the proposed project would not have any new or substantially greater impacts to biological resources than the approved Corridor Plan.

***Conclusion:** With the mitigation identified in the 2004 IS/MND incorporated, the proposed modifications to the Corridor Plan would not result in new or substantially greater impacts to biological resources than the approved project would.*

## 4.5 Cultural Resources

There is one historical marker, a plaque, located at 844 E. Charleston Road just beyond the eastern project limit. All proposed improvements would occur within the existing City of Palo Alto rights-of-way and no historic properties or buildings would be affected by the project.

The 2004 IS/MND found that soil disturbance and excavation for sidewalk and curb replacement could have potential impacts to unknown subsurface archaeological resources. Mitigation measures were incorporated to provide a contingency should archaeological resources be discovered during the construction process.

Since the proposed project includes signal modifications, which the approved project did not, the proposed project would result in excavation at greater depths than the approved project. This is an incremental increase in the potential for the Corridor Plan to cause impacts to subsurface archaeological resources. Implementation of the measures identified in the 2004 IS/MND, however, would avoid significant impacts to archaeological resources in the event that any are encountered during construction. Therefore, the proposed project would not result in new or substantially greater impacts to cultural resources than the approved Corridor Plan.

***Conclusion:** Implementation of the mitigation measures identified in the 2004 IS/MND would reduce potential impacts to unidentified archaeological resources to less than significant levels. The proposed modification to the Corridor Plan would not result in substantially greater impacts to cultural resources than would the approved Corridor Plan.*

## 4.6 Geology and Soils

The 2004 IS/MND concluded that the Corridor Plan would have less than significant impacts to health and safety due to seismic-related hazards. No other geology or soil-related impacts were identified. Many of the features included in the proposed project such as medians, bicycle paths, and widened sidewalks, do not have the potential to create substantial hazards during a seismic event. Relocated or reconstructed signal poles would be constructed to current building and seismic safety codes. The proposed project does not include any other elements or features which could pose hazards during a seismic event. Therefore, the proposed project would not result in new or substantially greater soil- or seismic-related hazards than the approved Corridor Plan.

***Conclusion:** Modifications to the approved Corridor Plan would not result in new or greater geology and soil-related impacts than those identified in the 2004 IS/MND.*

## 4.7 Greenhouse Gases

Greenhouse gas emissions were not evaluated in the 2004 IS/MND because CEQA and the CEQA Guidelines did not call for such evaluation at the time. The approved Corridor Plan would not have resulted in increased long-term greenhouse gas emissions because no vehicle trips would be generated by the project and the Corridor Plan did not introduce any other sources of greenhouse gas emissions. Construction would result in temporary greenhouse gas emissions, however, given that climate change is a cumulative global impact by nature, these emissions would represent a less than significant contribution to the cumulative impacts from greenhouse gas emissions. Measures incorporated into the project to minimize vehicle idling and other construction-related air pollution would minimize construction greenhouse gas emissions.

The proposed modifications to the project would not generate any vehicle trips or introduce new sources of long-term greenhouse gas emissions.

***Conclusion:*** The proposed modifications to the approved Corridor Plan would not result in new or substantially greater greenhouse gas emissions than the approved project would.

## 4.8 Hazards and Hazardous Materials

Neither the approved Corridor Plan nor the proposed modifications would have the potential to create hazards related to airport safety, hazardous material storage facilities, or wildfires.

Multiple sources of contamination in the vicinity of the project corridor were identified in the 2004 IS/MND including the Superfund site at 1911 Plymouth Street in Mountain View (EPA ID# CAD009212838), the Werner Texaco site at 830 E. Charleston Road, the former Ford Aerospace site at 910 San Antonio Road, and the Hyatt Rickey's site at 4219 El Camino Real. None of these sites were found to pose potential hazards either because the contamination occurred outside the project limits or because the project would not excavate deeply enough to disturb groundwater.

Project elements at the E. Charleston Road/Fabian Way intersection, the portion of the project corridor closest to known contamination, would not require excavation below two feet in depth. Other proposed modifications to the Corridor Plan are not close to sources of contamination and would not have the potential to create human health hazards. Therefore, the proposed modifications to the Corridor Plan would not introduce new or substantially greater hazards associated with contamination than the approved Corridor Plan.

***Conclusion:*** The proposed modifications to the Corridor Plan would not result in new or substantially greater hazards than those evaluated in the 2004 IS/MND.

## 4.9 Hydrology and Water Quality

The 2004 IS/MND found that the Corridor Plan would not increase flooding hazards in the area or degrade the existing conditions of stormwater pollution. Best Management Practices for stormwater pollution prevention during construction were included in the project to avoid potential water quality impacts from stormwater runoff during construction.

Landscaped medians and other vegetation included in the proposed project would incrementally increase the pervious surfaces along the project corridor, which would be beneficial. Stormwater pollution prevention measures identified in the 2004 IS/MND would be implemented during construction to avoid significant short-term water quality impacts. Therefore, modifications to the approved Corridor Plan would not result in new hydrology or water quality impacts.

***Conclusion:** The proposed modifications to the Corridor Plan would not result in any new or substantially greater impacts to hydrology and water quality than those identified in the 2004 IS/MND.*

## 4.10 Land Use and Planning

As with the approved Corridor Plan, the proposed modifications to the Corridor Plan would occur entirely within existing public rights-of-way. Adjacent land uses along the project corridor include single-family and multi-family residential, institutional, schools, and commercial services. The proposed improvements would not be incompatible with any surrounding land uses and would improve bicycle and pedestrian connectivity in the City. Potentially significant environmental impacts that might affect adjacent land uses are all mitigated to less than significant levels as detailed in this document and in the 2004 IS/MND.

***Conclusion:** Modifications to the approved Corridor Plan would not cause any new or substantially greater land use impacts than those previously-evaluated in the 2004 IS/MND.*

## 4.11 Mineral Resources

The 2004 IS/MND found no potential for mineral resource impacts to result from the roadway project. Modifications to the approved Corridor Plan would not introduce new elements to the project design that would have the possibility of impacting mineral resources.

***Conclusion:** Modifications to the approved Corridor Plan would not cause any new or substantially greater mineral resource impacts than those previously-evaluated in the 2004 IS/MND.*

#### 4.12 Noise

In the 2004 IS/MND, operational noise impacts from the approved Corridor Plan were found to be less than significant because the improvements would not generate additional traffic or move traffic lanes closer to adjacent receptors (i.e., schools and residences). Similarly, the proposed modifications to the approved Corridor Plan that are now being considered would not move traffic closer to receptors and would not generate additional traffic, therefore long-term noise impacts would be less than significant.

Mitigation measures were identified in the 2004 IS/MND to reduce short-term noise impacts from project construction. The modified Corridor Plan would also implement these measures, therefore, temporary noise impacts would be less than significant.

***Conclusion:** With the implementation of the mitigation measures identified in the 2004 IS/MND for short-term construction noise impacts, the proposed modifications to the Corridor Plan would have less than significant noise impacts. Modifications to the approved Corridor Plan would not cause new or substantially greater noise impacts than those previously-evaluated in the 2004 IS/MND.*

#### 4.13 Population and Housing

As with the approved Corridor Plan, the proposed modifications would have no impact on population and housing. No housing would be displaced because all improvements would occur within existing City of Palo Alto right-of-way, and the improvements would not induce population growth.

***Conclusion:** The proposed modifications to the Corridor Plan would not result in new or substantially greater population impacts than would the approved Corridor Plan.*

#### 4.14 Public Services

While the approved Corridor Plan would not increase the need for public services, potentially significant impacts were identified due to the design of the Plan. Specifically, the 2004 IS/MND found that raised median islands could impair access to/from Charleston/Arastradero Roads for fire vehicles and that the lane reduction could limit the ability of drivers to pull over for emergency vehicles, both of which could increase response times. Mitigation measures were incorporated which called for the fire department to test response times and emergency access during the phased implementation of the improvements. Traffic signal pre-emption for emergency vehicles was also incorporated, which would benefit response times.

As stated in Section 2, the components of the Corridor Plan that reduced the number of lanes from four to two were implemented a number of years ago. In the five to nine years since the changes were made, the Palo Alto Fire Department has not experienced any effects to overall response times or received comments from firefighters regarding the changes to the corridor.

The proposed raised medians, which were also part of the original Corridor Plan could potentially affect response times by preventing left-turns if the out-of-the-way travel distance were to be substantial. However, the medians that are being proposed are not continuous along the entire corridor such that emergency vehicles would encounter significant delays in response times. At each proposed median location, there are either nearby intersections or breaks in the median that would allow emergency vehicles access to any destination without excess delay. Therefore, the medians proposed as part of the modifications to the Corridor Plan would not cause a significant delay in response times. Further, signal pre-emption for emergency vehicles would be utilized in any new or replaced traffic signals, which would have a beneficial effect on response times.

***Conclusion:** The proposed modifications to the Corridor Plan would not result in any new or greater public services impacts than would the approved Corridor Plan.*

#### **4.15 Recreation**

The 2004 IS/MND found no impacts to recreation from the roadway improvements. The proposed modifications to the approved Corridor Plan would not create any demands on recreational resources in the City. All improvements would occur within existing City right-of-way and would not impact recreation facilities.

***Conclusion:** The proposed modifications to the Corridor Plan would not result in any new or greater impacts to recreational resources than those described in the 2004 IS/MND.*

#### **4.16 Transportation and Traffic**

The 2004 IS/MND found less than significant impacts to traffic congestion, delay, and traffic-related hazards from the approved Corridor Plan. Neither the approved Corridor Plan nor the proposed modifications would generate vehicle trips. Therefore, the potential for the proposed project to affect traffic congestion would be from changes to circulation patterns that could result from new medians preventing turning movements, the addition of traffic signals, and/or modifications to the phasing of existing signals.



A traffic study completed for the proposed project by *TJKM Transportation Consultants* calculated the levels of service (LOS)<sup>1</sup> at various intersections along the project corridor for both the existing and proposed project conditions. The results of the analysis are summarized in Table 1 below and the traffic study is included as Appendix A of this Addendum.

The City of Palo Alto considers a project to result in a significant impact to intersection LOS if the project would deteriorate the LOS below LOS D. Other thresholds of significance for traffic impacts are identified in the 2004 IS/MND.

<b>Table 1 Existing and Proposed Intersection Levels of Service</b>						
	<b>Existing (Peak Period)</b>			<b>Proposed (Peak Period)</b>		
<b>Study Intersection</b>	<b>AM</b>	<b>Midday</b>	<b>PM</b>	<b>AM</b>	<b>Midday</b>	<b>PM</b>
Arastradero Road/Miranda Avenue	B	B	B	B	B	C
Arastradero Road/Gunn High School Driveway	B	B	B	C	B	A
Arastradero Road/Donald Drive-Terman Drive	B	B	B	B	B	C
Arastradero Road/Coulombe Drive	B	A	B	C	B	B
Arastradero Road/Clemon Drive-Suzanne Drive	C	-	C	C	-	C
Arastradero Road/Alta Mesa Avenue-McKellar Lane	E	B	C	E	B	C
Arastradero Road-Charleston Road/El Camino Real	D	C	D	D	C	D
Charleston Road/Wilkie Way	A	A	A	A	A	A
Charleston Road/Park Boulevard	D	C	C	B	B	B
Charleston Road/Alma Street	E	C	E	E	D	E
Charleston Road/Wright Place	C	B	B	C	B	C
Charleston Road/Mumford Place	C	B	B	B	B	B
Charleston Road/Carlson Court	B	A	A	B	A	B
Charleston Road/Nelson Drive	A	A	A	B	A	B
Charleston Road/Middlefield Road	D	C	D	D	C	D
Charleston Road/Louis Road-Montrose Avenue	F	F	F	B	B	C
Charleston Road/Fabian Way	B	B	C	C	C	D
Source: TJKM Transportation Consultants. <i>Charleston-Arastradero Draft Design Report, City of Palo Alto</i> . March 2015.						
<div style="display: flex; justify-content: space-between;"> <span><span style="background-color: #00FFFF; border: 1px solid black; padding: 0 5px;"> </span> -- Project would not result in any change to the LOS</span> <span><span style="background-color: #00FF00; border: 1px solid black; padding: 0 5px;"> </span> -- Project would result in an improvement to the LOS</span> </div> <div style="display: flex; justify-content: space-between;"> <span><span style="background-color: #FFFF00; border: 1px solid black; padding: 0 5px;"> </span> -- Project would result in a non-significant degradation of the LOS</span> </div>						

<sup>1</sup> Level of Service (LOS) is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, with the best operating conditions, to LOS F, with the worst operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

As shown in Table 1 above, the proposed project would not degrade the LOS of any of the study intersections below LOS D. Any degradation in LOS would be minor and less than significant. Further, the project would improve the LOS at a number of intersections, most notably at Charleston Road/Louis Road-Montrose Avenue where the LOS would improve from “F” to “B” and “C” due to the addition of a traffic signal to the intersection.

The proposed project includes numerous signage and safety improvements for bicyclists and pedestrians such as flashing beacons at crosswalks, pedestrian lighting, timers on crosswalk signals, and green pavement markings for bicycle lanes. Other improvements such as landscaped medians, protected left-turn phasing at traffic signals, and right-turn pockets are intended to improve safety for motorists.

***Conclusion:** The proposed modifications to the approved Corridor Plan would not result in any new or substantially greater traffic congestion or safety impacts than those identified in the approved 2004 IS/MND.*

#### **4.17 Utilities and Service Systems**

The approved Corridor Plan would not increase demands on existing utilities and services systems, however, widened sidewalks and curbs were found to have the potential to impact existing utility placements. Mitigation to further assess existing utility placements prior to final design were incorporated to avoid impacts to existing utilities. With this mitigation included in the current project, modifications to the approved Corridor Plan would not cause new or greater conflicts with utilities.

***Conclusion:** The proposed modifications to the approved Corridor Plan would not cause new or substantially greater impacts to utility systems than those described in the 2004 IS/MND.*

#### 4.18 Mandatory Findings of Significance

As described in this Addendum, with incorporation of the mitigation measures identified in the 2004 IS/MND, modifications to the approved Corridor Plan would not result in new or substantially greater environmental impacts than those evaluated in the 2004 IS/MND. The traffic analysis completed for this project included all of the preceding potential developments and concluded that no significant impacts to traffic congestion would result. No other potential cumulative impacts are anticipated due to the localized nature of this project's potentially significant effects (e.g. construction-related noise and dust emissions). Therefore, the proposed project would not have a cumulatively considerable contribution to any significant cumulative environmental impacts.

***Conclusion:** Modifications to the approved Corridor Plan would not result in any new or substantially greater environmental impacts than those described in the 2004 IS/MND.*

## SECTION 5.0 CONCLUSION

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The City of Palo Alto is implementing the final phase of the approved Charleston-Arastradero Corridor Plan, including a number of modifications to the design of various improvements. The proposed modifications are described in Section 3.0 of this Addendum. The City has evaluated the environmental effects of these modifications in Section 4.0 of the Addendum. Based upon the factual information contained in the above analyses, the City has reached the following conclusion:

Approval of the proposed modifications described in Section 3.0 will not have any significant environmental impacts not previously disclosed in the 2004 Charleston/Arastradero Corridor Plan Final Initial Study/Mitigated Negative Declaration, nor would there be a substantial increase in the severity of previously-identified significant environmental impacts. Therefore, no subsequent or supplemental Negative Declaration or EIR is warranted or required.

## SECTION 6.0 REFERENCES

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City of Palo Alto. *Charleston/Arastradero Corridor Plan, Final Initial Study and Mitigated Negative Declaration SCH#2003082062, City of Palo Alto 03-EIA-16*. January 2004.

California State Water Resources Control Board. *Geotracker*. Accessed April 30, 2015.  
Available at: <http://geotracker.waterboards.ca.gov/>

TJKM Transportation Consultants. *Charleston-Arastradero Draft Design Report, City of Palo Alto*. March 2015.

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# *Charleston-Arastradero Final Design Report*

## *City of Palo Alto*



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Executive Summary	3
Introduction	4
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The Charleston Road-Arastradero Road corridor, considered to run east-west throughout its entirety, is proposed to be reformed to improve bicycle and pedestrian facilities. At the study intersections, listed on Page 9, changes to lane geometries have been made and analyzed using the traffic program, Synchro. This software implements Highway Capacity Manual (HCM) 2000 standards to determine level of service (LOS) based on vehicular, bicycle and pedestrian movement counts.

Each intersection is discussed individually in the report. This project moves the study corridor towards a Complete Streets design enhancing bicycle and pedestrian safety along the study corridor. Proposed improvements along the study corridor are not projected to have significant impact on operations of the study intersections and LOS values do not degrade to unacceptable levels as defined by the Transportation Element of the Palo Alto General Plan.

General proposed improvements along the study corridor are curb bulb-outs, bicycle lane improvements, crosswalk improvements, lane geometry improvements, and updated signal timings. Timings have been standardized and updated to accommodate bicycle and pedestrian modes and minimize impacts of facility improvements to intersection LOS as per the California Manual on Uniform Traffic Control Devices (CA MUTCD).

