

Complete Streets Commission



SPECIAL MEETING AGENDA

Date: 4/17/2023
Time: 6:30 p.m.
Location: [Zoom.us/join](https://zoom.us/join) – ID# 845 2506 8381 and
City Council Chambers
751 Laurel St., Menlo Park, CA 94025

Members of the public can listen to the meeting and participate using the following methods.

How to participate in the meeting

- Access the meeting, in-person, at City Council Chambers
- Access the meeting real-time online at:
[Zoom.us/join](https://zoom.us/join) – Meeting ID 845 2506 8381
- Access the meeting real-time via telephone at:
(669) 900-6833
Meeting ID 845 2506 8381
Press *9 to raise hand to speak

Subject to Change: The format of this meeting may be altered or the meeting may be canceled. You may check on the status of the meeting by visiting the city website at menlopark.gov. The instructions for logging on to the Zoom webinar and/or the access code is subject to change. If you have difficulty accessing the Zoom webinar, please check the latest online edition of the posted agenda for updated information (menlopark.gov/agendas).

Special Meeting

A. Call To Order

B. Roll Call

C. Reports and Announcements

Under “Reports and Announcements,” staff and Commission members may communicate general information of interest regarding matters within the jurisdiction of the Commission. No Commission discussion or action can occur on any of the presented items.

D. Regular Business

- D1. Accept the Complete Streets Commission minutes for March 8, 2023 ([Attachment](#))
Not a California Environmental Quality Act (CEQA) project.
- D2. Provide feedback on the Caltrain quiet zone study ([Staff Report #23-003-CSC](#))
Not a CEQA project.
- D3. Provide direction on Ravenswood Avenue bike lane pilot ([Staff Report #23-004-CSC](#))

Not a CEQA project.

- D4. Update on El Camino Real pedestrian and bicycle improvements ([Staff Report #23-005-CSC](#))
Not a CEQA project.

E. Informational Items

- E1. Update on major project status
Not a CEQA project.

F. Committee/Subcommittee Reports

G. Adjournment

At every Regular Meeting of the Commission, in addition to the Public Comment period where the public shall have the right to address the Commission on any matters of public interest not listed on the agenda, members of the public have the right to directly address the Commission on any item listed on the agenda at a time designated by the Chair, either before or during the Commission's consideration of the item.

At every Special Meeting of the Commission, members of the public have the right to directly address the Commission on any item listed on the agenda at a time designated by the Chair, either before or during consideration of the item. For appeal hearings, appellant and applicant shall each have 10 minutes for presentations.

If you challenge any of the items listed on this agenda in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City of Menlo Park at, or prior to, the public hearing.

Any writing that is distributed to a majority of the Commission by any person in connection with an agenda item is a public record (subject to any exemption under the Public Records Act) and is available by request by emailing the city clerk at jaherren@menlopark.gov. Persons with disabilities, who require auxiliary aids or services in attending or participating in Commission meetings, may call the City Clerk's Office at 650-330-6620.

Agendas are posted in accordance with Government Code §54954.2(a) or §54956. Members of the public can view electronic agendas and staff reports by accessing the City website at menlopark.gov/agendas and can receive email notification of agenda and staff report postings by subscribing to the "Notify Me" service at menlopark.gov/subscribe. Agendas and staff reports may also be obtained by contacting City Clerk at 650-330-6620. (Posted: 4/13/2023)

Complete Streets Commission



REGULAR MEETING MINUTES – DRAFT

Date: 3/8/2023
Time: 6:30 p.m.
Location: Teleconference and
 City Council Chambers
 751 Laurel St., Menlo Park, CA 94025

A. Call To Order

Chair Cole called the meeting to order at 6:32 p.m.

B. Roll Call

Present: Altman, Behroozi, Cebrian, Cole, King, Kollmann
 Absent: None
 Staff: Assistant Public Works Director – Transportation Hugh Louch, Engineering Technician Patrick Palmer, Senior Transportation Engineer Kevin Chen

C. Reports and Announcements

- Staff Chen reported on City Council actions related to transportation since the February 8, 2023 Commission meeting.

D. Public Comment

- Virginia Portillo requested more communication to the Belle Haven neighborhood about upcoming City meetings and events.

E. Regular Business

E1. Accept the Complete Streets Commission minutes for February 8, 2023

ACTION: Motion and second (Behroozi/ Cebrian), to accept the Complete Streets Commission minutes for February 8, 2023, passed 5-0 (Altman abstaining).

E2. Provide feedback on proposed pilot quick build intersection improvements at Menlo Avenue and University Drive (Staff Report #23-002-CSC)

Staff Louch made the presentation (Attachment).

- Marijane Leonard spoke in opposition of bulbouts on University Drive for residents living on the cul-de-sac portion of Menlo Avenue.
- Adina Levin spoke in support of the project.
- Cherie spoke on concerns related to bulbouts and requested removal of “KEEP CLEAR” striping on University Drive.
- John Draeger spoke in support of the project for safety and driveway access.
- Catherine Milton spoke in support of the project and in opposition of removing “KEEP CLEAR”

striping on University Drive.

- Marge Gordon spoke concerns related to access from Santa Cruz Avenue to Menlo Avenue and in opposition of removing “KEEP CLEAR” striping on University Drive.
- Michael Closson spoke on concerns related to conflicts between traffic and pedestrian and suggested a roundabout.

The Commission discussed bulbout versus median design options, phasing the project, crosswalk location and treatments, safety options, and project timeline.

The Commission directed staff to proceed with Option 1 and evaluate other enhancements such as: 1) increase crosswalk visibility through lighting and other treatments, 2) additional public outreach during the pilot, 3) explore “stop ahead” signs for Menlo and University crosswalks.

F. Informational Items

F1. Update on major project status

Staff Chen provided updates on the citywide all-way stop installation, Caltrain Quiet Zone Implementation Plan, the Comprehensive Shuttle Program evaluation, and El Camino Real/ Ravenswood Avenue crosswalk improvement project.

Commissioner Behroozzi requested clarification on the left turn operation at El Camino Real/ Middle Avenue.

F2. Update on AB 2449 – meeting participation

Staff Chen provided updates on the latest meeting procedures (Attachment).

G. Committee/Subcommittee Reports

None.

H. Adjournment

Chair Cole adjourned the meeting at 8:36 p.m.

