



# City of Palo Alto

## City Council Staff Report

(ID # 10841)

---

**Report Type: Action Items**

**Meeting Date: 2/10/2020**

**Summary Title: San Antonio Road & East Charleston Road Intersection Improvements Project**

**Title: Review the Preferred Alternative Concept Plan for San Antonio Road and East Charleston Road Intersection and Direct Staff to Initiate and Complete Final Design Plans, Environmental Analysis, Specifications and Estimates for Construction**

**From: City Manager**

**Lead Department: Transportation**

### **Recommendation**

Staff and the Planning and Transportation Commission recommend that Council approve Concept Plan D (Attachment A) as the preferred alternative for San Antonio Road and East Charleston Road intersection and direct staff to initiate and complete final design plans, environmental analysis, specifications and estimates for construction.

### **Executive Summary**

City staff initiated a traffic safety project at the intersection of San Antonio Road and East Charleston Road in response to resident and constituent concerns about traffic safety and operations at this intersection. The objectives of the project are to improve pedestrian safety, address intersection operations, and maintain or improve motor vehicle level of service. As part of developing the concept plans, four (4) community meetings have been held since 2018. The first meeting focused on understanding project goals, identifying issues and opportunities, and presenting details of existing conditions. Follow up community meetings included a discussion of various improvement alternatives for the intersection and corresponding effects on safety and operations. As a result of this community-driven process, City staff has identified a preferred alternative concept plan which improves pedestrian visibility and reduces crossing distances for two crosswalks by modifying the southwest corner for pedestrians and vehicular access to the frontage road, and by improving vehicular operations by adding a second southbound left-turn lane on San Antonio Road and implementing an overlap phase for the

southbound right-turn lanes. Staff will return to Council for project approval after the environmental review and design phases are completed.

## **Background**

Both San Antonio Road and East Charleston Road are classified as arterial streets, and their junction is a major signalized intersection within the City of Palo Alto. For the purposes of this report, San Antonio Road runs north-south, and East Charleston runs east-west. A frontage road exists parallel to San Antonio Road on the west side that provides access to Fabian Way, to the 76 gas station, and to residents and businesses on the northwest quadrant of this intersection. This intersection provides a direct connection to the US 101 Freeway, the Jewish Community Center, Space Systems Loral, and the City of Mountain View. It has been identified as an intersection of concern due to complaints related to traffic congestion and pedestrian safety. Comprehensive Plan Goal T-2, concerning Traffic Delay and Congestion, states “Decrease delay, congestion and VMT with a priority on our worst intersections and our peak commute times, including school traffic.”

About 4,000 motor vehicles and 20 bicycles travel through this intersection during the one-hour morning peak on a typical weekday. This intersection currently operates at a motor vehicle Level of Service C during the morning peak-hour and Level of Service D during the evening peak-hour but will sometimes exceed its practical capacity when surges of traffic from multiple directions occur simultaneously. Level of Service D can be described as approaching unstable flow of traffic and occasionally waiting through more than one signal cycle before proceeding.

San Antonio Road and Charleston Road are designated as a future enhanced bikeway in the Bicycle and Pedestrian Transportation Plan (2012) in the vicinity of this intersection.

In November 2017, City staff began collecting and analyzing comprehensive traffic volume, speed and collision data. In April 2018, staff hosted the first community meeting where community members and stakeholders provided input on project goals and helped identify issues and opportunities. Subsequent community meetings were held to discuss and present revised alternative concept ideas for the intersection. Staff received many constructive comments from the community. Most were related to specific pedestrian improvements, overall traffic safety, parking concerns, and maintaining or improving the current vehicle operations. With input from stakeholders and evaluation by the consulting team, two alternative concept plans were developed.

## **Discussion**

The San Antonio Road and East Charleston Road Intersection Improvement project is intended to address concerns brought to staff by local residents that live near or commute through this intersection. The focus of this current project is targeted at three main goals:

- Improve access and mobility of all modes of travel;

- Reduce vehicular collisions and improve intersection safety for pedestrians; and
- Rationalize traffic operations.

Local residents, employees, and community center visitors have cited a history of collisions, pedestrian safety and congestion during peak hours as recurring issues at this intersection. Of particular concern was pedestrian safety crossing the west leg of East Charleston Road with two conflicting southbound right-turn lanes on San Antonio Road. During field observations, it was noted that vehicles in the second right-turn lane do not always yield to pedestrians as required.