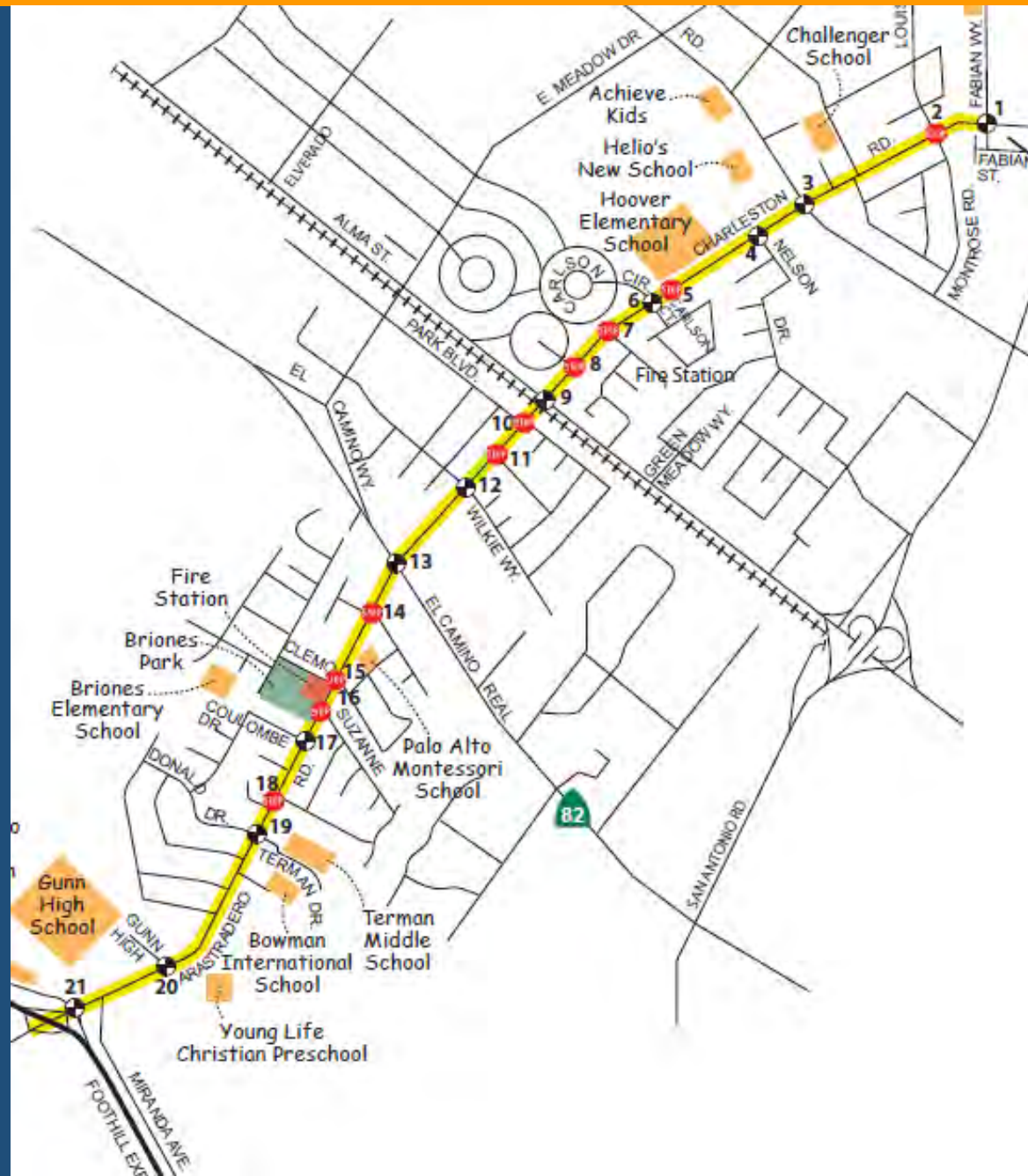
The purpose of this report is to provide a visual and explanatory summary of recommendations and associated benefits for the Charleston Road-Arastradero Road Corridor Project in the City of Palo Alto. The corridor serves as a residential street for the Palo Alto community serving multiple schools, parks and other public facilities along with commute traffic between Highway 101 and the Stanford Research Park.

The corridor is approximately 2.3 miles long with several key intersection crossings for the community including Middlefield Road, Alma Street with adjoining Caltrain operations, El Camino Real, and Foothill Expressway-Miranda Avenue. Page 5 of this report presents the corridor with study intersections noted.

The purpose of the project is to provide recommendations, plans, and specifications for phased implementation of community-focused streetscape improvements that will provide preferential bicycle-pedestrian measures for improved resident safety supporting Safe Routes to School and traffic calming goals for the community.

All signalized intersections throughout the corridor have been evaluated and proposed improvements consider the City's Request for Proposal Scope of Work for a.m., (midday), and [p.m.] peak hours. Adjustments made to signal timings (Minimum Green, Yellow, and Flashing Don't Walk) are in accordance with the CA MUTCD. Minimum Green times were proposed at City's request to be 10 seconds along Charleston-Arastradero Road and 5 seconds along minor streets if CA MUTCD standards required less. Yellow times along Charleston-Arastradero Road were made to be 4 seconds per City request.

# Corridor Map



Bicycle Box: A priority bicycle zone at the head of a signalized intersection allowing cyclists to position themselves in front of the traffic queue on a red light and proceed first on a green. Bicycle signal controls can be used to supplement this treatment if desired.



Curb Bulb-Out: An extension of the curb at-grade of the sidewalk. These type of bulb-outs physically alter the roadway and are not traversable by vehicles. They also reduce the pedestrian crossing distance.





Enhanced Crosswalk: A crossing supplemented with pedestrian-activated flashing beacons.



Channelizing Median Island: A raised median that prevents left and through movements from the intersecting road and permits left-turns from the major street.



Cycle Track: A separated path with the infrastructure of a conventional bike lane. It is separated from vehicle traffic lanes, parking lanes, and sidewalks providing space exclusively for cyclists.



## Standard Abbreviations

Abbreviation	Definition
NB	Northbound
SB	Southbound
EB	Eastbound
WB	Westbound
T	Through Movement
L	Left-turn Movement
R	Right-turn Movement



## Study Intersections

I.D.	Intersection	Page #
1.	Arastradero Road/Miranda Avenue	10-11
2.	Arastradero Road/Gunn High School Driveway	12-13
3.	Arastradero Road/Donald Drive-Terman Drive	18-19
4.	Arastradero Road/Pomona Avenue-King Arthur Court	20-21
5.	Arastradero Road/Coulombe Drive	22-23
6.	Arastradero Road/Los Palos Avenue	24-25
7.	Arastradero Road/Clemo Drive-Suzanne Drive	26-27
8.	Arastradero Road/Alta Mesa-McKellar Lane	28-29
9.	Arastradero Road-Charleston Road/El Camino Real	30-31
10.	Charleston Road/Wilkie Way	32-33
11.	Charleston Road/Ruthelma Avenue	34-35

I.D.	Intersection	Page #
12.	Charleston Road/Park Boulevard	36-37
13.	Charleston Road/Alma Street	38-39
14.	Charleston Road/Wright Place	40-41
15.	Charleston Road/Mumford Place	42-43
16.	Charleston Road/Carlson Court	44-45
17.	Charleston Road/Hoover School Driveway	46-47
18.	Charleston Road/Nelson Drive	48-49
19.	Charleston Road/Middlefield Road	50-51
20.	Charleston Road/Louis Road-Montrose Avenue	52-53
21.	Charleston Road/Fabian Way	54-55

## I. Arastradero Road/Miranda Avenue

## Proposed Improvements

- No adjustments proposed at intersection

## Intersection Level of Service

	Peak Period		
Scenario	A.M.	Midday	P.M.
Existing Geometry & Timings	B	B	B
Proposed Geometry & Standard Timings	B	B	C

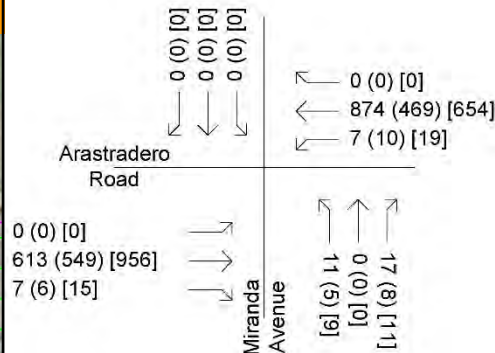
NB:  
One-Way Stop Control

PROPOSED

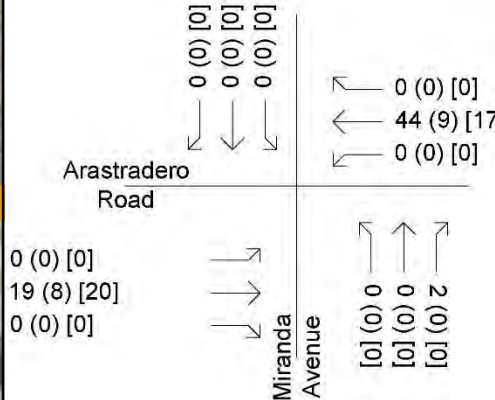
EXISTING

NB:  
One-Way Stop Control

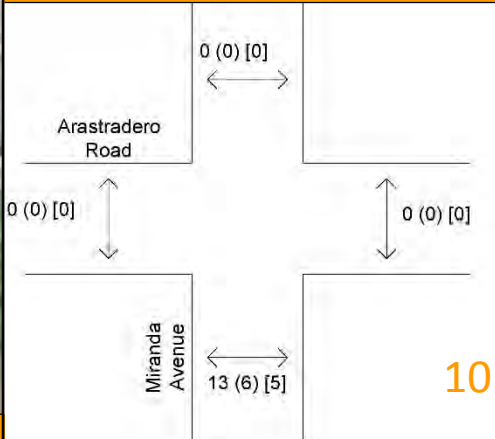
## VEHICLE AB MOVEMENT COUNTS



## BICYCLE MOVEMENT COUNTS



## PEDESTRIAN MOVEMENT COUNTS



No changes are proposed at the intersection. A WB left-turn pocket was analyzed but resulted in no change in intersection LOS. Additionally, installation of the pocket would reduce existing storage of the EB left-turn lane at Gunn High School Driveway which is considered a higher priority.



2.Arastradero Road/Gunn High School Driveway

Proposed Improvements

Bicycle

- Increase Minimum Green times to accommodate cyclists
- Install multi-use path on south side of Arastradero Road
- Install “Sharrows” in WB right-turn lane

Pedestrian

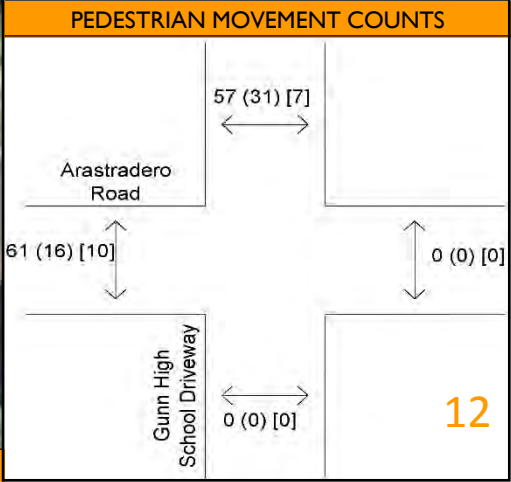
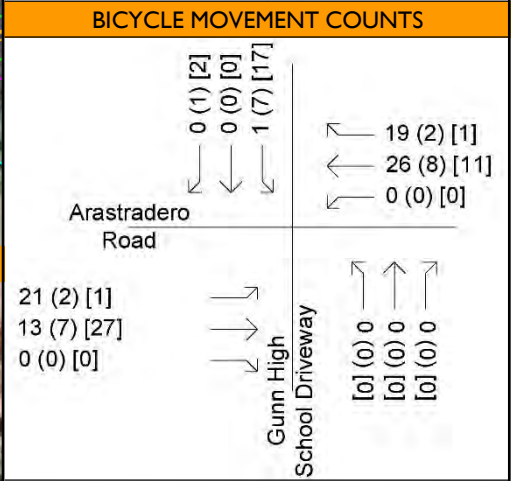
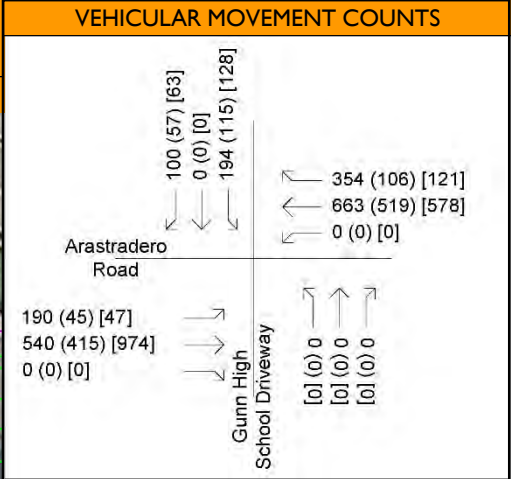
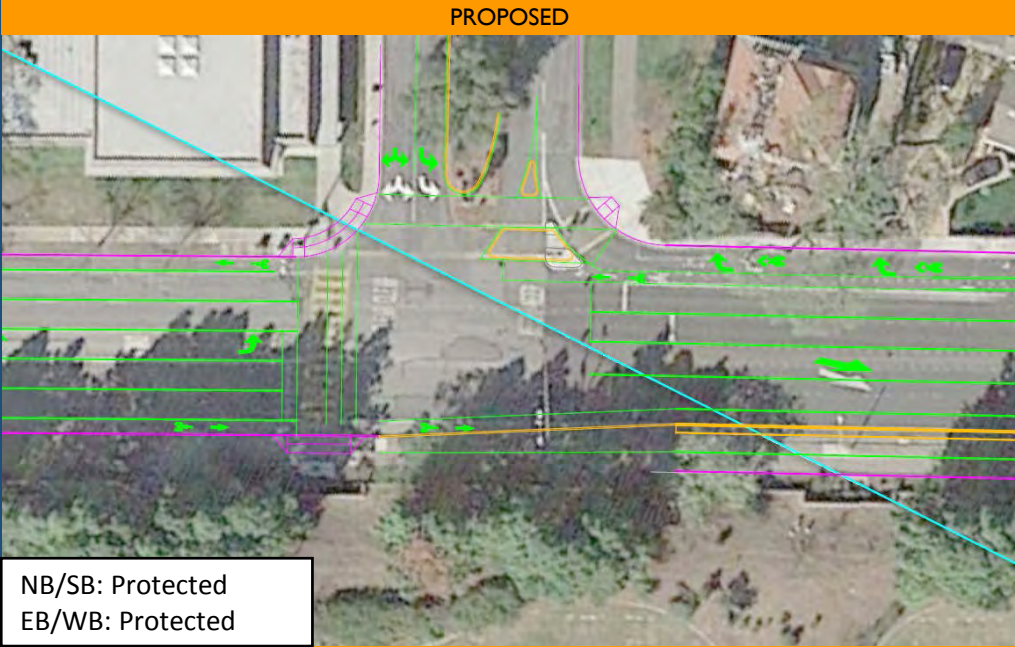
- Standardize Walk and Flashing Don’t Walk times
- Increase size of pork-chop island

MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don’t Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
SBL	8	9	10	5	12	18	3	3
EBL	8	10	-	-	-	-	3	3
EBT	8	10	-	-	-	-	3	4
WBT	15	15	10	5	19	24	3	4

Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	B	B	B
Proposed Geometry & Standard Timings	C	B	A



### Bicycle

Increased Minimum Green times help cyclists to clear the intersection safely. A multi-use path will provide cyclists access to the transit stop and Los Altos Bike Path located east of the intersection. “Sharrows” can increase awareness of drivers to the presence of cyclists entering the school campus.

### Pedestrian

Standardized Flashing Don’t Walk times provide a larger pedestrian clearance interval at the intersection. A larger pork-chop island increases the buffer between pedestrians and vehicles at the intersection.