Kevin Chen, Senior Transportation Engineer



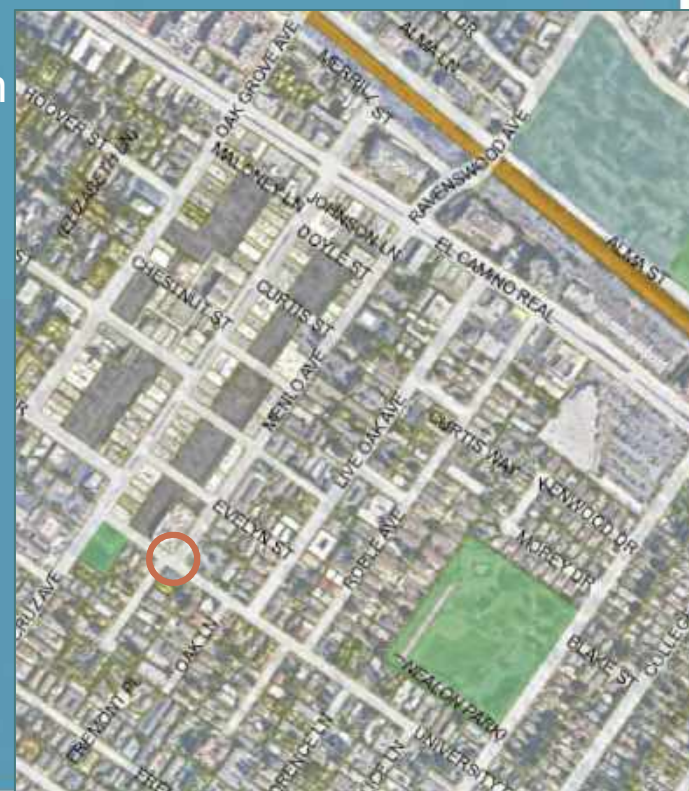
MENLO UNIVERSITY INTERSECTION

Complete Streets Commission – March 8, 2023



AGENDA

- Request for Commission
- Existing conditions
- Safety analysis
- Quick build options
- Traffic analysis





REQUEST FOR COMPLETE STREETS COMMISSION



- Provide direction on potential quick build project to improve safety at the Menlo Avenue-University Drive intersection
- Quick build projects use striping, posts, and other temporary materials to implement improvements that can be tested and adjusted before installing permanent infrastructure



EXISTING CONDITIONS

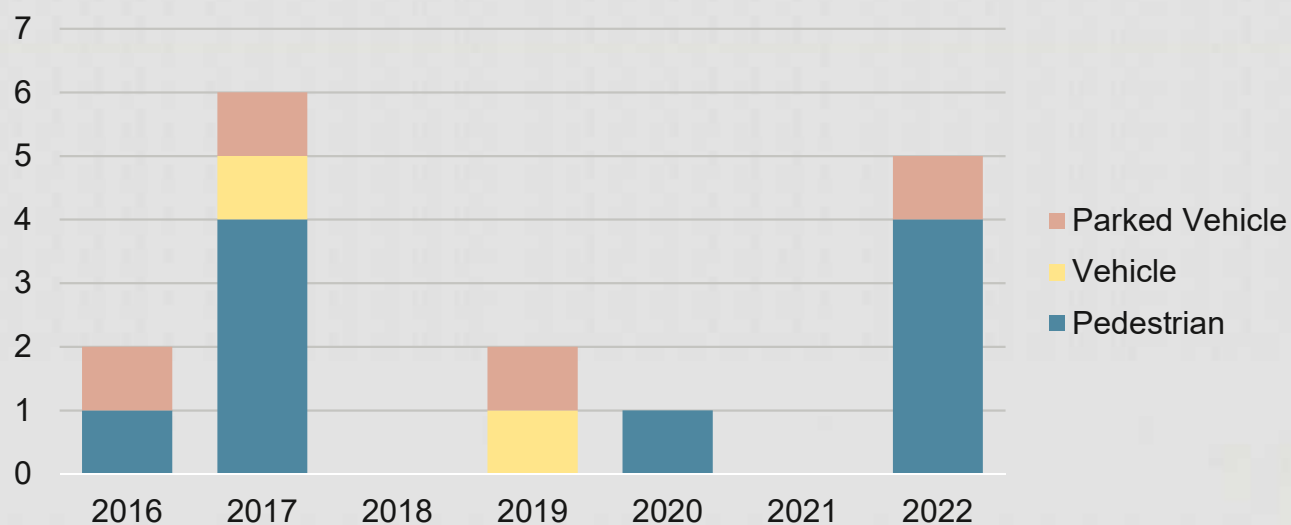




SAFETY ANALYSIS

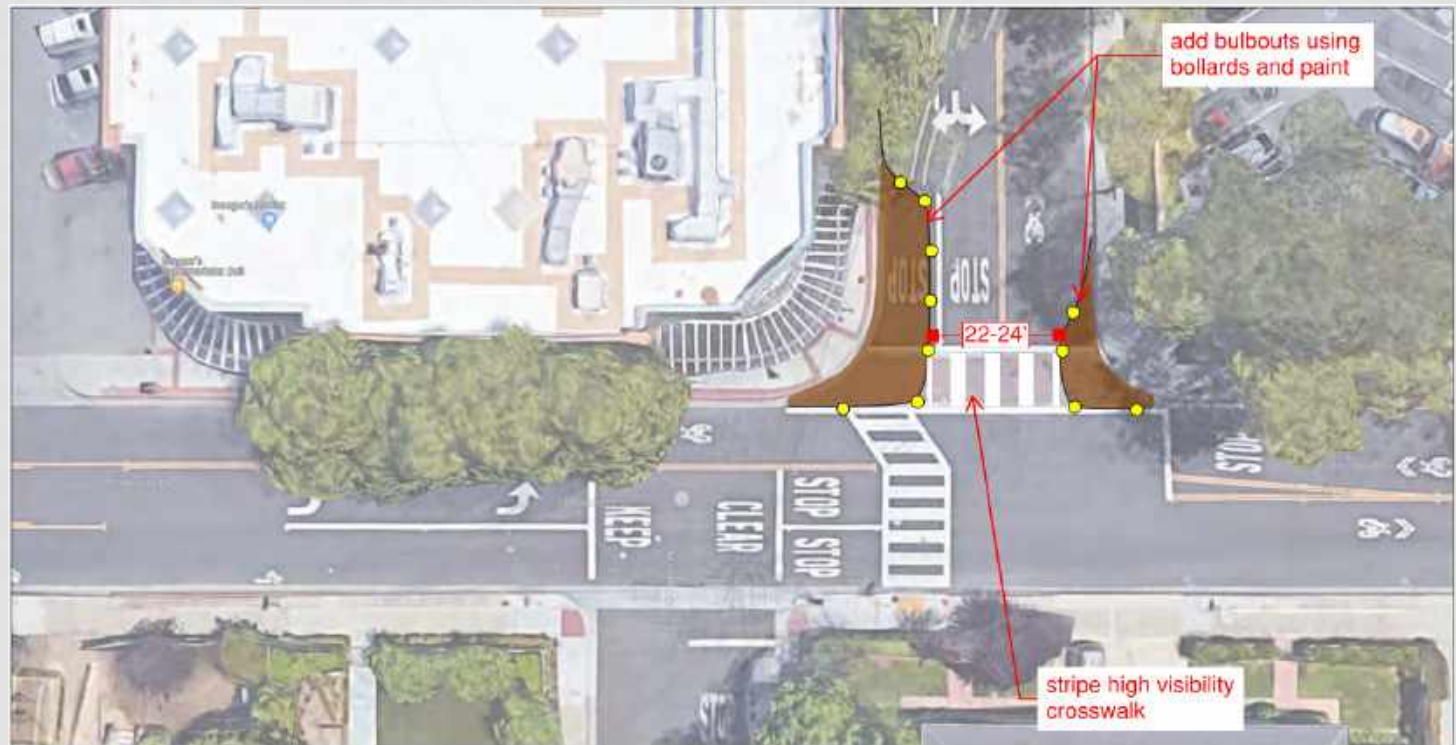
- In 2022, one quarter of all pedestrian collisions in the City were located at this intersection