According to data assembled by the California Highway Patrol, using the Statewide Integrated Traffic Records System (SWITRS) database, this intersection had approximately 25 reported collisions over a five-year period from January 2012 to December 2016. For a typical collision history analysis, the last five years of complete data are commonly reviewed. In reviewing the reported-collision history and primary collision factors, the City's Transportation staff determined that most collisions were likely caused by unsafe speed or improper turning; and the prevailing crash type was rear-end or sideswipe, which can likely be attributed to vehicles speeding or heavy traffic congestion. The highest number of rear-end collisions occurred on westbound Charleston Road with the highest number of sideswipe collisions on southbound San Antonio Road and eastbound Charleston Road.

As part of the Office of Transportation's Traffic Safety Program, staff worked with the neighborhood to identify potential options and ideas and held a community meeting on April 26, 2018 at the Jewish Community Center. About 40 people were present at this meeting where staff presented three (3) preliminary ideas to address identified concerns that could be implemented within a short time and a longer-term idea that would be possible to implement with the US 101 Freeway Interchange project.

*Preliminary Concept Idea A:* Idea A includes removal of one southbound right-turn travel lane on San Antonio Road and addition of an Overlap phase in the traffic signal timing. The addition of a southbound bike lane on San Antonio Road and pedestrian improvements at the southwest corner are also proposed. Two through southbound lanes and one left turn lane would be maintained.

*Preliminary Concept Idea B:* Idea B includes the addition of a second southbound left-turn lane on San Antonio Road. Two through southbound lanes, one shared through-right turn lane and a right only turn lane would be maintained.

*Preliminary Concept Idea C:* Idea C combines features of both ideas A and B. This idea includes removal of one southbound right-turn travel lane and addition of a southbound bike lane on San Antonio Road. Pedestrian improvements at the southwest corner and

addition of an Overlap phase in the traffic signal timing are also proposed. It also includes the addition of a second southbound left-turn lane on San Antonio Road. Two through southbound lanes would be maintained.

At the first meeting, residents were generally in favor of idea C but expressed concerns about traffic back up and congestion if one southbound right-turn travel lane were to be removed. Based on community input from the first outreach meeting as well as additional operational evaluations, idea “D” was developed to incorporate more protected pedestrian movement.

*Preliminary Idea D:* Idea D includes the addition of a second southbound left-turn lane on San Antonio Road and pedestrian improvements at the southwest corner. Two through southbound lanes would be maintained and the shared through-right turn lane would be converted to right only turn lane.

Newly developed idea D and previously discussed idea C were presented at the second community meeting held on September 5, 2018 at the Jewish Community Center. Forty-five people attended this meeting and provided constructive feedback on both ideas. Most people were generally in favor of idea D but were concerned about pedestrian safety when crossing the west leg of East Charleston Road with two conflicting southbound right-turn lanes on San Antonio Road (as it currently exists). Staff committed to further evaluate southbound right-turn signal operations. Some of the business owners requested another focused meeting with staff so they could better understand how the modifications at the southwest corner would impact them in terms of access and parking. As presented, corner modifications would eliminate three parking spaces along the frontage road on San Antonio and align the crosswalk for better visibility. Due to high parking demand, the loss of three parking spaces is significant for businesses in this area.

Staff further revised idea D to add additional parking spaces further south such that no net loss of parking spaces along the frontage road would occur. Modifications to the southwest corner were also revised to incorporate a full third receiving lane (ten to 11 feet wide) for vehicles entering the frontage road and also to accommodate larger vehicles access to the frontage road and gas station.

#### *Planning and Transportation Commission Meeting*

Staff presented this report to the Planning and Transportation Commission (PTC) on November 13, 2019. The PTC draft verbatim minutes are provided in the following link: <https://www.cityofpalalto.org/civicax/filebank/documents/74917> The Planning and Transportation Commission reviewed both alternative concept plans C and D and recommended that the City Council approve the recommended alternative D and direct staff to proceed with the design phase by a vote of six to one. Some of the highlighted comments received from include:

- Anticipation of land use changes and setting of San Antonio Road should be considered
- Option of a buffered bike lane in place of second right turn lane should be considered
- Long-term circulation changes not included with this project

The PTC weighed the conceptual design options, potential impacts, benefits, and ultimately recommended approval of the Concept Plan D (Attachment A).

### **Summary of Key Issues**

After preliminary feasibility analysis, the concept idea was reduced to alternative D (Attachment A), which could reasonably be implemented within the existing constraints.

*Preliminary Idea D:* This concept plan is included as Attachment A in this report. Idea D includes keeping the second southbound shared right -turn lane on San Antonio Road but converts it to right-turn only (onto Charleston) modifies the southwest corner of the intersection, and adds an overlap phase.