# Arastradero Road: Gunn High School Driveway to Georgia Avenue

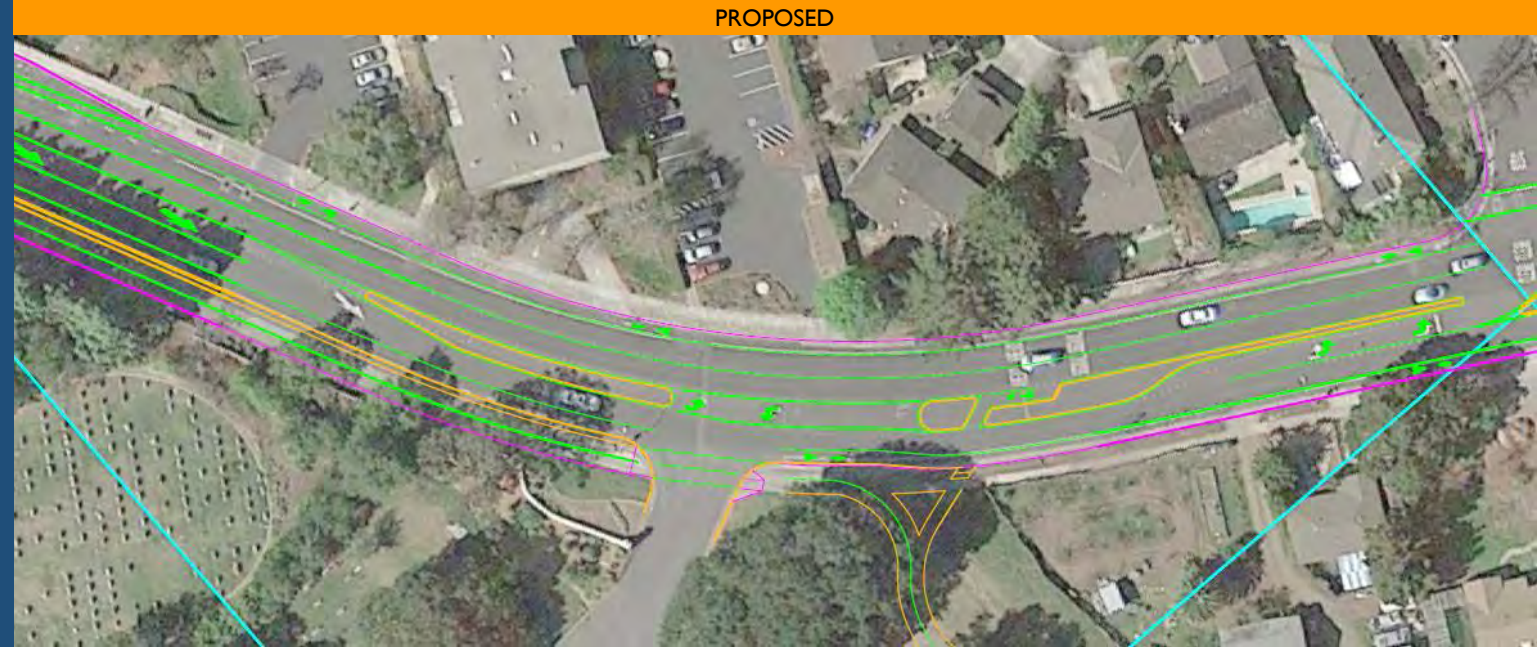
## Proposed Improvements

### Bicycle

- Install multi-use path on south side of Arastradero Road

### Pedestrian

- Install barrier along multi-use path adjacent to roadway



### Bicycle

A multi-use path is proposed to provide cyclists with access to the Los Altos Bike Path located east of the cemetery driveway.

### Pedestrian

Installing a barrier along the multi-use path improves facility safety by separating vehicles from users.



# Arastradero Road: Georgia Avenue to Donald Drive-Terman Drive

## Proposed Improvements

### Roadway Geometry

- Convert two-way left-turn median between Ynigo Way and Georgia Avenue to exclusive WB left-turn pocket and EB receiving lane

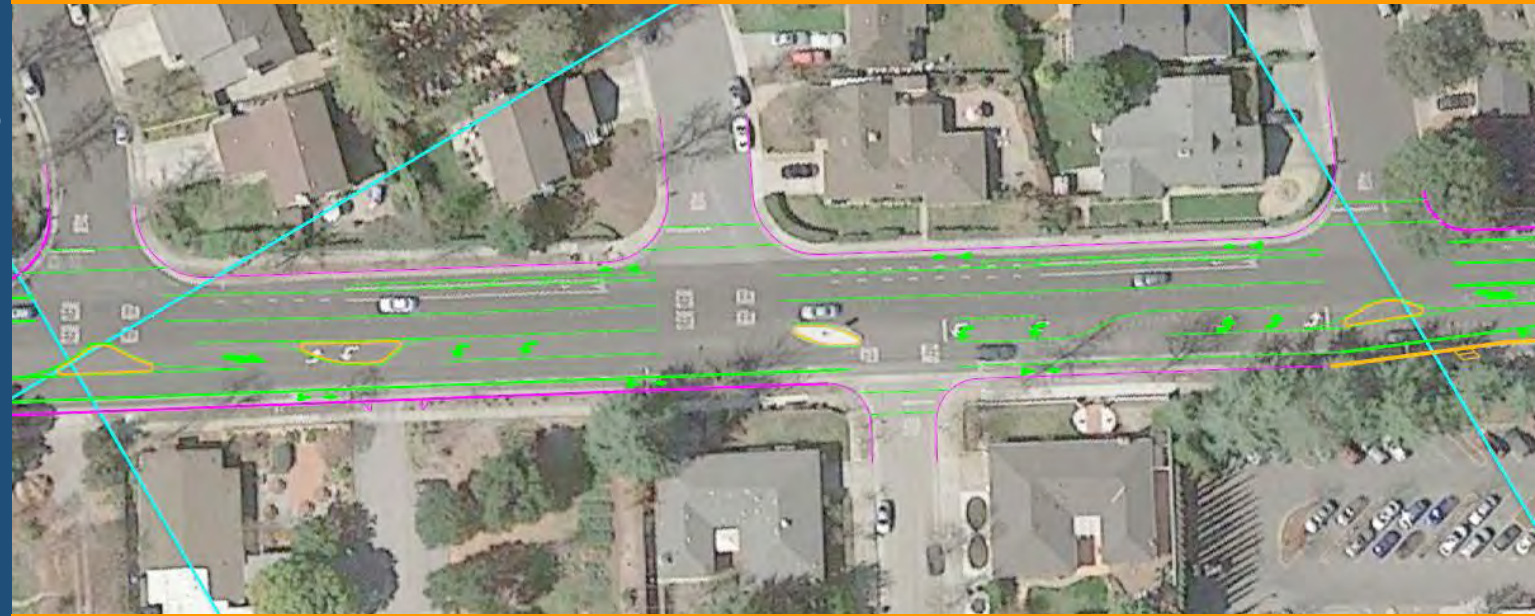
### Bicycle

- Install one-way cycle tracks along Arastradero Road

### Pedestrian

- Install WB crosswalks at Hubbart Drive and Georgia Avenue

PROPOSED



EXISTING





### Roadway Geometry

The WB left-turn pocket provides access to the preschool on the south side of Arastradero Road and the EB receiving lane provides refuge for SB left-turning vehicles from Georgia Avenue. This improvement is projected to enhance operations for all modes along the roadway segments.

### Bicycle

One-way cycle tracks proposed in the vicinity will provide a buffer-separated lane for cyclists. Cycle tracks are projected to enhance bicycle safety along the roadway segment.

### Pedestrian

Crosswalks can increase pedestrian visibility and safety at the intersections.

### 3.Arastradero Road/Donald Drive-Terman Drive

#### Proposed Improvements

#### Roadway Geometry

- Replace EB shared through/right lane with exclusive right-turn lane
- Change SB lane geometry to mirror NB approach

#### Bicycle

- Increase Minimum Green times to accommodate cyclists for left-turn phases
- Install bicycle box in SB direction

#### Pedestrian

- Standardize Walk and Flashing Don't Walk times
- Restripe all crosswalks
- Install bulb-out at SE corner of intersection

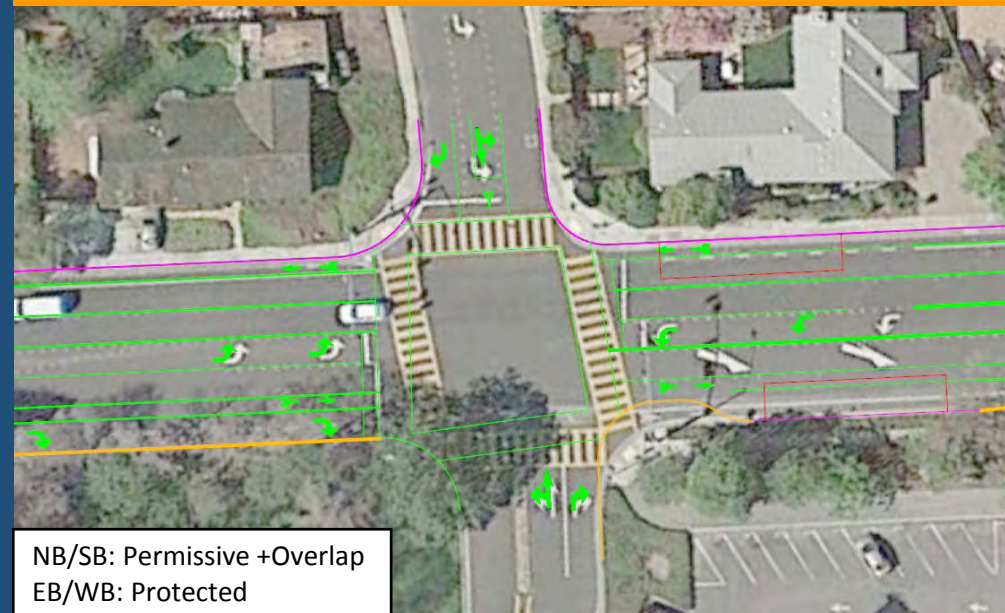
#### MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don't Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NBTL	4	8	-	-	-	-	3.5	3.5
SBTL	6	7	6	5	17	18	3	3
EBL	4	10	-	-	-	-	3.5	4
EBT	6	10	6	5	12	21	3	4
WBL	4	10	-	-	-	-	3.5	4
WBT	6	10	6	5	12	20	3	4

#### Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	B	B	B
Proposed Geometry & Standard Timings	B	B	C

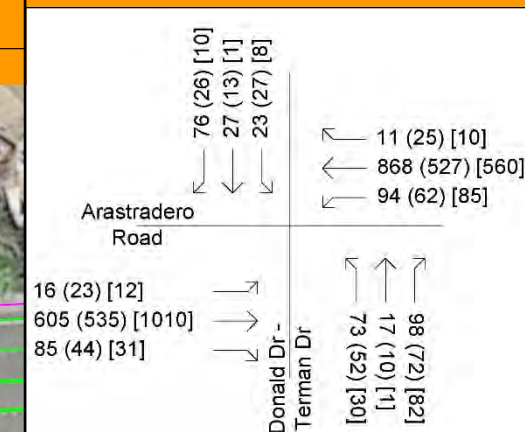
PROPOSED



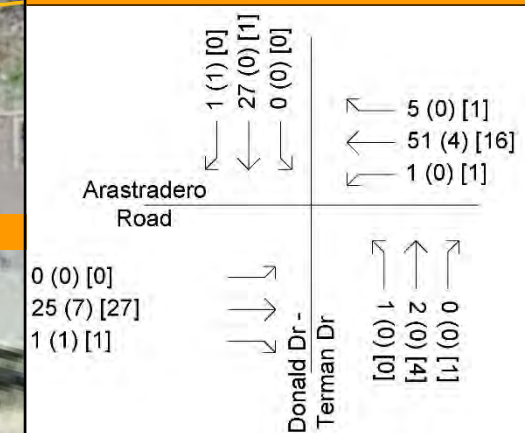
EXISTING



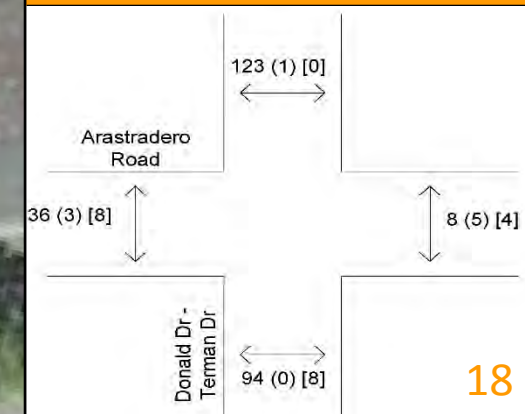
VEHICULAR MOVEMENT COUNTS



BICYCLE MOVEMENT COUNTS



PEDESTRIAN MOVEMENT COUNTS



#### Roadway Geometry

The existing EB shared through/right-turn lane will be converted to an exclusive right-turn lane. This will separate the right-turning vehicles from the traffic flow. The SB lane geometries are to be modified to mirror the NB approach to allow installation of a bicycle box.

#### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. A bicycle box provides cyclists with designated space at the intersection for separation from vehicles.

#### Pedestrian

Standardized Flashing Don't Walk times will provide a larger pedestrian clearance interval at the intersection. Restriping all crosswalks and installing a bulb-out reduces crossing distances for pedestrians.



## 4. Arastradero Road/Pomona Avenue-King Arthur Court

### Proposed Improvements

#### Bicycle

- Install one-way cycle track on north side of Arastradero Road

#### Pedestrian

- Install enhanced WB crosswalk at King Arthur Court

PROPOSED



NB/SB:  
Two-Way Stop Control

EXISTING



NB/SB:  
Two-Way Stop Control

##### Bicycle

One-way cycle track proposed in the vicinity will provide a buffer-separated lane for cyclists. Cycle track is projected to enhance bicycle safety along the roadway segment.

##### Pedestrian

A WB crosswalk can help improve safety at the intersection by increasing visibility of pedestrians.



5.Arastradero Road/Coulombe Drive

Proposed Improvements

Bicycle

- Increase Minimum Green times to accommodate cyclists for EB and SB phases
- Install one-way cycle track on north side of Arastradero Road

Pedestrian

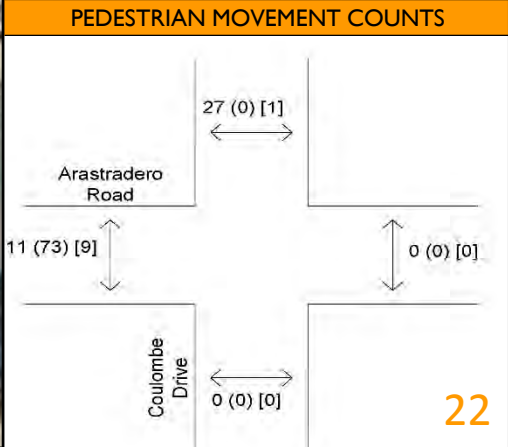
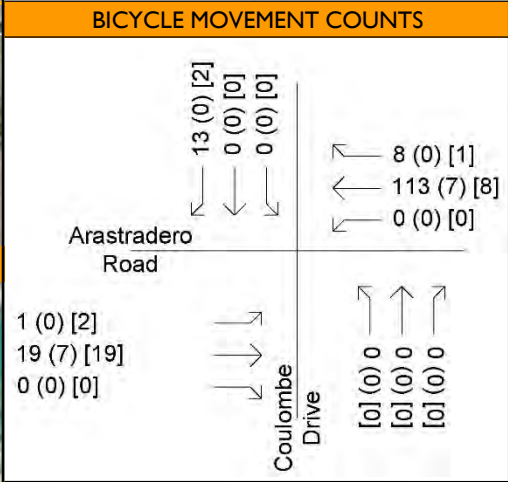
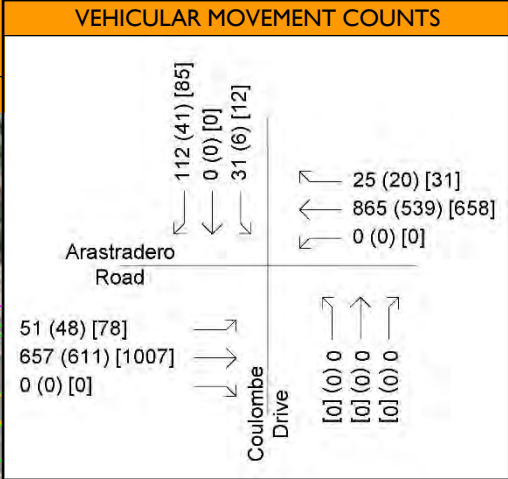
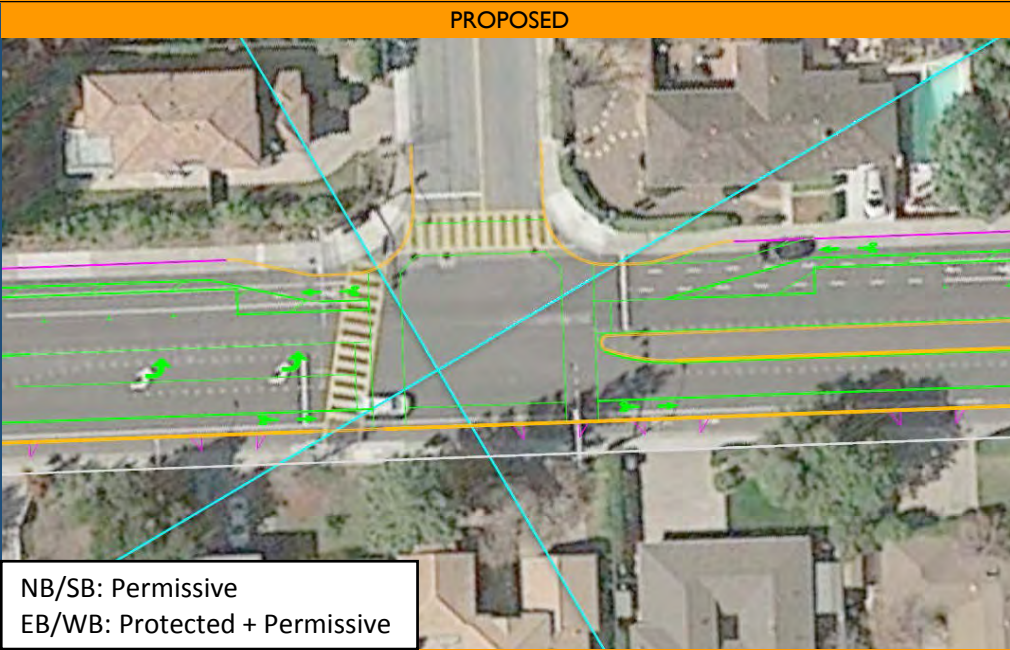
- Install curb bulb-outs at NE and NW corners
- Restripe SB crosswalk
- Install NB crosswalk

MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don't Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
SB	4	8	8	8	17	17	3	3
EBL	4	10	-	-	-	-	3	4
EBTL	15	15	-	-	-	-	3.5	4
WB	15	15	-	-	-	-	3.5	4

Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	B	A	B
Proposed Geometry & Standard Timings	C	B	B



### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. One-way cycle track proposed in the vicinity will provide a buffer-separated lane for cyclists. Cycle track is projected to enhance bicycle safety along the roadway segment.