Collisions at Menlo Avenue and University Drive



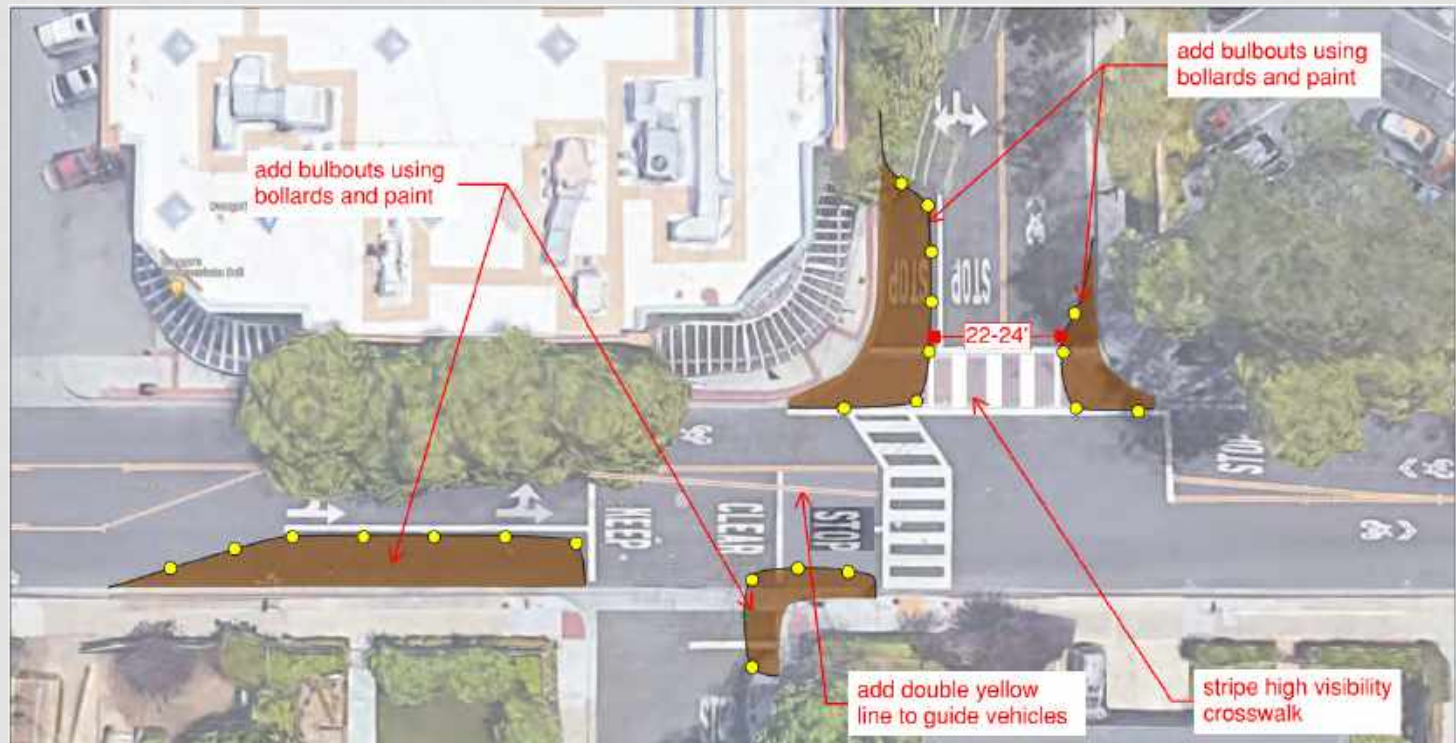


QUICK BUILD CONCEPTS OPTION 1 – MENLO AVE ONLY





QUICK BUILD CONCEPTS OPTION 2 – MENLO AVE + UNIVERSITY DR





TRAFFIC ANALYSIS MENLO AVENUE ONE LANE

- AM peak hour
 - 1.4 more seconds of delay per vehicle
 - 10 to 20 feet of queue length (one vehicle or less)
- PM peak hour
 - Just under 3 more seconds of delay per vehicle
 - 30 to 55 feet more queuing (2 to 3 vehicles)

Table 1: Menlo Avenue lane reduction

Peak hour	LOS (Sec/veh delay)		Queue (ft)		
	2019	w/lane reduction	2019		w/lane reduction
	WB	WB	Left	Right	Shared left/right
AM	A (9.86)	B (10.26)	10	22	31
PM	B (12.22)	C (15.19)	21	43	78



TRAFFIC ANALYSIS

MENLO AVE & UNIVERSITY DR ONE LANE

- AM peak hour
 - 3.1 more seconds of delay per vehicle
 - 40 to 80 feet of queue length (~ 2 to 4 vehicles)
- PM peak hour
 - Just under 5 more seconds of delay per vehicle
 - 55 to 83 feet more queuing (~ 3 to 4 vehicles)

Table 1: University Drive lane reduction

Peak hour	LOS (Sec/veh delay)		Queue (ft)		
	2019	w/lane reduction	2019		w/lane reduction
	WB	WB	Left	Right	Shared left/right
AM	B (12.06)	C (15.19)	60	25	104
PM	B (13.16)	C (18.07)	55	27	110

OTHER COMMON REQUESTS



Rectangular Rapid Flashing Beacon (RRFB)
Only for uncontrolled crossings



Signal
Longer term project
May not meet signal warrant



REQUEST FOR COMPLETE STREETS COMMISSION



- Provide direction on a potential quick build project to improve safety at the Menlo Avenue-University Drive intersection
- Next steps
 - Additional outreach – pop up event at the intersection in late March/early April
 - City Council



THANK YOU

Beginning March 1, 2023, the procedure for participating in meetings will change per AB (Assembly Bill) 2449. The City will continue teleconference meetings for all legislative bodies.

- “Teleconference” = in-person and remote participation
- “Legislative bodies” = City Council, advisory bodies, commissions, committees, and standing sub-committees.

As of March 1, 2023, all *legislative body members*, will need to participate **in-person** unless the following is met. Please note, that the public’s participation is not impacted (e.g., the public can attend/participate in-person or remotely).