An "overlap" is a special output of the traffic signal controller that allows for a right turn to receive a green arrow at the same time as a left –turn movement on the adjacent leg. This also allows for an "overlap" from one phase movement to another. At this intersection, the dedicated right turn lane would be signalized with a right turn arrow and would then operate when the adjacent eastbound left is green. This signal overlap would allow the southbound right-turn traffic to continue moving during some portions when the southbound through traffic has a red signal. The use of an overlap would potentially help the overall traffic capacity through this intersection.

Two through southbound lanes would be maintained, however the right-most through lane would become a shared through-right lane for vehicles traveling to the frontage road south of the intersection. This would allow more vehicles to turn right thus improving the traffic flow during the morning peak period. Roadway configuration for southbound traffic would then be two left turn lanes, two through lanes, and two right turn only lanes.

Pros: Modifications to the southwest corner of the intersection shortens pedestrian crossing and improves sightlines. The addition of a second southbound left-turn vehicular travel lane would increase roadway capacity. Southbound right turn capacity is maintained with an overlap phase.

Cons: Bicycle conditions remain the same as existing.

Using the City's adopted standards of significance for increased delays at signalized intersections and existing traffic volumes, staff determined that a reduction from two to one right turn travel lane on southbound San Antonio Road (as proposed in Concept C) would trigger a potentially significant environmental impact at the intersection. Based on this analysis, staff recommends implementing Concept Idea D for improvements to the intersection of San Antonio Road and East Charleston Road.

The buffered bike lane, as suggested during PTC meeting, may be reconsidered in the future if and when more comprehensive corridor improvements along San Antonio Road are evaluated in a more holistic approach. The designs in Concept D are not anticipated to prevent a southbound buffered bike lane in the future.

### **Policy Implications**

Comprehensive Plan goals, policies, and programs that support the implementation of this project include:

- Policy T-1.22 Continue to measure the effectiveness of the City's transportation network to make better decisions on transportation issues.
  
- Goal T-2 Decrease delay, congestion and VMT with a priority on our worst intersections and our peak commute times, including school traffic.
  
- Goal T-3 Maintain an efficient roadway network for all users.
  
- Policy T-3.1 Maintain a hierarchy of streets that includes freeways, expressways, arterials, residential arterials, collector streets and local streets, balancing the needs of all users in a safe and appropriate manner.
  
- Policy T-3.3 Avoid major increases in single-occupant vehicle capacity when constructing or modifying roadways unless needed to remedy severe congestion or critical neighborhood traffic problems. Where capacity is increased, balance the needs of motor vehicles with those of pedestrians and bicyclists.
  
- Policy T-3.5 When constructing or modifying roadways, plan for use of the roadway by all users.
  
- Policy T-3.6 Consider pedestrians, bicyclists, e-bikes and motorcycles when designing road surfaces, curbs, crossings, signage, landscaping and sight lines.
  
- Policy T-4.3 Identify specific improvements that can be used to discourage drivers from using local, neighborhood streets to bypass traffic congestion on arterials.

- Goal T-6 Provide a safe environment for motorists, pedestrians and bicyclists on Palo Alto streets.
- Policy T-6.1 Continue to make safety the first priority of citywide transportation planning. Prioritize pedestrian, bicycle and automobile safety over motor vehicle level of service at intersections and motor vehicle parking.
- Policy T-6.2 Pursue the goal of zero severe injuries and roadway fatalities on Palo Alto city streets.
- Policy T-6.6 Use engineering, enforcement and educational tools to improve safety for all users on City roadways.

### **Resource Impact**

This project is funded through the Traffic Signal and Intelligent Transportation Systems Capital Improvement Project (PL-05030). A total of \$900,000 was transferred from the San Antonio/West Bayshore Transportation Impact Fund which is anticipated to cover costs of the San Antonio Road and East Charleston Road Intersection Improvement Project.

### **Timeline**

Upon approval from City Council, staff will begin working with on-call consultants on the environmental analysis, plans, specifications, and estimates for construction. Design and environmental work are scheduled to be completed by Summer 2020. Construction will be scheduled soon thereafter.

### **Stakeholder Engagement**

On April 26, 2018, Staff hosted the first community meeting where community members and stakeholders provided input on project goals and helped identify issues and opportunities. Two follow-up community meetings were held on September 5, 2018 and August 22, 2019, to discuss and present revised alternative concept ideas for the intersection. In addition, Staff also met with surrounding businesses in a daytime community meeting on February 12, 2019 to discuss any issues and concerns more directly related to the local business operations.

Planning and Transportation Commission (PTC) public hearing was held on November 13, 2019. Notice cards for this PTC hearing and City Council public hearing were sent to residents and businesses within 500 feet radius of this intersection. Attendees who provided their email addresses during community meetings were also notified through an email. The meeting details were posted on social media and the city's website and were open to all.