### Pedestrian

Curb bulb-outs reduce crossing distance in NB and SB directions. The SB crosswalk will be restriped to “tee-up” the crossing and reduce crossing distance for. Installation of a NB crosswalk provides an additional facility for pedestrians and can help improve safety at the intersection.



## 6. Arastradero Road/Los Palos Avenue

### Proposed Improvements

#### Roadway Geometry

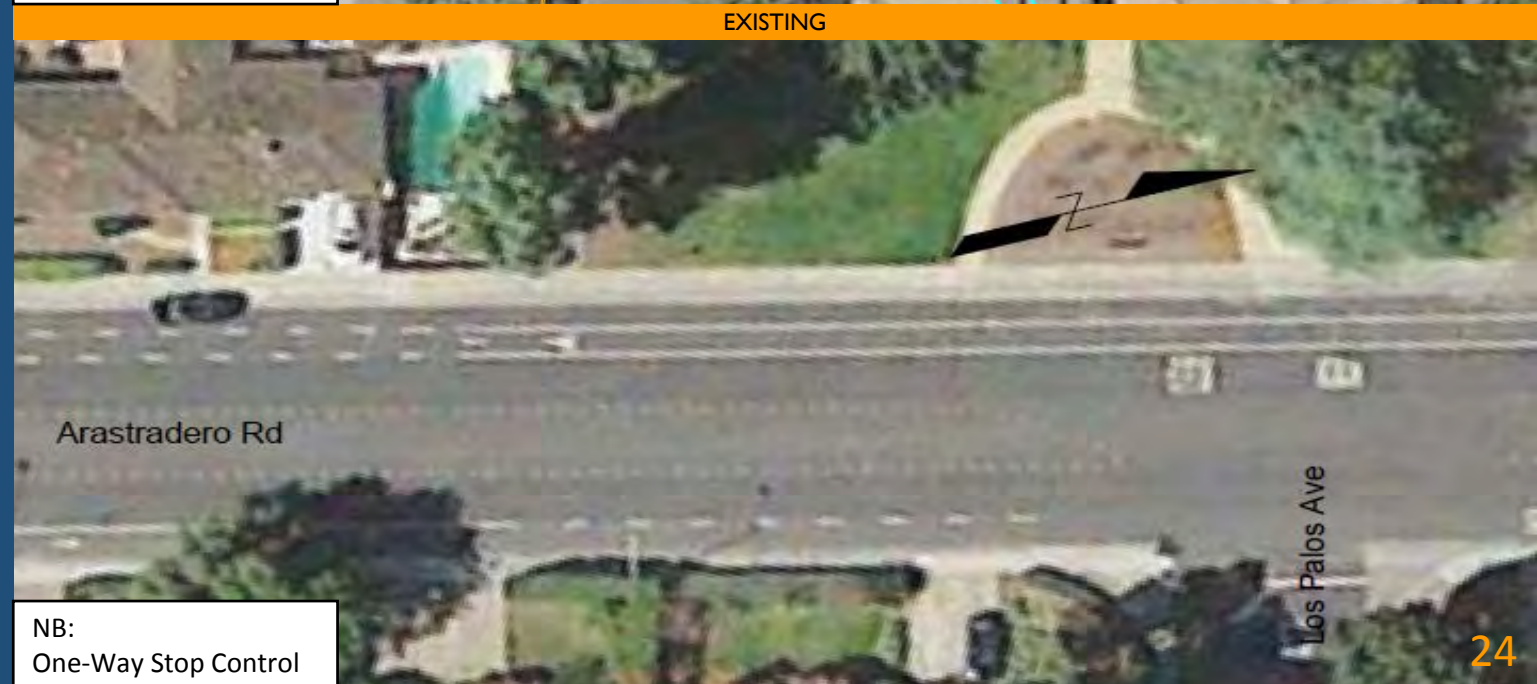
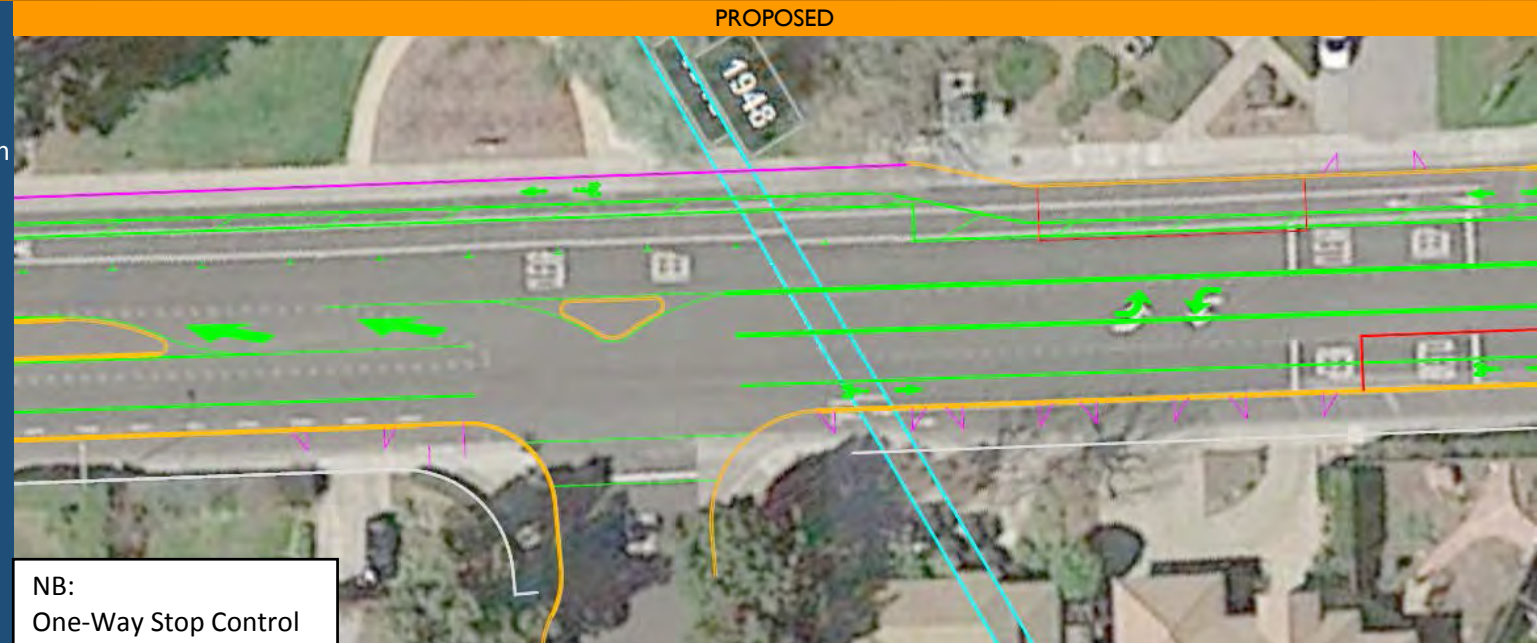
- Convert center median west of intersection to a WB receiving lane for left-turn movement from Los Palos Avenue

#### Bicycle

- Convert existing WB bicycle lane to a buffered bicycle lane

#### Pedestrian

- Widen sidewalk along south side of Arastradero Road
- Install curb extensions at SE and SW corners





### Roadway Geometry

The painted median on the west leg is proposed to be converted into a receiving lane for left-turning vehicles from Los Palos Avenue. Vehicles using this lane will merge with WB traffic upon finding acceptable gap in the through traffic. Implementation of this improvement is projected to improve operations along the roadway and also reduce the delay for the left-turning vehicles from Los Palos Avenue.

### Bicycle

One-way cycle track proposed in the vicinity will provide a buffer-separated lane for cyclists. Cycle track is projected to enhance bicycle safety along the roadway segment.

### Pedestrian

Widening the sidewalk along Arastradero Road is projected to provide a more comfortable and safer pedestrian facility. Curb extensions align the newly widened sidewalk and reduce the crossing distance across Los Palos Avenue.

7.Arastradero Road/Clemo Drive-Suzanne Drive	VEHICULAR MOVEMENT COUNTS	
	2015	2016
Left	10	10
Thru	10	10
Right	10	10
Left	10	10
Thru	10	10
Right	10	10
Left	10	10
Thru	10	10
Right	10	10

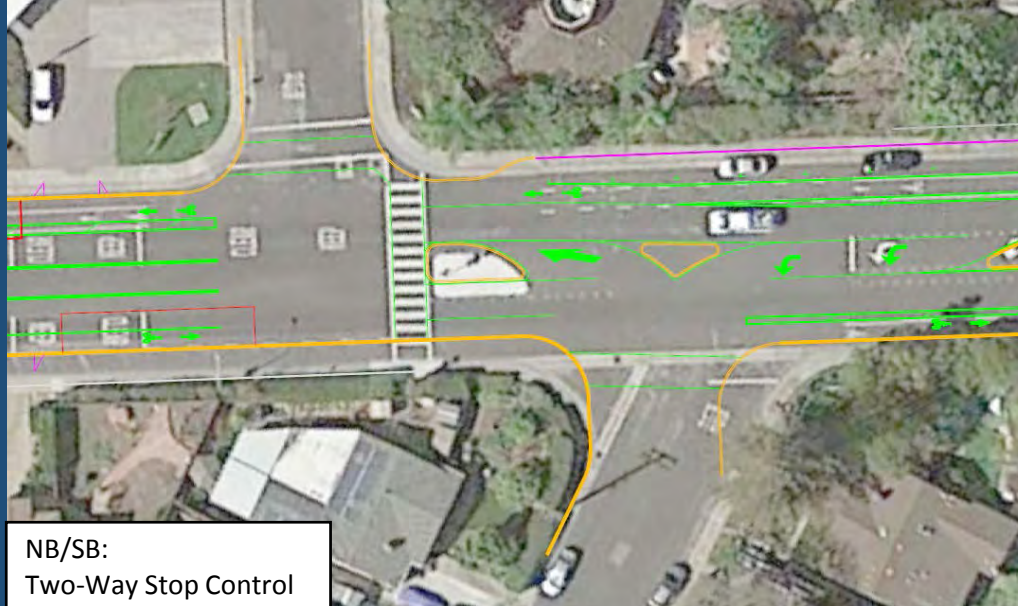
## Proposed Improvements

- Install bulb-out at NE corner of Clemo Drive
- Install curb extension at SE and SW corners of Suzanne Drive

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	C	-	C
Proposed Geometry & Standard Timings	C	-	C

PROPOSED



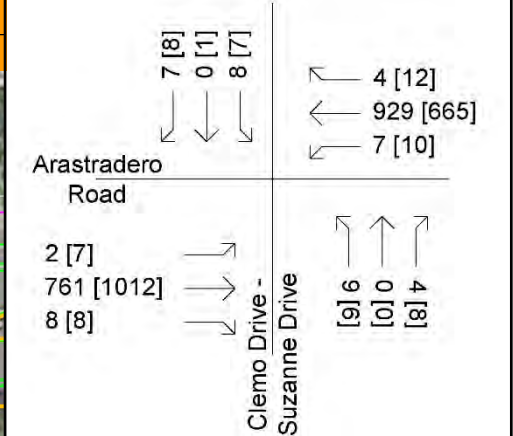
NB/SB:  
Two-Way Stop Control

EXISTING

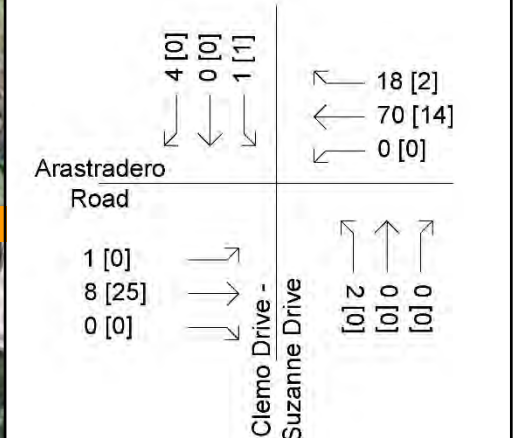


NB/SB:  
Two-Way Stop Control

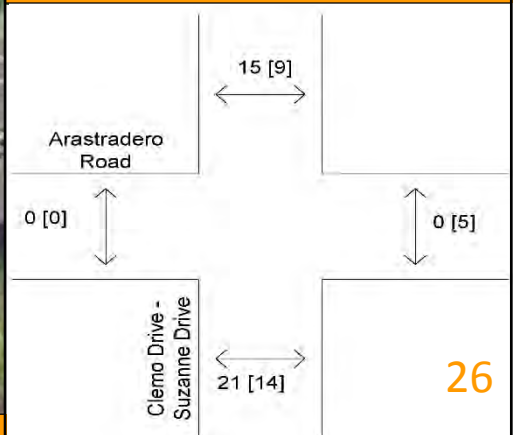
## VEHICULAR MOVEMENT COUNTS



BICYCLE MOVEMENT COUNTS	
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## PEDESTRIAN MOVEMENT COUNTS



### Pedestrian

Installing a curb bulb-outs at the NE corner of Clemo Drive reduces the crossing distance for pedestrians in the NB and WB directions. The shorter crossing distance is projected to enhance safety and takes the close proximity of the Palo Alto Montessori School into consideration. Curb extensions at the corners of Suzanne Drive “tee-up” the intersection approach and reduce the EB crossing distance.