If a legislative body member participates **remotely**, *one* of the three following *must* occur:

1. Traditional Brown Act requirements (Gov. Code sec. 54953(b)(3)) – these were used pre-COVID

- a. A quorum of the legislative body must be in-person
 - i. City Council Chambers, City Hall conference room, City library, etc.
- b. The address of where the remote legislative body member is participating from
 - i. Home address, hotel, etc.
- c. The agenda must be posted to the door of where the remote legislative body member is participating from, in the public view
- d. Members of the public must be allowed into the location where the remote legislative body member is participating from
 - i. If member is participating from home, then the public must be allowed access to participate in the meeting at the home of the legislative body member

2. AB 2449 “Just Cause” – can be used up to two meetings per calendar year (January – December)

- childcare or caregiving of a child, parent, grandparent, grandchild, sibling, spouse, or domestic partner that requires a member to participate remotely
- a contagious illness that prevents a member from attending in person
- a need related to a physical or mental disability
- travel while on business of the legislative body or another state or local agency

In order to use “Just Cause”:

- a. A quorum of the legislative body must be in-person
 - i. City Council Chambers, City Hall conference room, City library, etc.
- b. Notify your legislative body at the earliest possible opportunity of the need to participate remotely
 - i. The earliest possible opportunity can be, but is not required to be, at the start of the meeting
- c. Provide a general description of the circumstances related to one of the four items above (e.g., childcare, illness, disability, travel)

3. AB 2449 “Emergency Circumstances” – can be used up to 20% of a legislative body’s regular meetings per calendar year (January – December) and cannot exceed three consecutive meetings

- Physical or family medical emergency that prevents a legislative body member from attending in-person
- If the regular meeting schedule is once a month: 20% = 2 meetings
- If the regular meeting schedule is twice a month: 20% = 4 meetings

In order to use “Emergency Circumstances”:

- a. At the start of the meeting, the remote legislative body member must request that the legislative body allow them to participate remotely because of an emergency circumstance
- b. Remote legislative body member must provide a general description of the circumstances relating to the legislative body member’s need to appear remotely
 - i. This description should be 20-words or less
 - ii. The legislative body member does *not* have to disclose any personal medical information
- c. Remote legislative body member must also disclose whether any other people over 18 years old are present in the room and the general nature of the legislative body member’s relationship with the individual
- d. The legislative body must vote to add the emergency circumstance to the agenda for consideration
 - i. Majority vote required
- e. If approved (e.g., add the consideration of an emergency circumstance to the agenda), the legislative body must vote to approve the remote legislative body member’s participation
 - i. These steps are required before the commencement of the business meeting

Additional rules for remote legislative body member participation

- Remote legislative body members must participate through both visual and audio
 - a. Cameras and mics engaged
- Rollcall voting required if one or more member is participating remotely
 - a. Robert’s Rules of Order (45:48) requires that:
 - i. A verbal rollcall vote be done in alphabetical order, with the presiding officer (e.g., mayor or chair) last
 - ii. Legislative body members can vote “yes”, “no”, “abstain”, or “pass”
 - If “pass”, following the remainder of the rollcall vote, the vote will return to that member

Public Works



STAFF REPORT

City Council

Meeting Date:

4/17/2023

Staff Report Number:

23-003-CSC

Regular Business:

Provide feedback on the Caltrain quiet zone study

Recommendation

Staff requests feedback from the Complete Streets Commission on the Caltrain quiet zone study, including proposed next steps to implement a quiet zone in Menlo Park. Staff will be seeking direction from City Council on the following key topics:

- Confirmation that staff should actively pursue a service agreement with Caltrain to advance final design of the grade crossing upgrades
- Direction to pursue additional left-turn restrictions from Oak Grove Avenue to Merrill Street and Garwood Way to reduce stopping on the railroad tracks

Policy Issues

The City Council identified the Caltrain quiet zone implementation plan (Project) as a high priority project in their 2021 work plan. The quiet zone project is included in the five-year capital improvement program.

Background

The City of Menlo Park currently has four at-grade crossings with Caltrain:

- Ravenswood Avenue
- Oak Grove Avenue
- Glenwood Avenue
- Encinal Avenue

In addition, there is a pedestrian crossing located approximately 250 feet north of the Ravenswood crossing at the Menlo Park Caltrain Station. Attachment A provides a map of at grade crossings in the City, as well as the crossings immediately to the south (Palo Alto Avenue in Palo Alto) and north (Watkins Avenue in Atherton.)

The Federal Railroad Administration (FRA) requires all passenger and freight trains to activate their horns four times: two long blasts, one short blast, then one long blast beginning one-quarter mile before each crossing. The purpose of these blasts is to warn people of the train approaching the crossings. FRA has a process to establish a quiet zone that eliminates the horn requirements, but railroad engineers may still blow train horns when they perceive safety concerns. There is currently no existing railroad quiet zone within the City of Menlo Park.

Since only one-fifth of a mile separates each of Menlo Park's rail crossings, the horn blast sequences are repeated continuously, resulting in as many as 16 total blasts per passing train over the short span of 1.12 miles, depending on whether trains are stopping in Menlo Park. In practical terms, this can manifest as nearly continuous horn blasts with the maximum volume level for the train horn up to 110 decibels.

On July 12, 2022, the City Council approved a scope of work with Kimley-Horn and Associates (KHA) to conduct the Caltrain quiet zone study. This study included the crossings in Menlo Park, as well as Palo Alto Avenue, through a partnership with the City of Palo Alto.

Since that time, staff have been working with KHA to:

- Conduct background analysis and provide information about the process to establish a quiet zone
- Develop improvement concepts for the at grade crossings
- Conduct a site visit with representatives of the City, Caltrain, the California Public Utility Commission (CPUC) and the FRA
- Conduct an in person and virtual public outreach meeting

In addition to this work on the quiet zone study, on December 7, 2021, the City Council approved left turn restrictions from Garwood Way and Merrill Street on to Oak Grove Avenue to address potential conflicts around the railroad tracks as the new Springline development opens. Since that time, staff has observed occasional vehicle backups onto the railroad tracks from vehicles turning left from Oak Grove Avenue onto Merrill Street and have incorporated that concern in the improvements identified for the quiet zone study.

Analysis

FRA establishes several methods to reduce train horn noise that range from installation of quad gates (railroad gates that protect both sides of each crossing) to installing 'wayside horns' that reduce the number of people impacted, to conducting a risk analysis using an FRA designated approach. For the risk-based approach, a quiet zone can be established if the risk score within a quiet zone falls below a threshold set by FRA.

FRA requires that any crossings within a quarter mile of each other must be included in a single quiet zone. As a result, all of Menlo Park's crossings would need to be included in a single quiet zone, though Palo Alto Avenue to the south and Watkins Avenue to the north do not need to be included. Notably, Caltrain and Atherton are in the process of establishing a quiet zone at Watkins Avenue as an outcome of the closure of the Atherton Caltrain station. This would extend the existing quiet zone at Fair Oaks Avenue, the only current quiet zone on the Caltrain corridor.

Quiet zone implementation options

For Menlo Park, the most straightforward method to implement a quiet zone is to install supplementary safety measures (SSM) at each crossing. SSMs include medians, converting the crossing street to one way, closing the crossing and installing four quadrant gates. Only one SSM is required at each crossing.

For Menlo Park, the only feasible SSM available is to install four quadrant gates. The presence of cross streets adjacent to the tracks (Alma Street, Merrill Street, Garwood Way) mean that medians are not sufficient. Closing or converting streets to one-way also does not appear feasible without further, extensive study and outreach. Four quadrant gates have exit gates in addition to entrance gates, eliminating the ability for wrong-way driving. These gates include sensors to detect vehicles to make sure they are not trapped on the tracks. Installing SSMs at all four crossings would meet the FRA's requirements for a quiet zone. Attachment B identifies the specific upgrades at each of the four at grade crossings in Menlo Park.