### **Environmental Review**

The recommended Council action – providing preliminary direction to staff to move forward with design, environmental analysis, and cost estimates – does not constitute approval of a project under the California Environmental Quality Act (CEQA). Staff will return to Council for project approval after the environmental review and design phases are completed.

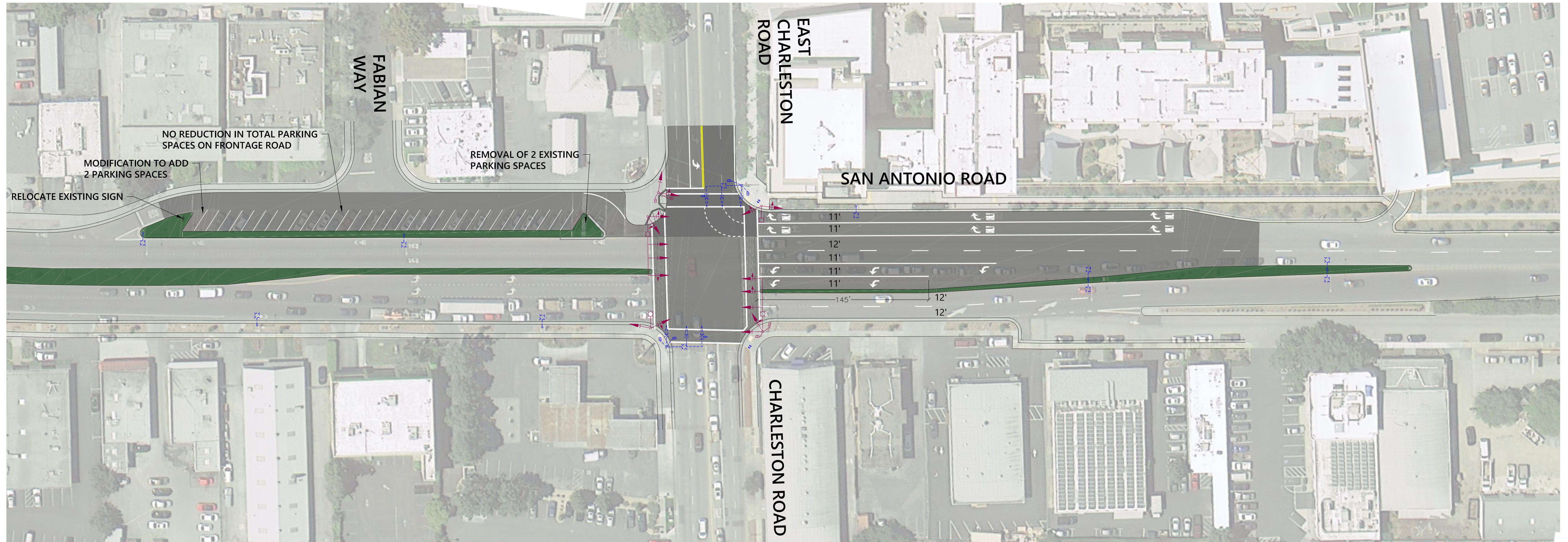
Given the nature of the proposed improvements for the preferred concept plan (Concept Plan D, Attachment A); the project is anticipated to qualify for a Class 1 Categorical Exemption. However, this will be reviewed further and if necessary, an Initial Study/Mitigated Negative Declaration (IS/MND) (or other CEQA document as appropriate) will be prepared prior to project approval.

The Class 1 exemption covers minor alterations to existing facilities so long as they involve no or negligible expansion of use. Although the project would include the addition of a second southbound left-turn lane on San Antonio Road, the overall roadway width and the existing curb-to-curb dimension remains unchanged. This signalized intersection is anticipated to operate at an improved motor vehicle level of service than it does under existing conditions.