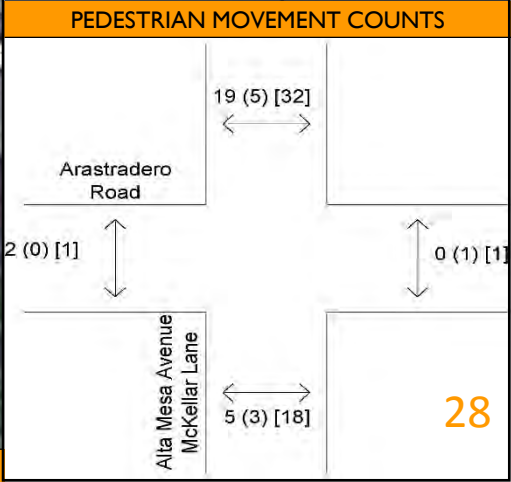
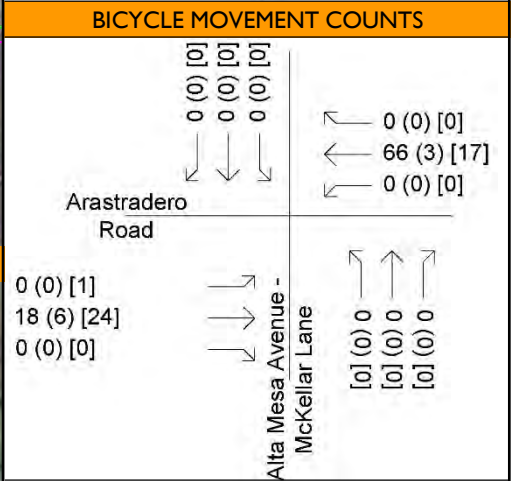
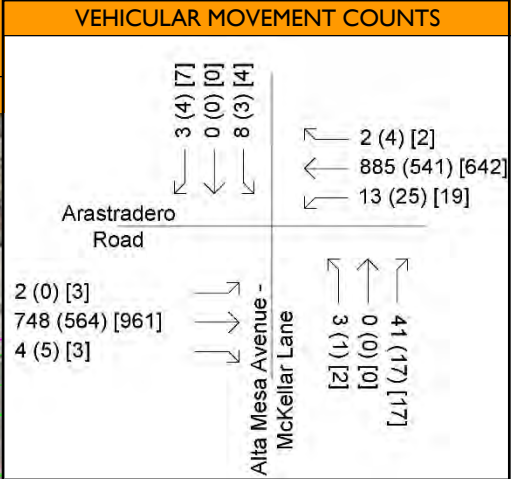
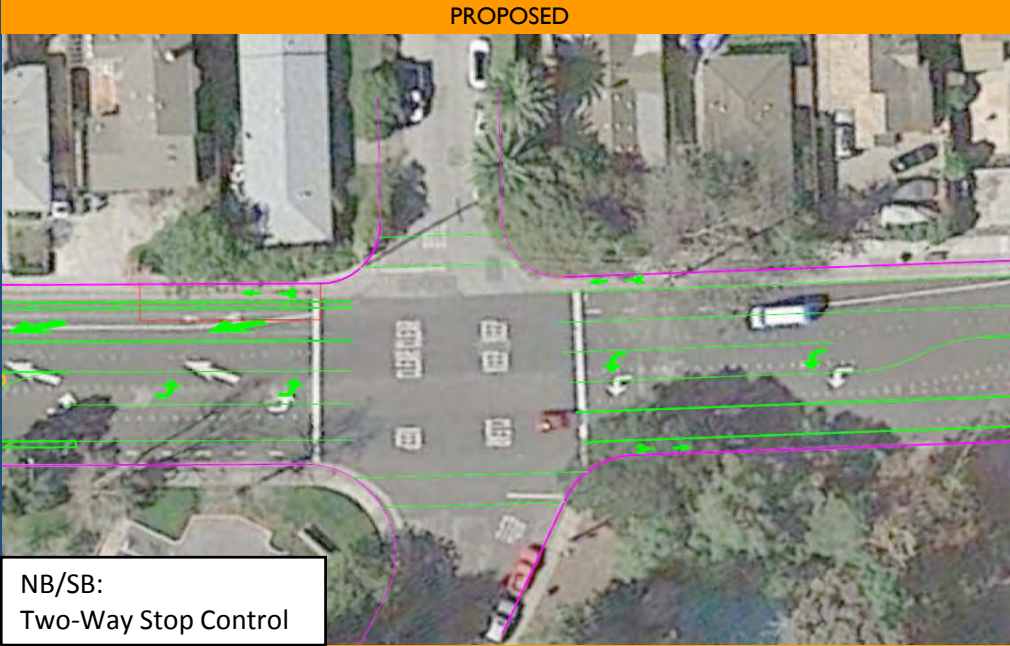
# 8.Arastradero Road/Alta Mesa Avenue-McKellar Lane

## Proposed Improvements

- No adjustments proposed at intersection

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	E	B	C
Proposed Geometry & Standard Timings	E	B	C



No changes are proposed at the intersection. A raised median restricting left-turns in and out of Alta Mesa Avenue-McKellar Lane was analyzed. This adjustment is not proposed in accordance with community feedback.



9.Arastradero Road-Charleston Road/El Camino Real

Proposed Improvements

Roadway Geometry

- Decrease WB right-turn curb radius
- Remove pork chop island and right-turn slip lane for NB right-turn
- Install curb extensions at NW and SE corners

Bicycle

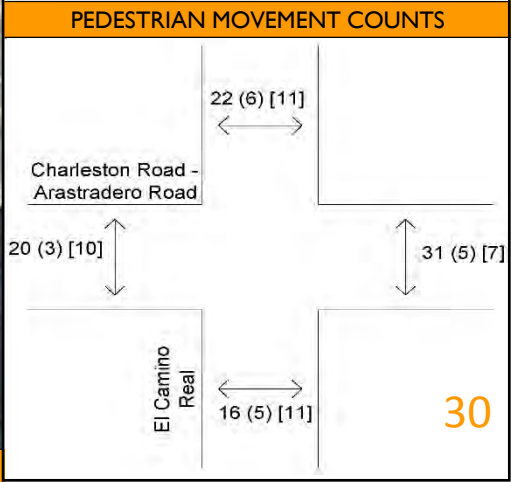
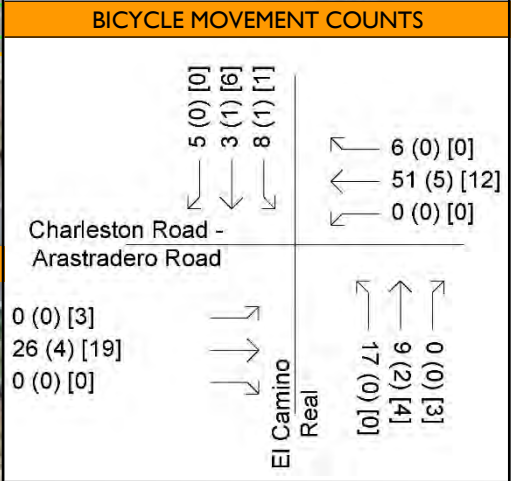
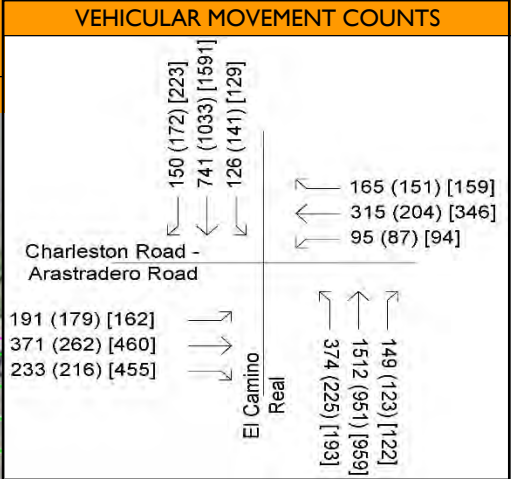
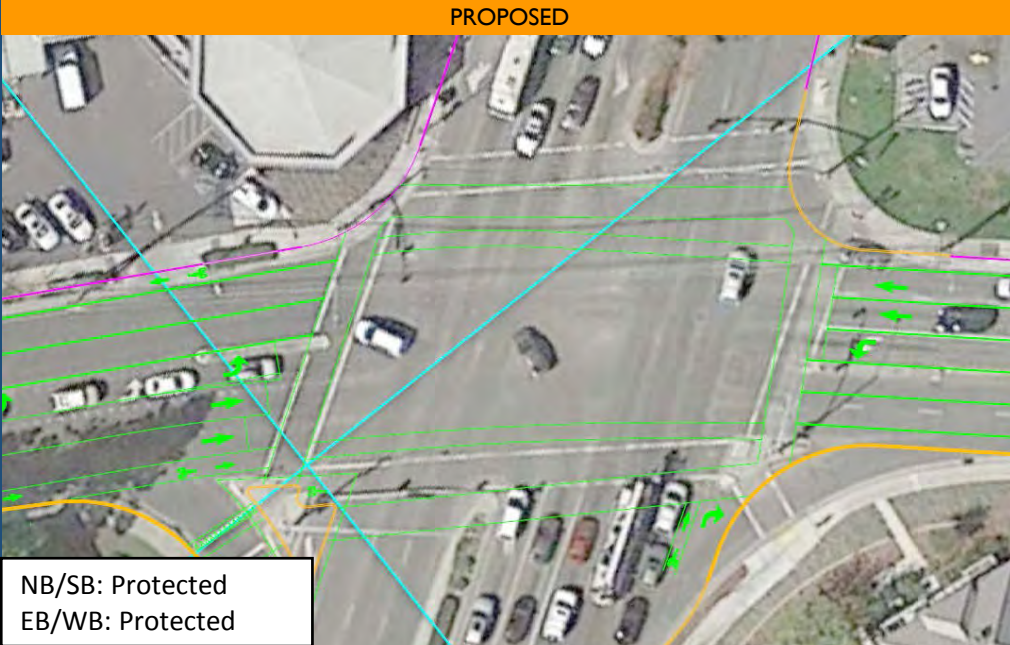
- Install intersection crossing markings in EB and WB directions

MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don't Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NB	4	4	7	7	13	13	4.5	4.5
SB	4	4	7	7	13	13	4.5	4.5
EB	4	4	5	5	25	25	4.5	4.5
WB	4	4	5	5	25	25	3.5	3.5

Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	D	C	D
Proposed Geometry & Standard Timings	D	C	D



### Roadway Geometry

There are no timing adjustments to this intersection because it is operated by Caltrans and is a part of their network which would be affected if changes were implemented. Decreasing the NE corner curb radius is projected to reduce right-turning vehicle speeds. Curb extension at SE corner reduces pedestrian crossing distance and right-turning vehicle speeds.

### Bicycle

Slower right-turning vehicle speeds are projected to enhance safety for cyclists at the intersection. Bicycle pavement markings provide cyclists with a defined travelled way. This is projected to alert motorists to the presence of the bicycle facility and can enhance cyclist experience.

### Pedestrian

Pedestrian safety will be enhanced at the intersections with the removal of the NB slip lane and reduced crossing distance.



# I0. Charleston Road/Wilkie Way

## Proposed Improvements

### Roadway Geometry

- Install exclusive EB and WB left-turn storage lanes

### Bicycle

- Increase Minimum Green times to accommodate cyclists for NB and SB phases
- Install bicycle boxes on NB and SB approaches

### Pedestrian

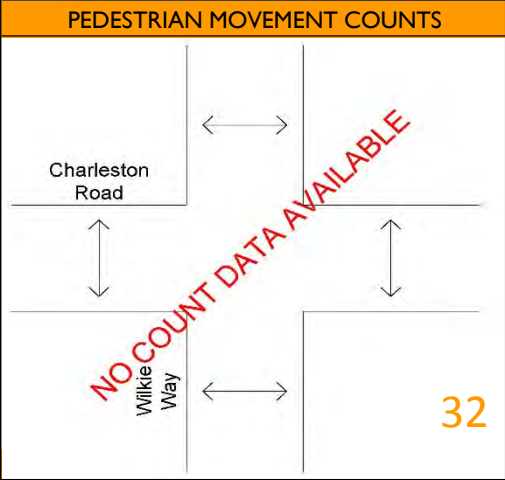
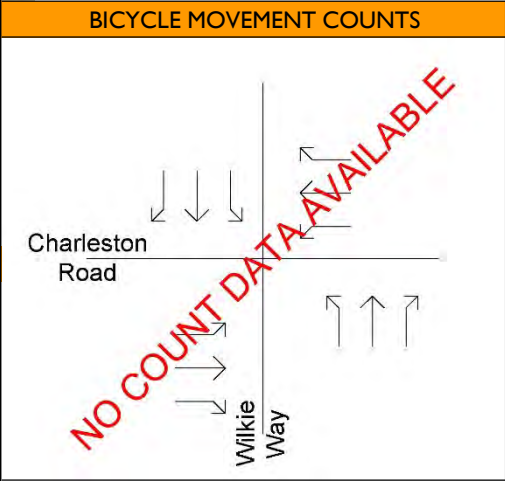
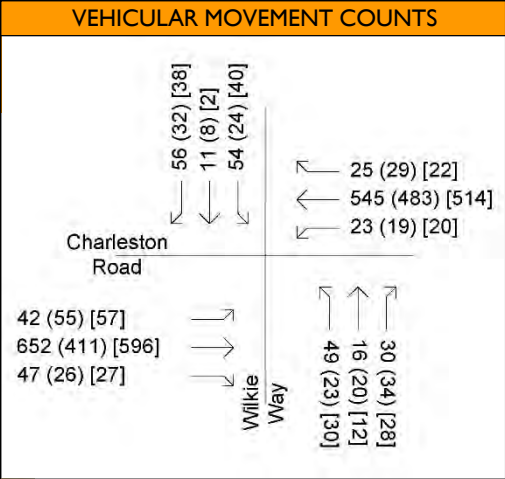
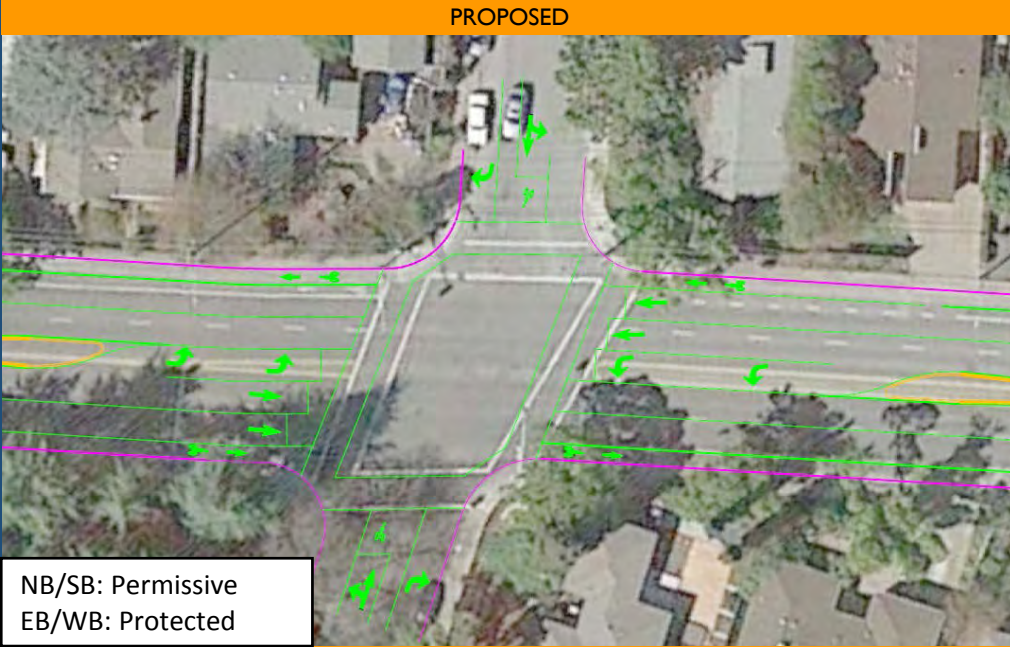
- Standardize Walk and Flashing Don't Walk times

## MUTCD Standard Timing Adjustments

	Min Green		Walk		Flashing Don't Walk		Yellow	
Direction	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NB/SB	6	8	7	5	17	21	3	3
EBL/WBL	-	10	-	-	-	-	-	4
EB/WB	12	12	-	-	-	-	3	4

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	A	A	A
Proposed Geometry & Standard Timings	A	A	A





### Roadway Geometry

Providing exclusive left-turn lanes for EB and WB traffic is projected to improve traffic operations at the intersection with protected left-turn phases. The proposed improvements are projected to enhance operations and safety for all modes at the intersection.

### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. Bicycle boxes are proposed along Wilkie Way to provide cyclists enhanced experience and a higher priority within the facility. Bicycle boxes provide cyclists with designated space at the intersection for separation from vehicles.

### Pedestrian

Standardized Flashing Don't Walk times provide a larger pedestrian clearance interval to cross Wilkie Way.

# II. Charleston Road/Ruthelma Avenue

## Proposed Improvements

### Pedestrian

- Install pedestrian-activated flashing beacons for the NB crosswalk



### Pedestrian

Pedestrian-activated flashing beacons are projected to alert the drivers when there is pedestrian activity at the intersection.