A second option for the City is to install four quadrant gates at two crossings – Ravenswood and Oak Grove Avenues. FRA considers the average risk of all crossings in the proposed quiet zone, not the individual risk at each crossing. The City's crossings with the highest risk scores are at Ravenswood Avenue and Oak

Grove Avenue. Reducing the risk score at these locations would allow the City to qualify for a quiet zone under current regulations.

Oak Grove Avenue turn restrictions

To address the concerns on Oak Grove Avenue near the Caltrain tracks, staff worked with KHA to include additional left turn restrictions from Oak Grove Avenue onto Merrill Street and Garwood Way. This would be achieved by extending the existing centerline median between the railroad tracks and Merrill Street. The Oak Grove Avenue exhibit in Attachment B includes an image of the existing centerline median near the tracks that would be extended.

Staff are seeking feedback from the Complete Streets Commission on this concept. Staff will be requesting approval of the turn restriction from the City Council at a future meeting to enable construction of the median extension.

Palo Alto Avenue

The City partnered with the City of Palo Alto on this study to include the evaluation of Palo Alto Avenue. At that location, upgrading the existing median qualifies as an SSM, providing a relatively straightforward path for Palo Alto to pursue a quiet zone at that location. Because that location is more than a quarter mile from Ravenswood Avenue, it does not need to be included in the City's quiet zone.

Public outreach

On March 18, 2023, the City Council held a goals/priority setting workshop. In advance of that meeting, the City Council solicited feedback from residents about priorities. Of the responses provided in advance of the workshop, about 40 percent noted establishing a quiet zone as a priority.

On March 23, 2023, staff worked with KHA and the City of Palo Alto to conduct a public outreach meeting in person at the Arrillaga Recreation Center and virtually. The public outreach meeting included a presentation about the process of establishing a quiet zone and engineering designs for the investments needed at each crossing. Materials and a recording of the outreach meeting is available on the City's website (hyperlink provided as Attachment C.)

Participants in the public meeting were very supportive of moving as quickly as possible to establish a quiet zone in Menlo Park, including advancing just two crossings if that enabled the City to establish a quiet zone more quickly. Participants asked a number of questions about the process, funding, other cities experience with quiet zones, and related questions.

Cost and funding

The cost to install quad gates is approximately \$2.0 million per crossing (Table 1.) This cost includes the installation of exit gates, some curb and sidewalk adjustments, as well as the replacement of the existing combined vehicle and pedestrian entrance gates. The CPUC no longer allows railroads to use combined vehicle and pedestrian entrance gates due to safety issues with the combined gates. Instead, the vehicle gates and pedestrian gates must each be on separate devices. Caltrain has made a commitment to CPUC to replace these gates over time, but does not have a schedule for their replacement.

If the City pursues four quadrant gates at all four crossings, the construction cost is estimated at \$8.5 million. If the City pursues just Ravenswood Avenue and Oak Grove Avenue, the total cost is estimated at \$4.0 million.

Table 1: Cost estimate for four quadrant gates	
Crossing/scenario	Cost estimate
Ravenswood Avenue	\$1,900,000
Oak Grove Avenue	\$2,100,000
Glenwood Avenue	\$2,100,000
Encinal Avenue	\$2,100,000
<i>Risk method – Ravenswood + Oak Grove</i>	<i>\$4,000,000</i>
<i>SSM method – all four crossings</i>	<i>\$8,500,000</i>

As part of the Environmental Impact Report for the San Francisco to San Jose segment of California High Speed Rail (HSR), the California High Speed Rail (CAHSR) Authority is committed to installing four quadrant gates at all at grade crossings along Caltrain. When HSR is implemented on the Caltrain corridor, the maximum train speed will increase to 110 miles per hour, requiring a “sealed corridor”, meaning that every crossing must have one of following: four quadrant gates, grade separation, or closure.

Currently, the CAHSR does not have funding allocated to work on the Caltrain corridor beyond the contribution made to electrify the corridor. CAHSR staff have been asked in public forums if cities could be repaid if they install four quadrant gates in advance of HSR project implementation and have expressed a willingness to have further conversation.

Other funding sources that might be available to fund construction of the project include the Federal Section 130 program, which funds projects that eliminate hazards at existing at grade railroad crossings. In California, this program provides approximately \$16 million to fund projects statewide. Other Federal and State funding programs could also provide opportunities. Finally, the City could pursue additional local funding, such as an assessment district, to help fund the quiet zone improvements.

Next steps/implementation

Staff are working with KHA to complete a final report for the quiet zone study, which will be brought forward to the City Council for adoption later this year.

The next step in establishing a quiet zone is to pursue an agreement with Caltrain to complete final design and environmental review for the crossing upgrades. Staff have begun the process to request a service agreement with Caltrain, which would be brought to City Council for approval when ready. Establishing a service agreement will take several months, followed by approximately a year to complete final design.

Staff will also continue to research and pursue potential grant funding opportunities. Long term implementation of the quiet zone is likely to take several years to find funding to implement the needed improvements.

Impact on City Resources

This study does not include an action that has an impact on City resources. Staff anticipate that final design will cost between \$750,000 and \$1,000,000. The Caltrain quiet zone capital improvement plan (CIP) project has approximately \$300,000 remaining in the budget, including the supplemental funding provided by the Springline development in 2022. Staff will include a request for funding in the upcoming annual budget for

City Council consideration.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§ 15378 and 15061(b)(3) as it will not result in any direct or indirect physical change in the environment. Staff expects that Caltrain would be the lead agency for environmental review as part of the next phase of the project.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