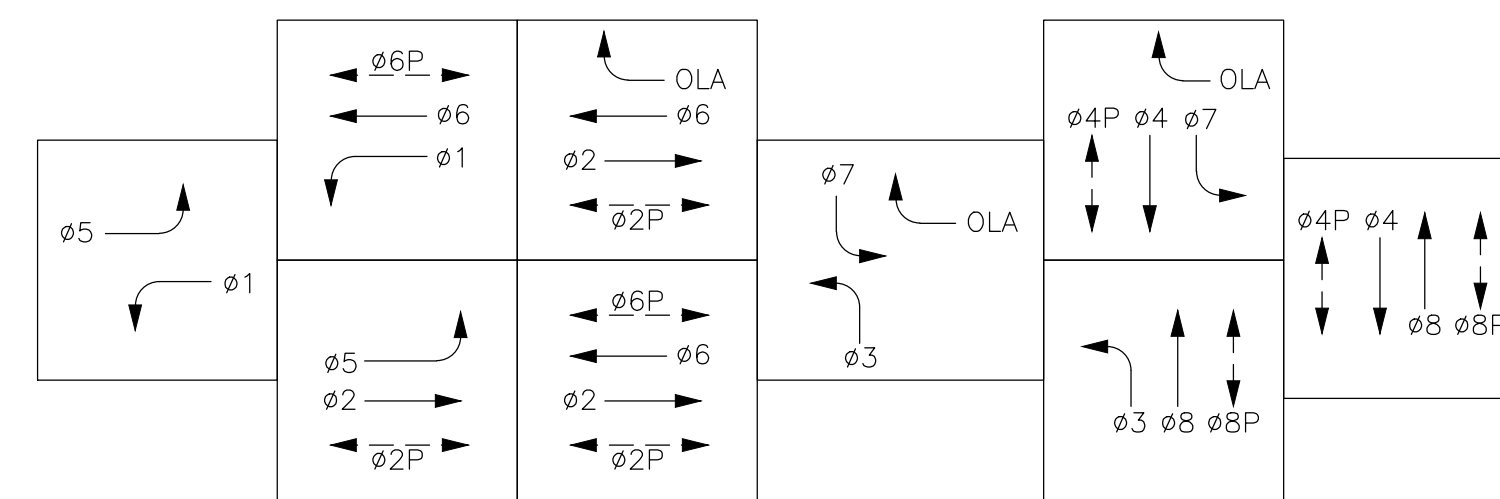
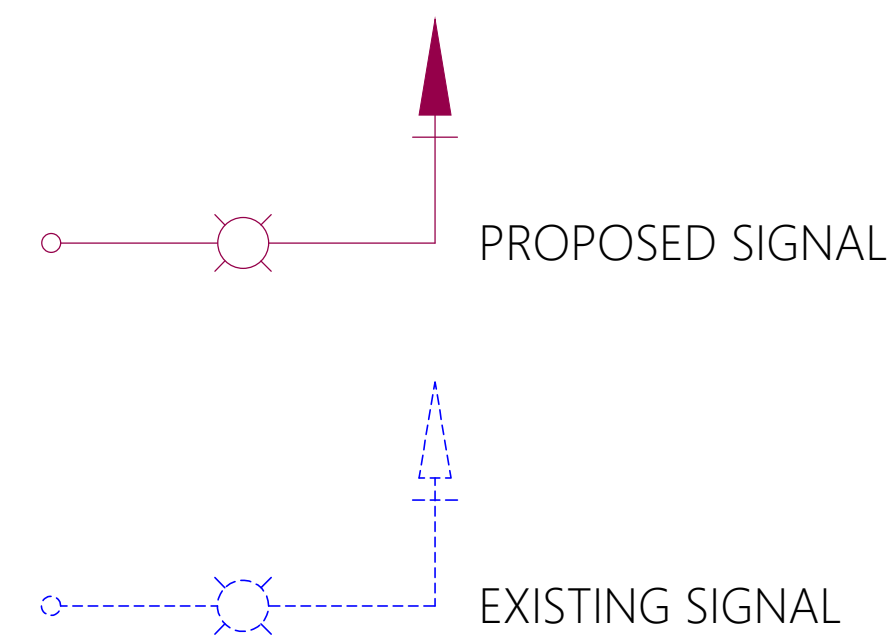
**Attachments:**

**Attachment A: Preliminary Concept Plan D (PDF)**

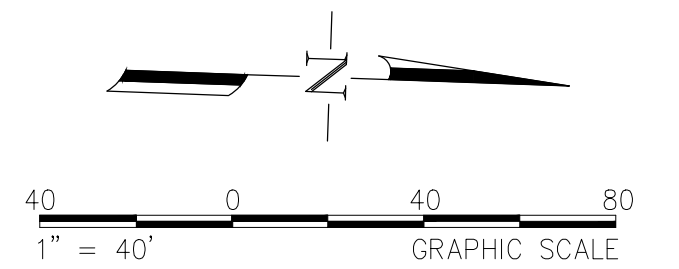




**LEGEND**



**PHASE DIAGRAM**



**Short-term Idea D - Addition of Second Left-Turn Lane, Adjustment to Right Turns  
San Antonio Road & Charleston Road, Palo Alto, CA**

CONCEPTUAL - NOT FOR CONSTRUCTION  
DETAILED ENGINEERING DESIGN REQUIRED