# 12. Charleston Road/Park Boulevard

## Proposed Improvements

### Roadway Geometry

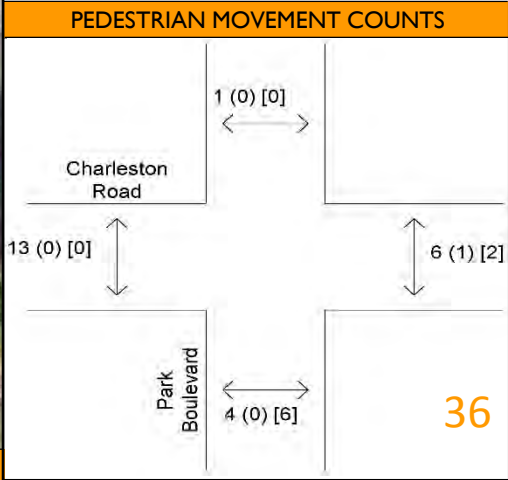
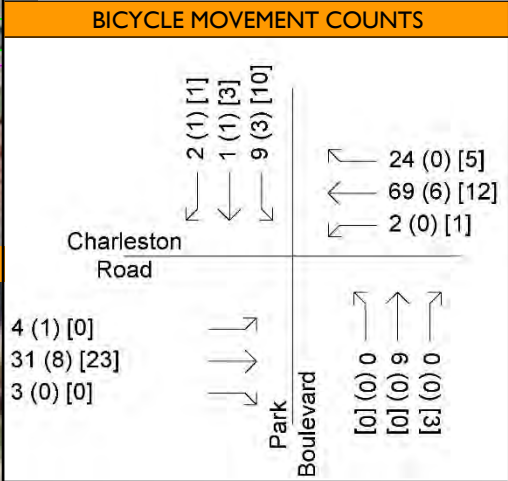
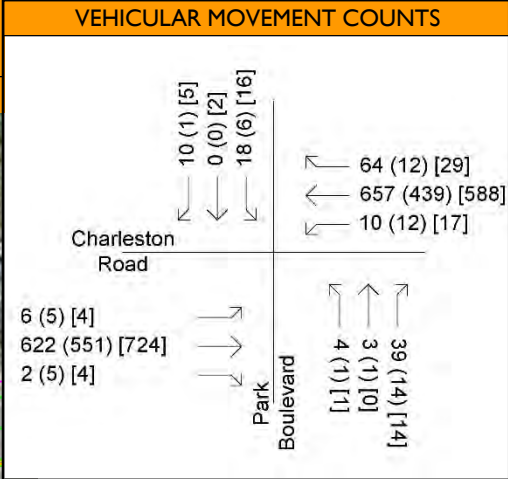
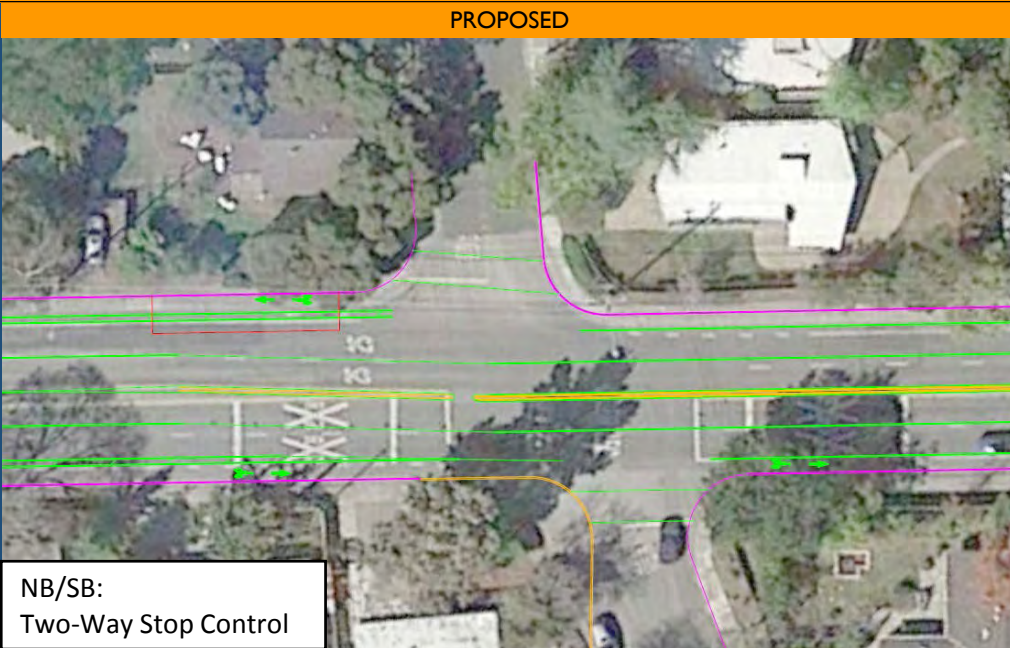
- Install raised median in EB/WB direction to prohibit left-turns in and out of Park Boulevard and through movements across Charleston Road

### Bicycle

- Provide bike slot in raised median

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	D	C	C
Proposed Geometry & Standard Timings	B	B	B



### Roadway Geometry

Installation of a raised median along Charleston Road will prevent left turns onto Park Boulevard and traffic across Charleston Road via Park Boulevard. This is projected to enhance safety at the intersection. Implementation of this improvement will allow right-turn only movements from Park Boulevard onto Charleston Road.

### Bicycle

Bike slot in the median will allow cyclists to cross Charleston Road when using Park Boulevard to access the bike boulevard at Wilkie Way.



# I 3. Charleston Road/Alma Street

## Proposed Improvements

### Bicycle

- Increase Minimum Green times to accommodate cyclists
- Install intersection crossing markings in EB and WB directions

### Pedestrian

- Standardize Walk and Flashing Don't Walk times

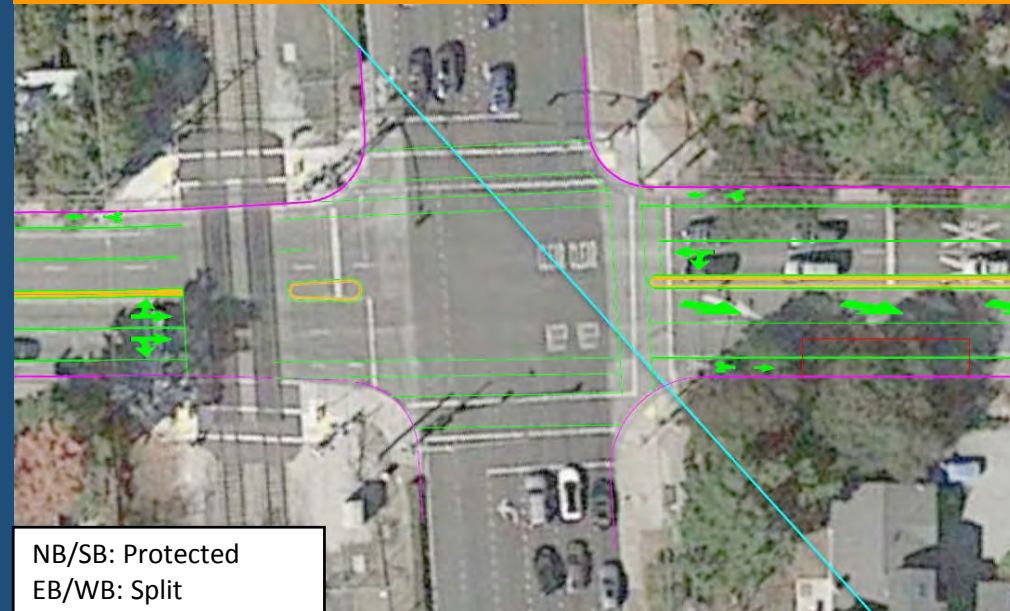
## MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don't Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NBL	4	11	-	-	-	-	3	3
NBT	4	7	7	5	10	20	4	4
SBL	4	10	-	-	-	-	3	3
SBT	4	7	-	-	-	-	4	4
EBTL	8	10	6	5	15	21	3	4
WBTL	8	10	6	5	15	22	3	4

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	E	C	E
Proposed Geometry & Standard Timings	E	D	E

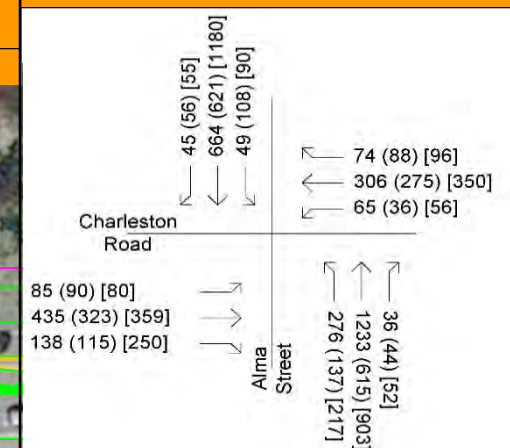
PROPOSED



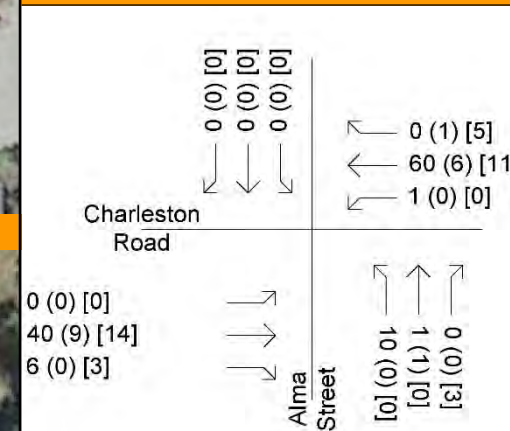
EXISTING



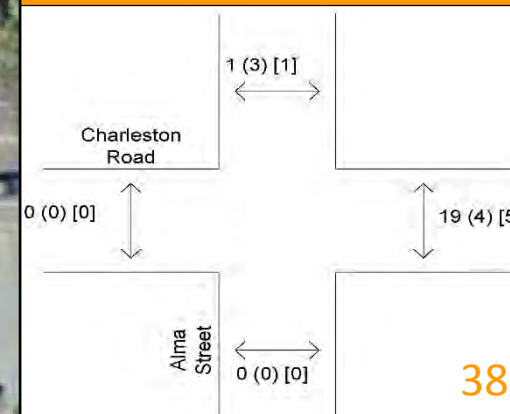
VEHICULAR MOVEMENT COUNTS



BICYCLE MOVEMENT COUNTS



PEDESTRIAN MOVEMENT COUNTS



### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. Bicycle pavement markings provide cyclists with a defined travelled way. This is projected to alert motorists to the presence of the bicycle facility and can enhance cyclist experience.

### Pedestrian

Standardized Flashing Don't Walk times will provide a larger pedestrian clearance interval at the intersection.



# 14. Charleston Road/Wright Place

## Proposed Improvements

### Roadway Geometry

- Install landscaped median in EB/WB direction

### Transit

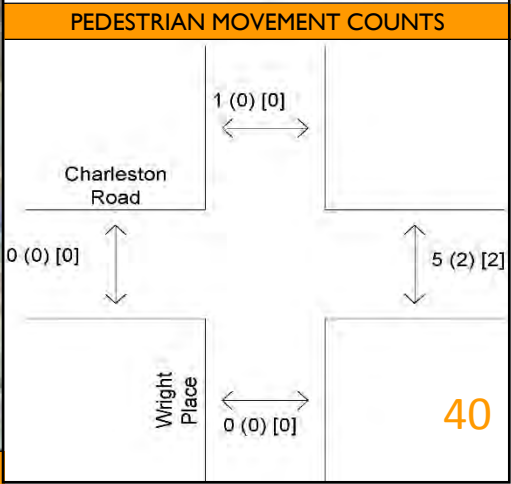
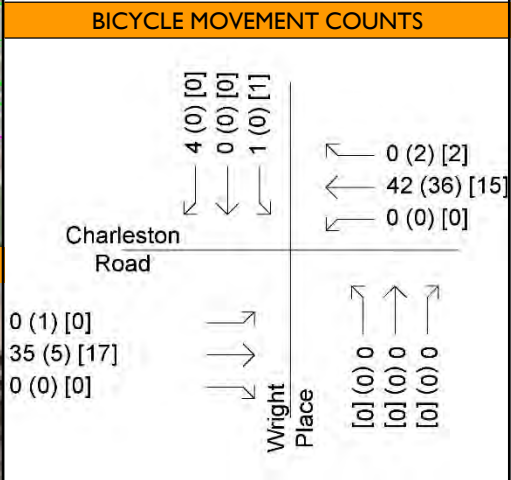
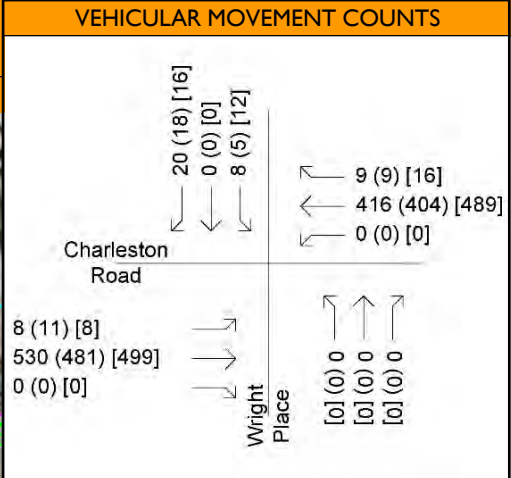
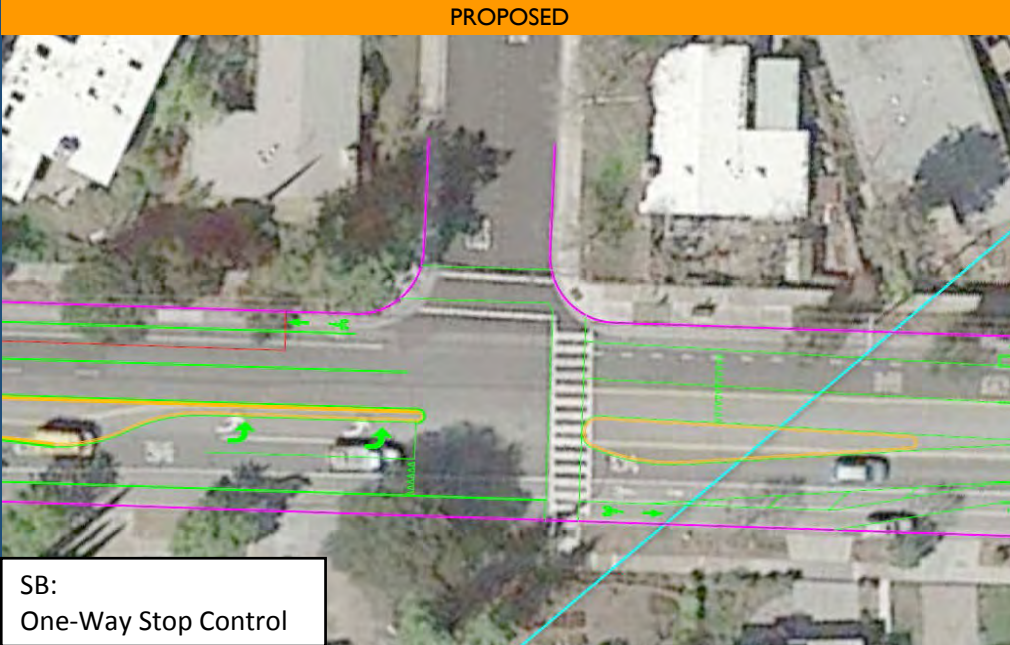
- Relocate WB bus stop to far side of intersection

### Pedestrian

- Restripe existing NB crosswalk

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	C	B	B
Proposed Geometry & Standard Timings	C	B	C





### Roadway Geometry

Installation of a landscaped median is intended to improve safety along Charleston Road which currently has a two-way left-turn median.

### Transit

Relocating the WB transit stop to the west leg of the intersection will improve operations at the intersection for all modes. This improvement will provide a safer transit facility for users and is not projected to impact the segment between Wright Place and Alma Street.

### Pedestrian

Restriping the existing crosswalk is a cost effective way to enhance the pedestrian facility. The landscaped median will also provide a safer experience as a buffer from vehicular traffic.

# 15. Charleston Road/Mumford Place

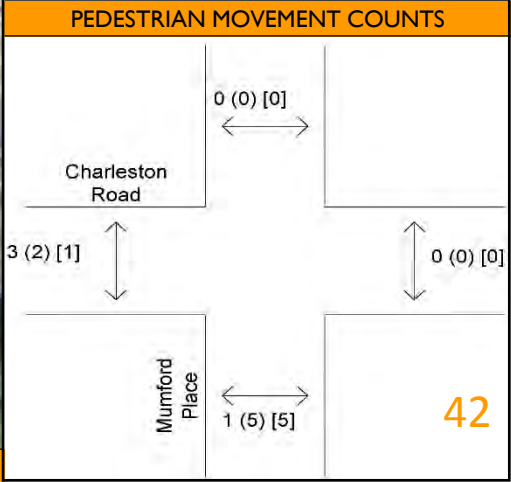
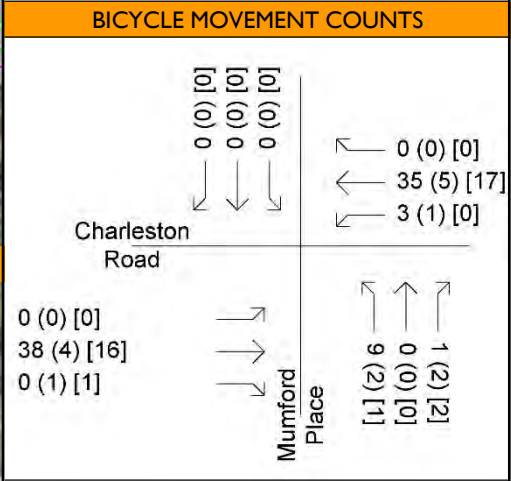
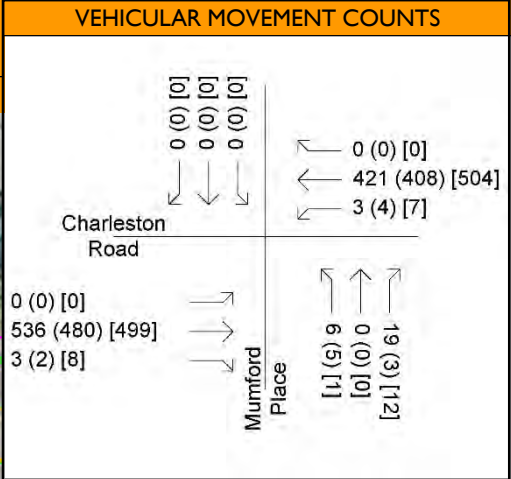
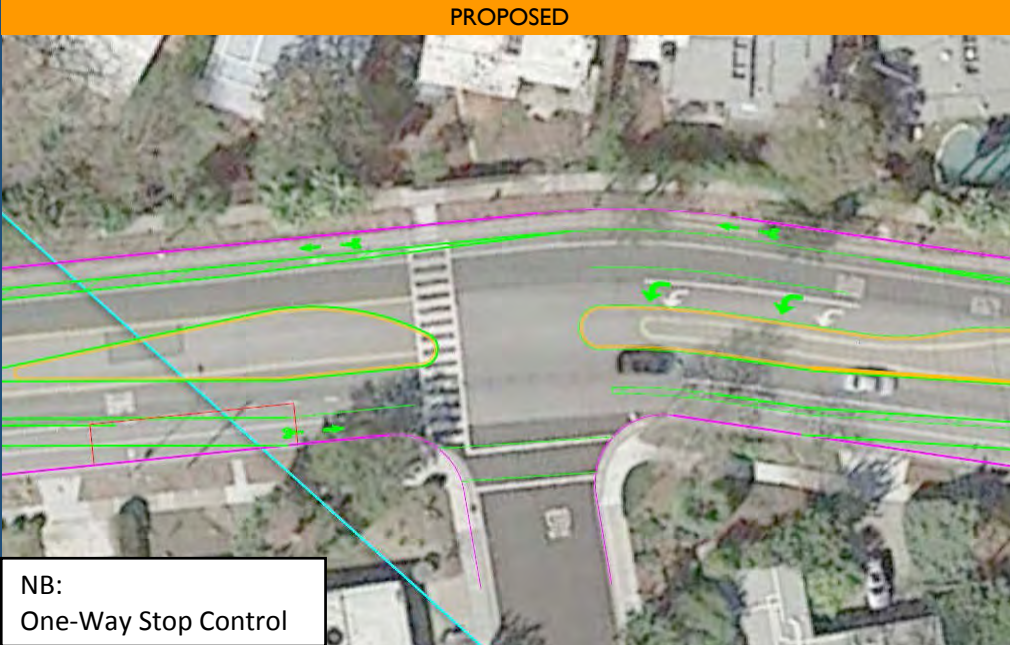
## Proposed Improvements

### Roadway Geometry

- Install landscaped medians in EB/WB direction

### Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	C	B	B
Proposed Geometry & Standard Timings	B	B	B



### Roadway Geometry

Installation of a landscaped median is intended to improve safety along Charleston Road which currently has a two-way left-turn median.