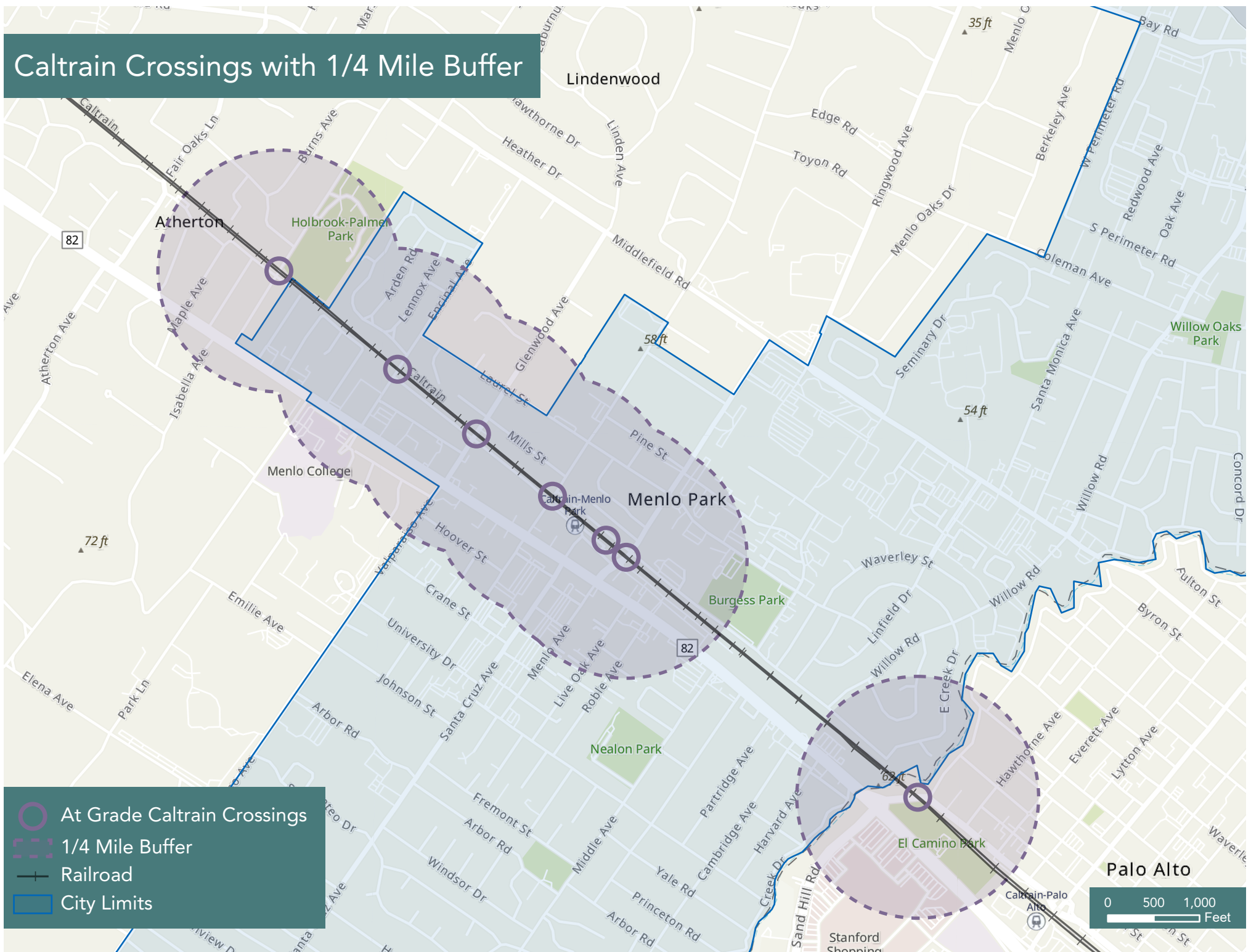
Attachments

- A. Map of at grade rail crossings
- B. Proposed Caltrain gate improvements
- C. Hyperlink - Public meeting materials: menlopark.gov/quietzone

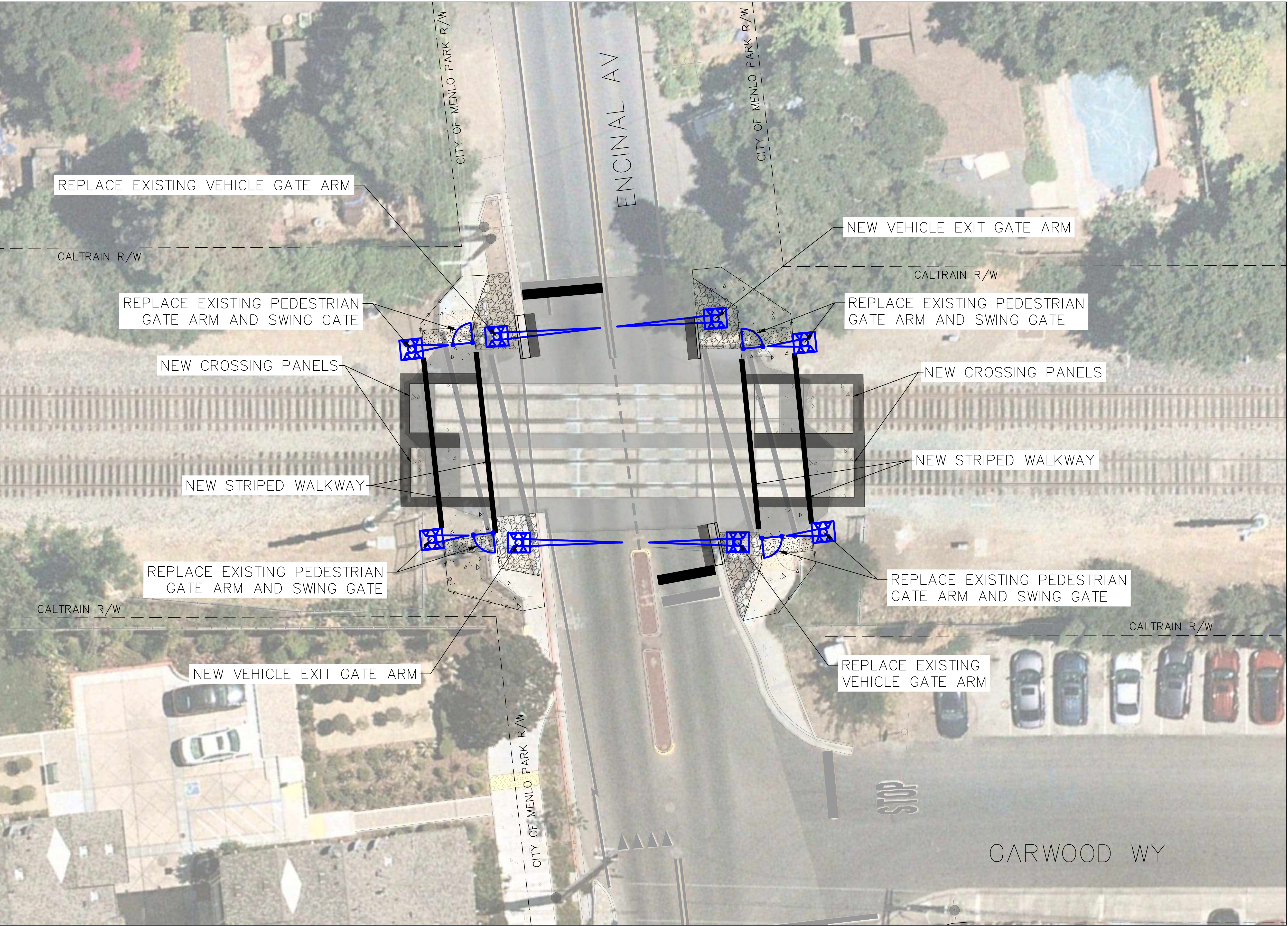
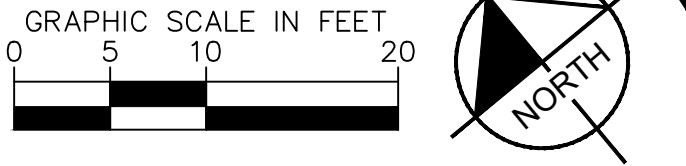
Report prepared by:
Hugh Louch, Assistant Public Works Director – Transportation

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Caltrain Crossings with 1/4 Mile Buffer