# I 6. Charleston Road/Carlson Court

## Proposed Improvements

### Bicycle

- Increase Minimum Green times to accommodate cyclists for NB and SB phases
- Install bicycle boxes at NB and SB approaches

### Pedestrian

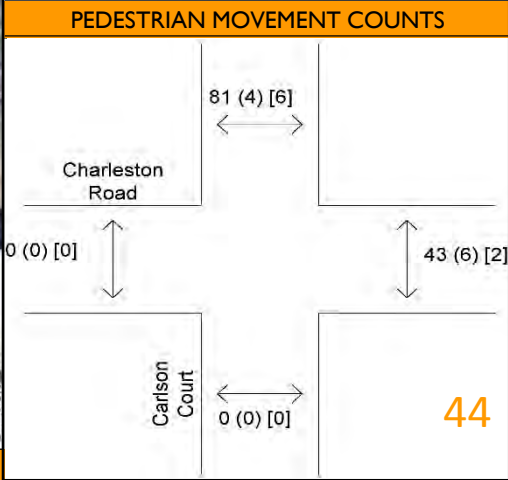
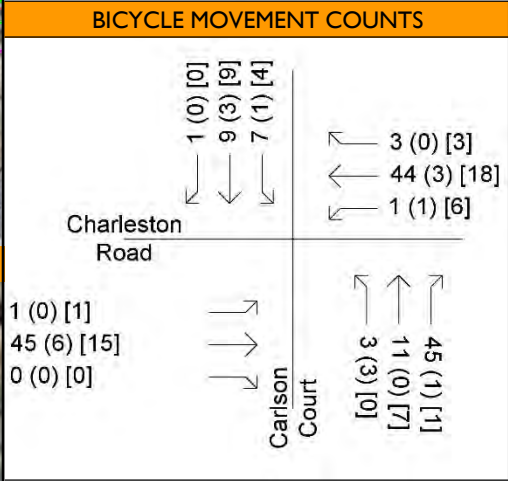
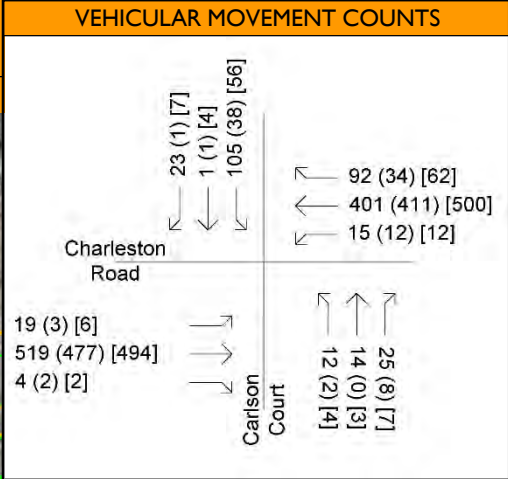
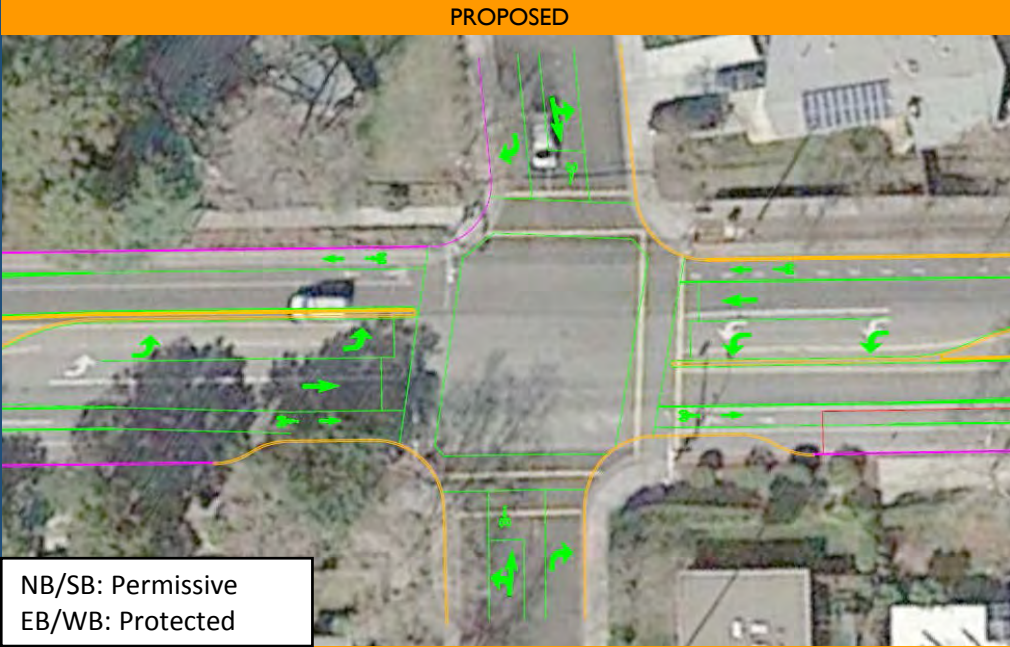
- Standardize Walk and Flashing Don't Walk times
- Install curb bulb-outs at SE and SW corners of intersection
- Install SB crosswalk

## MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don't Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NB	4	8	10	5	13	18	3	3
SB	4	8	-	-	-	-	3	3
EBL/WBL	-	4	-	-	-	-	-	4
EB	12	12	10	6	8	12	4	4
WB	12	12	10	6	8	12	4	4

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	B	A	A
Proposed Geometry & Standard Timings	B	A	B



### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. Bicycle boxes are proposed at the NB and SB approaches to provide cyclists enhanced experience and a higher priority within the facility. Bicycle boxes provide cyclists with designated space at the intersection for separation from vehicles.

### Pedestrian

Standardized Flashing Don't Walk times will provide a larger pedestrian clearance interval at the intersection which is in close proximity to Hoover Elementary and experiences high pedestrian demands. A SB crossing provides an additional pedestrian facility at the intersection helping improve safety. Curb bulb-outs reduce crossing distances in the NB and SB directions.

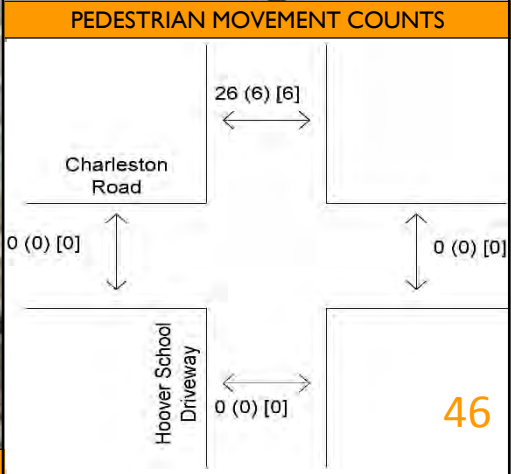
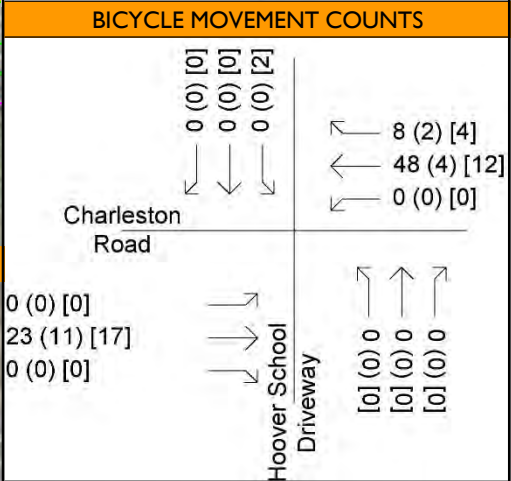
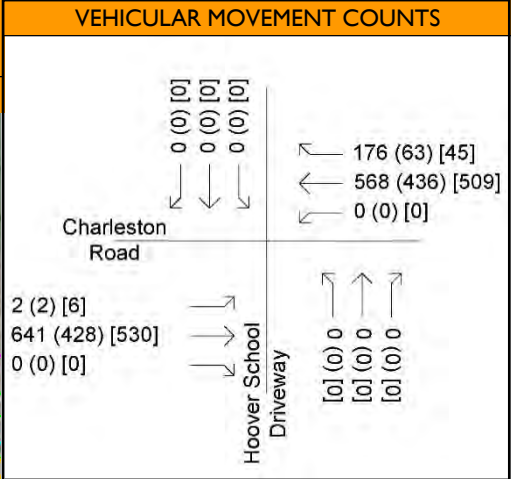
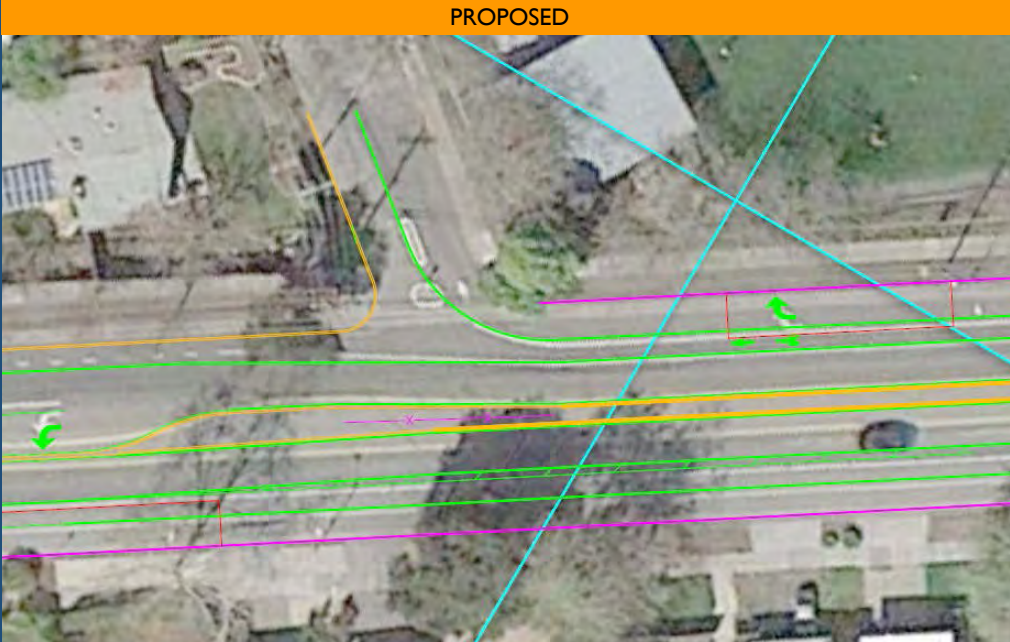


# 17. Charleston Road/Hoover School Driveway

## Proposed Improvements

### Roadway Geometry

- Install landscaped median in EB/WB direction





### Roadway Geometry

A landscaped median will prevent illegal EB U-turns and left-turn movements from occurring at the driveway of the elementary school. It will force vehicles to continue EB until provided with a pocket to perform their maneuver. The proposed improvement is projected to enhance operations for all modes of transportation.

# 18. Charleston Road/Nelson Drive

## Proposed Improvements

### Roadway Geometry

- Reverse church circulation
- Install landscaped medians in the EB/WB direction

### Bicycle

- Increase Minimum Green times to accommodate cyclists for NB and SB phases
- Provide early Bike Phase in NB and SB direction

### Pedestrian

- Standardize Walk and Flashing Don't Walk times

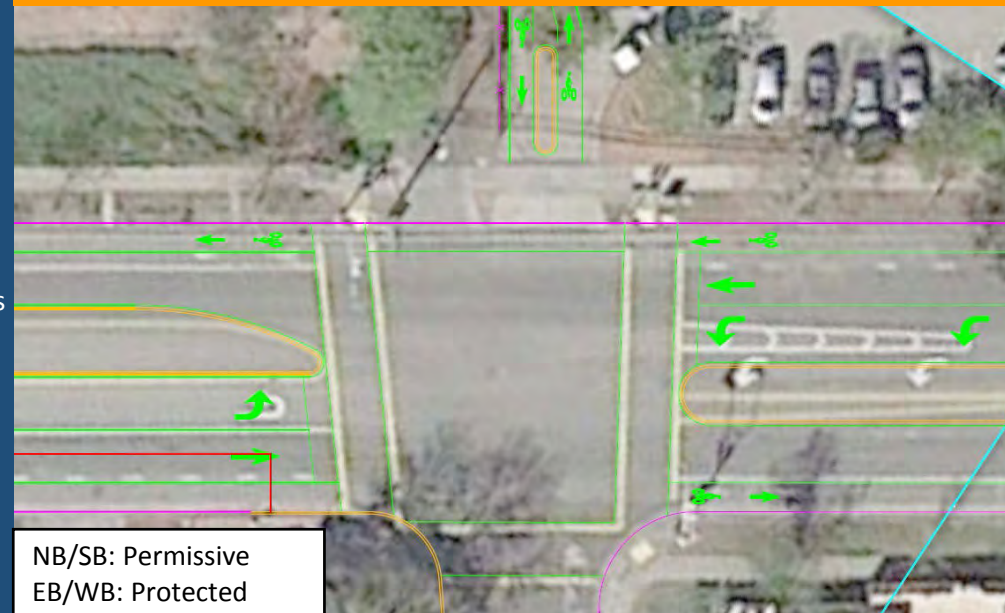
## MUTCD Standard Timing Adjustments

	Min Green		Walk		Flashing Don't Walk		Yellow	
Direction	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NB/SB	4	7	7	5	12	18	3	3
WBL	6	10	-	-	-	-	3.5	4
EB/WB	6	10	6	5	10	15	4	4

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	A	A	A
Proposed Geometry & Standard Timings	B	A	B

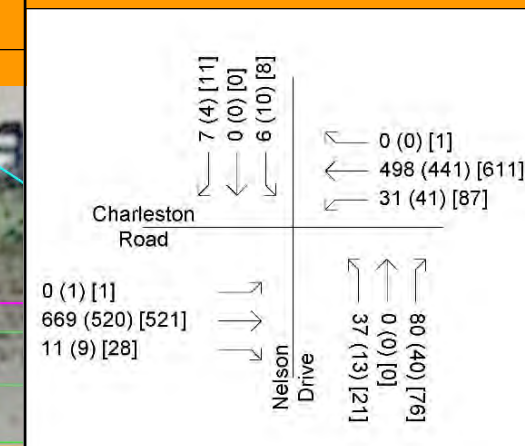
PROPOSED



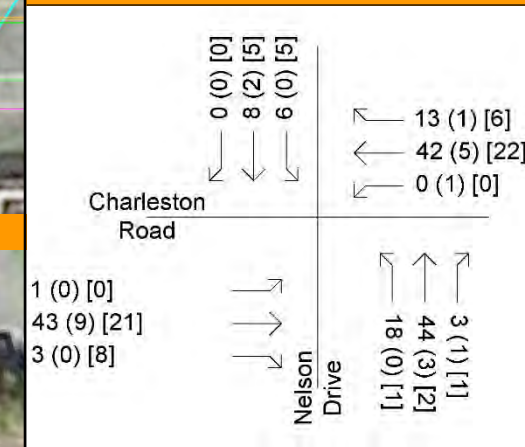
EXISTING



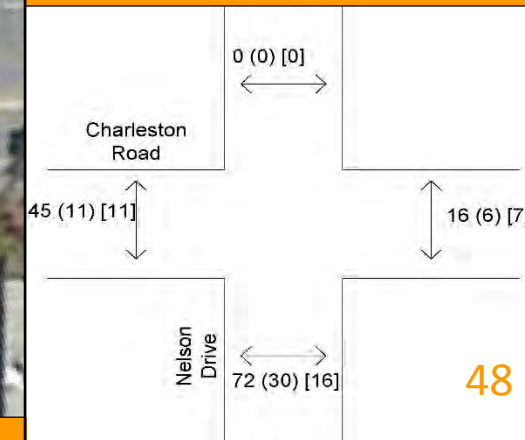
VEHICULAR MOVEMENT COUNTS



BICYCLE MOVEMENT COUNTS



PEDESTRIAN MOVEMENT COUNTS



### Roadway Geometry

The existing U-turn lane is reconfigured to allow left-turns into the driveway of the existing church parking lot at the location. U-turn volume will increase with installation of the median along Charleston Road between Carlson Court and Nelson Drive.

### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. Early bike phase gives cyclists a head start before the vehicles in the NB and SB directions to ensure they are able to clear the intersection.

### Pedestrian

Standardized Flashing Don't Walk times will provide a larger pedestrian clearance interval at the intersection.



# 19. Charleston Road/Middlefield Road

## Proposed Improvements

### Roadway Geometry

- Install exclusive right-turn lanes in EB and WB directions

### Bicycle

- Increase Minimum Green times to accommodate cyclists
- Install intersection crossing markings in EB direction

### Pedestrian

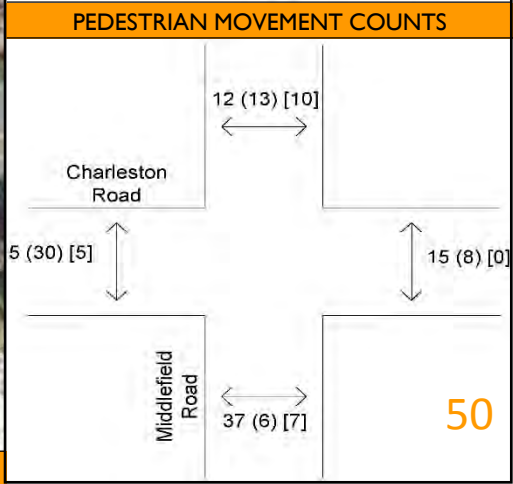
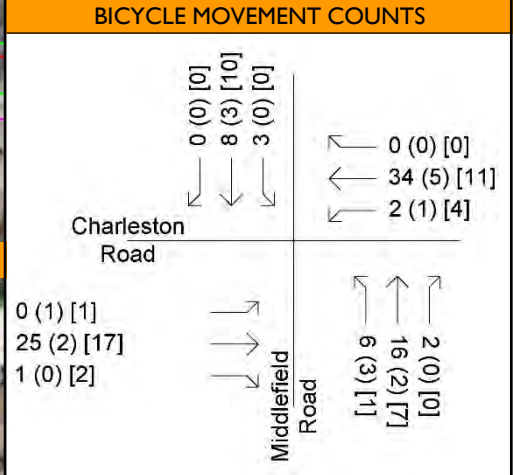
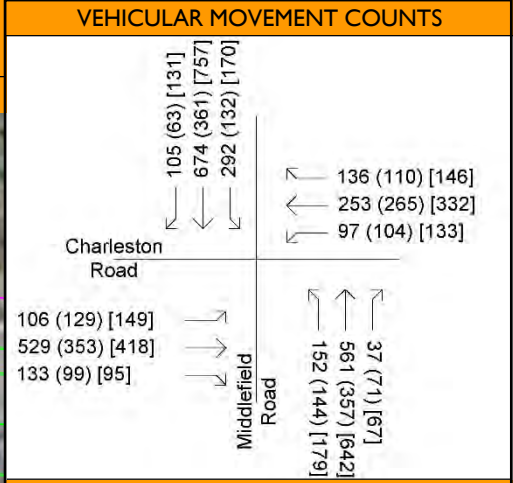
- Standardize Walk and Flashing Don't Walk times

## MUTCD Standard Timing Adjustments

	Min Green		Walk		Flashing Don't Walk		Yellow	
Direction	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NBL	4	9	-	-	-	-	3	3
NBT	8	8	7	5	14	20	3	3
SBL	4	9	-	-	-	-	3	3
SBT	6	8	7	5	14	19	3	3
EBL	4	10	-	-	-	-	3	4
EBT	6	10	7	5	16	23	3	4
WBL	10	10	-	-	-	-	3	4
WBT	8	10	7	5	14	20	3	4

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	D	C	D
Proposed Geometry & Standard Timings	D	C	D



### Roadway Geometry

Providing exclusive right-turn lanes for EB and WB approaches separates right-turning vehicles from the traffic flow.

### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely. Bicycle pavement markings provide cyclists with a defined travelled way. This is projected to alert motorists to the presence of the bicycle facility and can enhance cyclist experience.

### Pedestrian

Standardized Flashing Don't Walk times will provide a larger pedestrian clearance interval at the intersection.



# 20. Charleston Road/Louis Road-Montrose Avenue

## Proposed Improvements

### Roadway Geometry

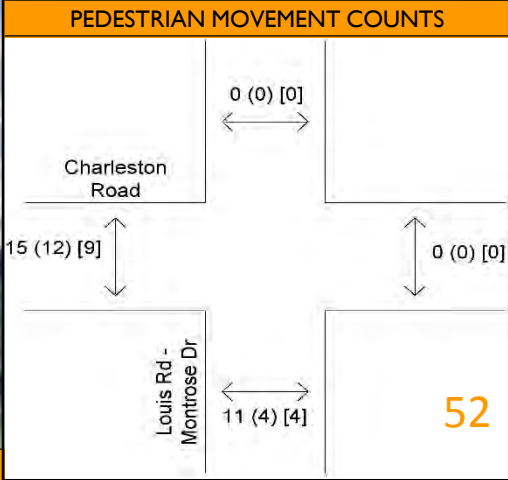
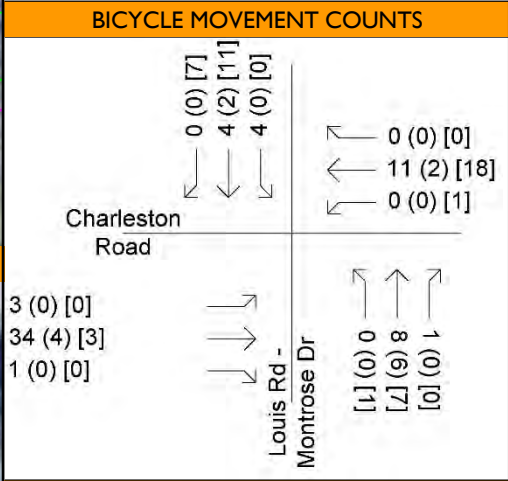
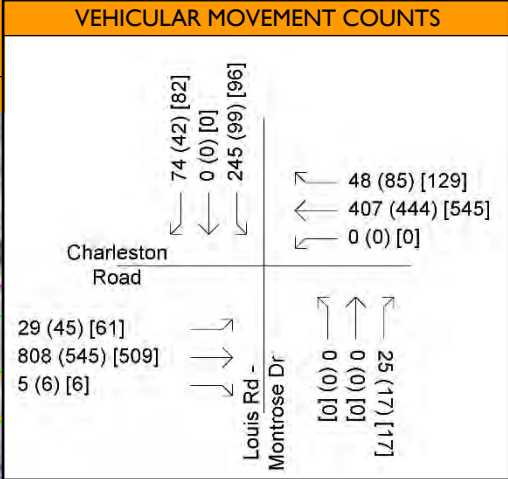
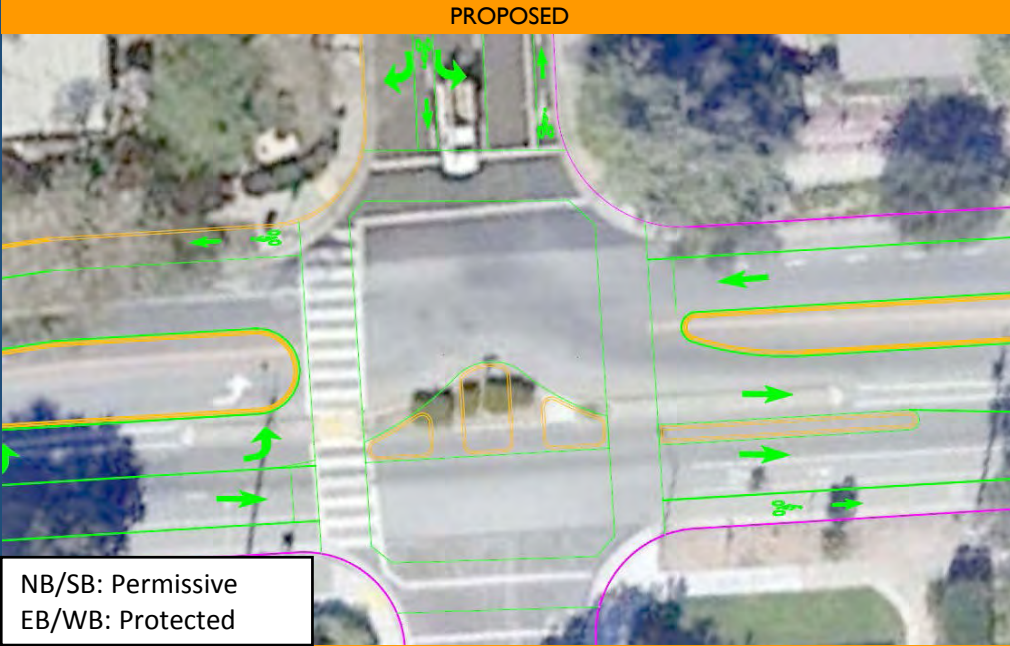
- Install signal at intersection

### Bicycle

- Install bicycle boulevard signs along NB and SB approaches
- Reconfigure median island to provide bicycle refuge and intersection crossings

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	F	F	F
Proposed Geometry & Standard Timings	B	B	C



### Roadway Geometry

Installation of a signal at the intersection is projected to enhance operations for all modes.

### Bicycle

Installation of signs is projected to increase awareness of the bicycle boulevard along Louis Road-Montrose Avenue. A reconfigured median island provides a bicycle refuge for NB and SB through cyclists and safer passage along Louis Road-Montrose Avenue.

# 21. Charleston Road/Fabian Way

## Proposed Improvements

### Roadway Geometry

- Install exclusive EB and WB left-turn storage lanes

### Bicycle

- Increase Minimum Green times to accommodate cyclists

### Pedestrian

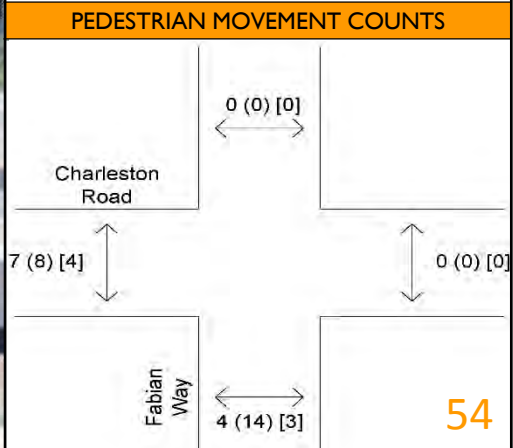
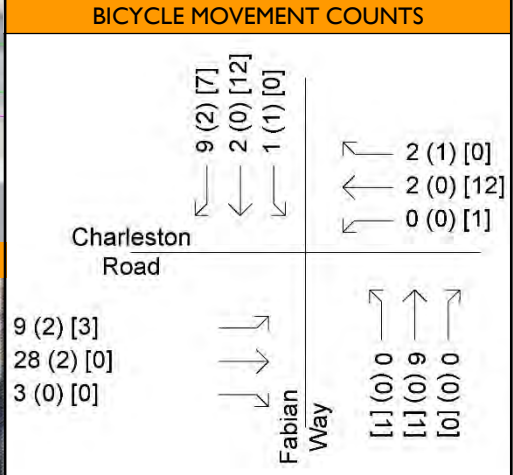
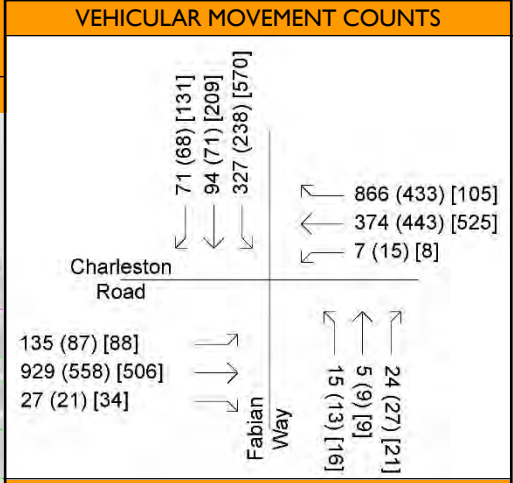
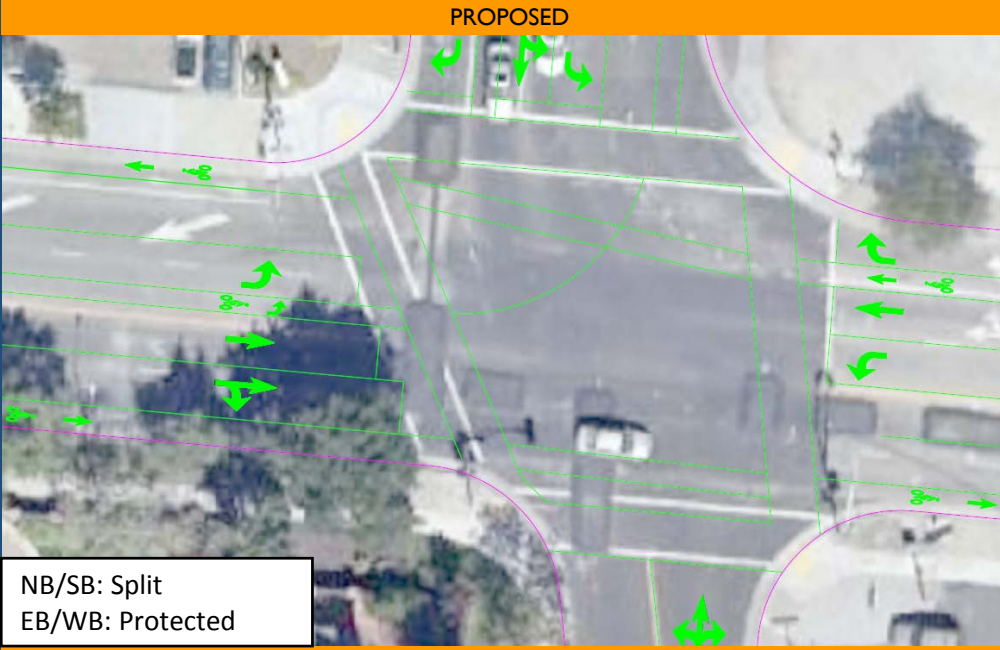
- Standardize Walk and Flashing Don't Walk times

## MUTCD Standard Timing Adjustments

Direction	Min Green		Walk		Flashing Don't Walk		Yellow	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
NB	8	11	-	-	-	-	3	3
SB	4	12	6	5	13	21	3	3
EBL	-	12	-	-	-	-	-	4
WBL	-	11	-	-	-	-	-	4
EBT/WBT	4	10	6	5	16	25	3	4

## Intersection Level of Service

Scenario	Peak Period		
	A.M.	Midday	P.M.
Existing Geometry & Timings	B	B	C
Proposed Geometry & Standard Timings	C	C	D





### Roadway Geometry

Exclusive left-turn lanes along Charleston Road separate turning vehicles from the traffic flow. This, along with protected phasing implemented for these movements, can improve safety at the intersection.

### Bicycle

Standardized Minimum Green times will allow cyclists to clear the intersection safely.

### Pedestrian

Standardized Flashing Don't Walk times will provide a larger pedestrian clearance interval at the intersection.

This concludes the report for the Charleston Road-Arastradero Road Corridor Project in the City of Palo Alto. Throughout the corridor there are many types of improvements proposed at individual intersections and along roadway segments. All improvements are in compliance with the CA MUTCD, City of Palo Alto Bicycle + Pedestrian Transportation Plan, City of Palo Alto General Plan, and Americans with Disabilities Act.

Many factors were taken into consideration when generating alternatives with the functionality of the roadway facility at the forefront. Bicycle and pedestrian facility improvements take the City's recommendations and requests for evaluation into account.

This report provides the recommendations, plans and specifications for phased implementation of community-focused streetscape improvements providing preferential bicycle-pedestrian measures while continuing to effectively serve motorists. These recommendations, plans and specifications are intended to help improve resident safety supporting Safe Routes to School and the Traffic Calming goals of the community.



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