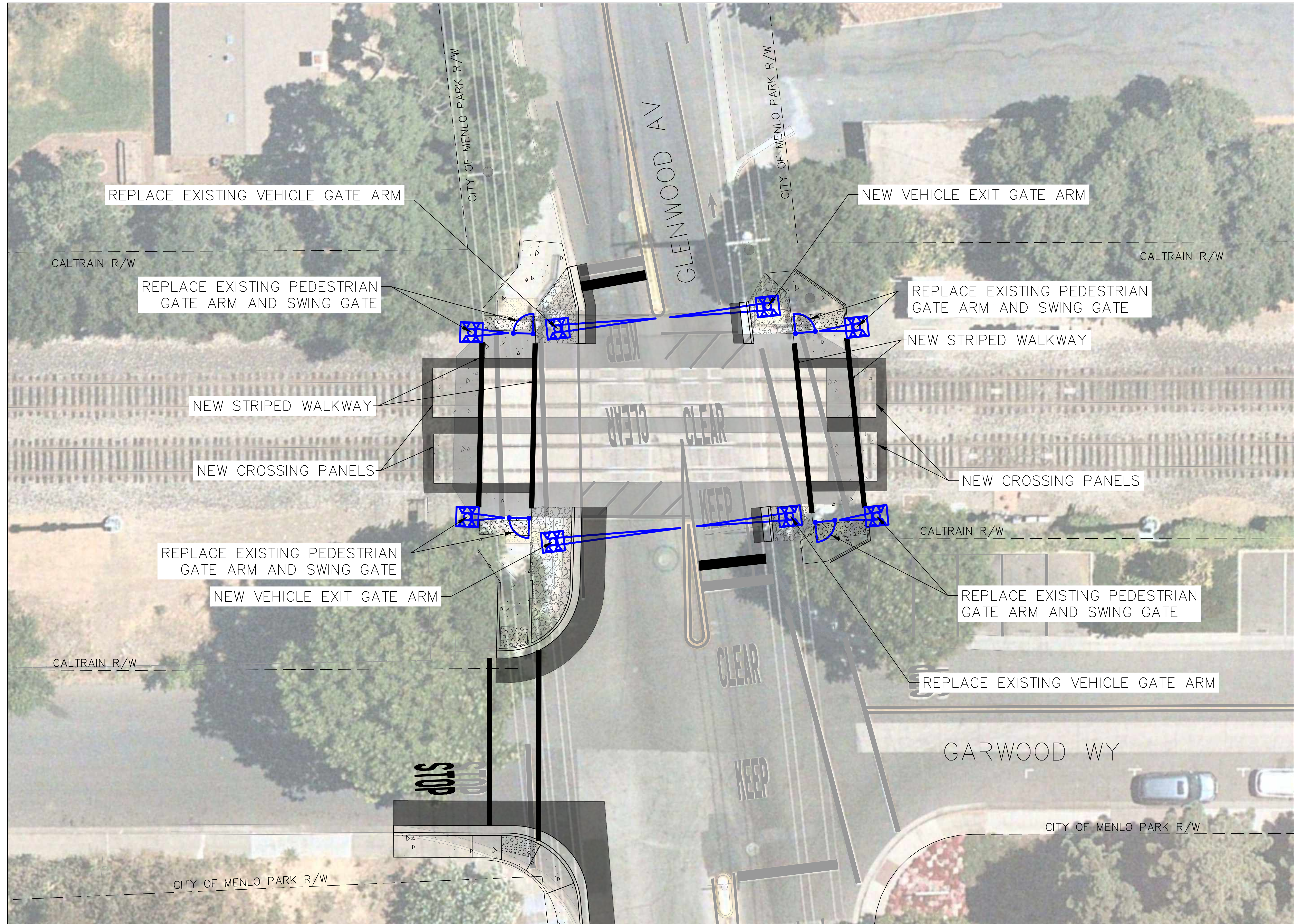
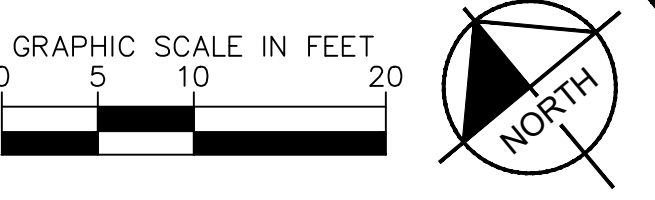


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LEGEND	
	DETECTABLE WARNING SURFACE
	ASPHALT CONCRETE PAVEMENT
	CONCRETE SIDEWALK
	NON-TRAVERSABLE SURFACE
	HANDRAILING
	PROPERTY LIMITS
	PROPOSED RAIL INFRASTRUCTURE

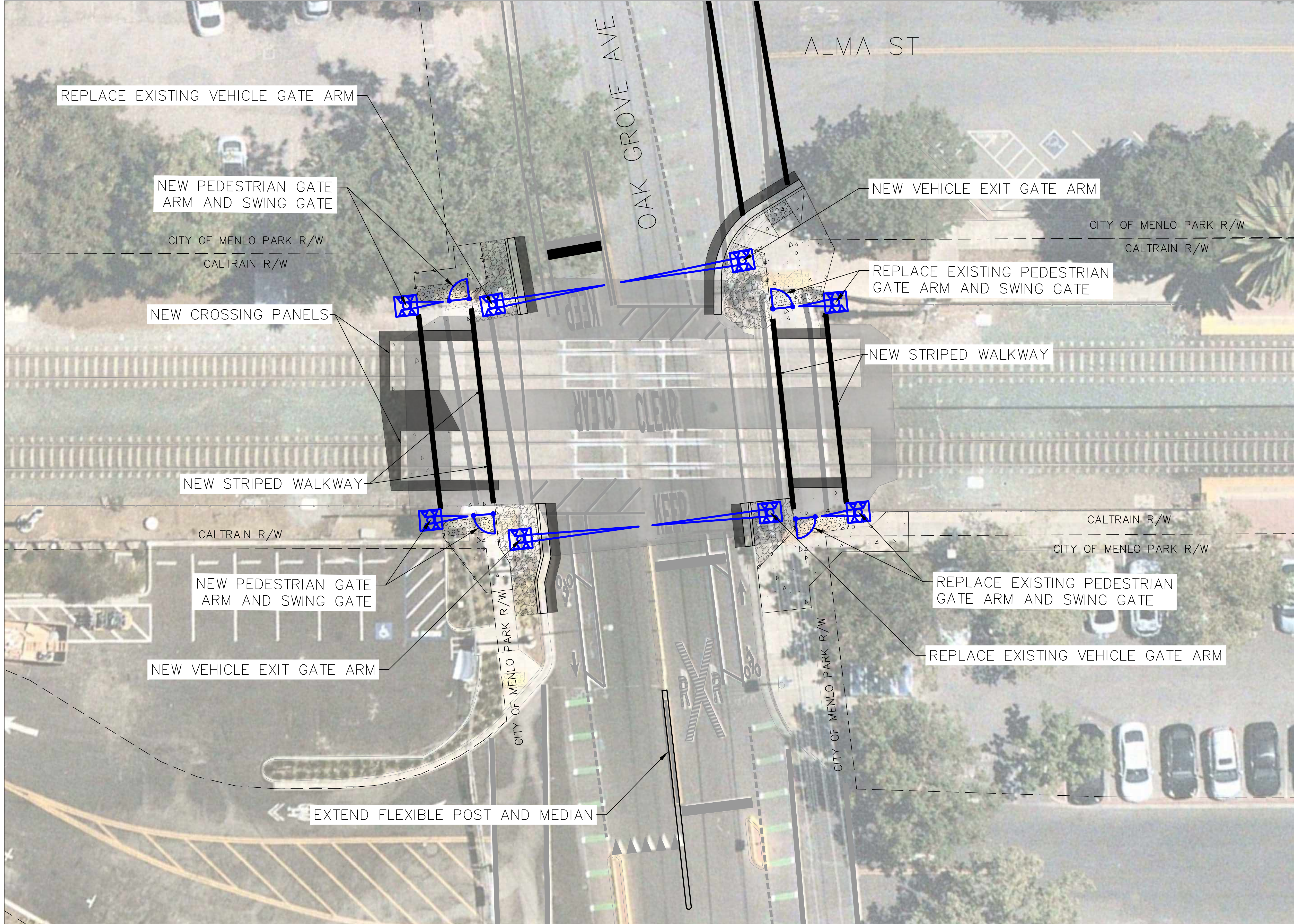
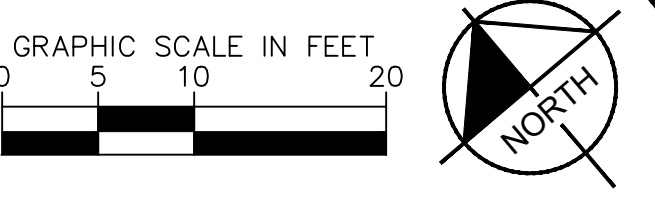
ENCINAL AVE AT-GRADE CROSSING



LEGEND	
	DETECTABLE WARNING SURFACE
	ASPHALT CONCRETE PAVEMENT
	CONCRETE SIDEWALK
	NON-TRAVERSABLE SURFACE
	HANDRAILING
	PROPERTY LIMITS
	PROPOSED RAIL INFRASTRUCTURE

GLENWOOD AVE AT-GRADE CROSSING

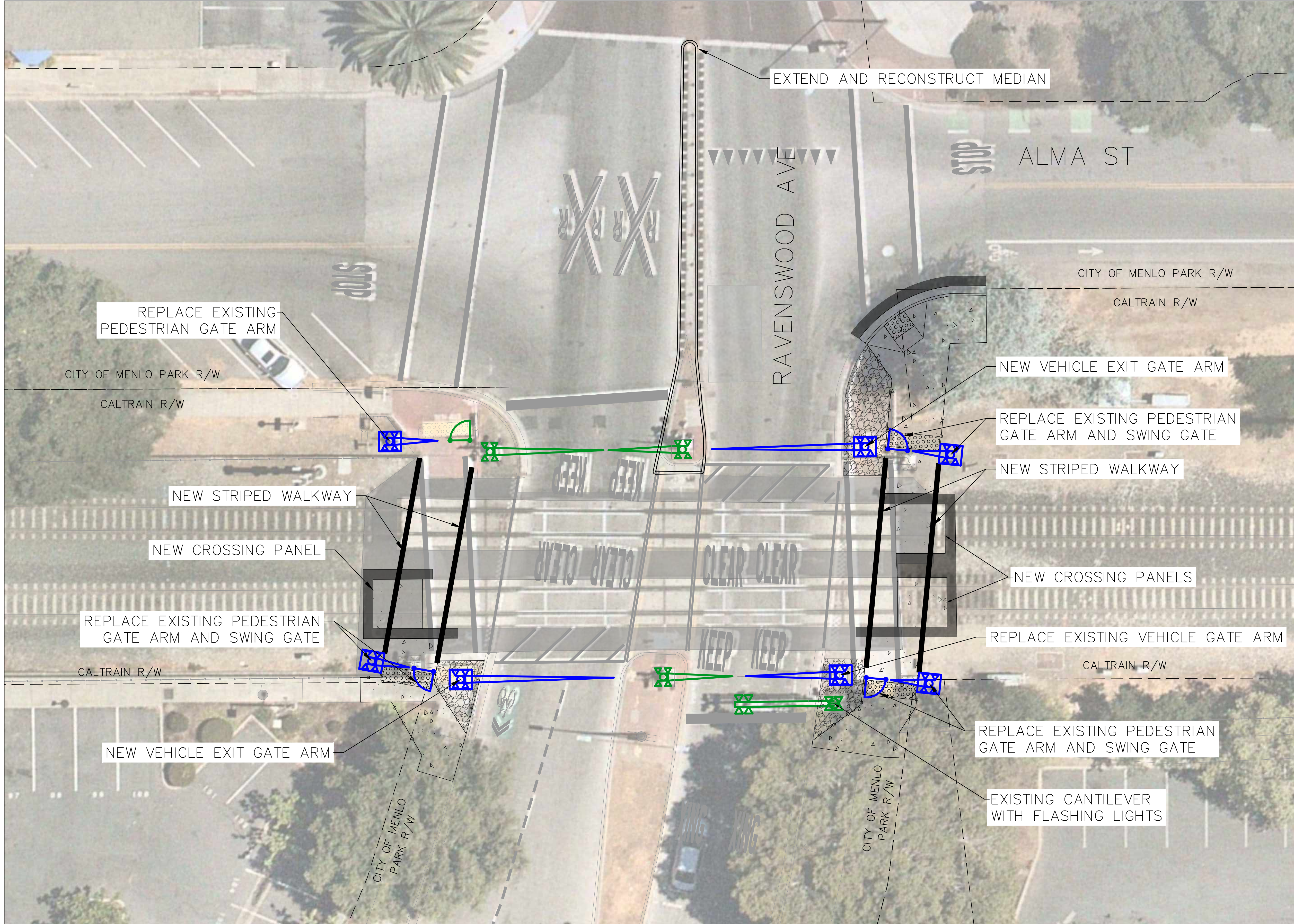
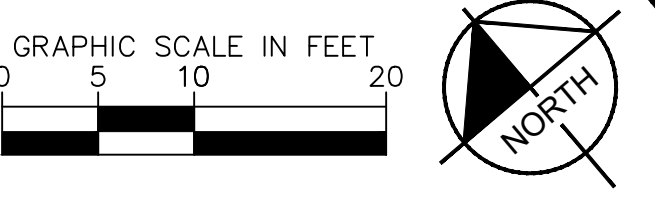
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LEGEND	
	DETECTABLE WARNING SURFACE
	ASPHALT CONCRETE PAVEMENT
	CONCRETE SIDEWALK
	NON-TRAVERSABLE SURFACE
	HANDRAILING
	PROPERTY LIMITS
	PROPOSED RAIL INFRASTRUCTURE

OAKGROVE AVE AT-GRADE CROSSING

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LEGEND	
	DETECTABLE WARNING SURFACE
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	CONCRETE SIDEWALK
	NON-TRAVERSABLE SURFACE
	HANDRAILING
	PROPERTY LIMITS
	EXISTING TO REMAIN RAIL INFRASTRUCTURE
	PROPOSED RAIL INFRASTRUCTURE

RAVENSWOOD AVE AT-GRADE CROSSING

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Public Works



STAFF REPORT

Complete Streets Commission

Meeting Date: 4/17/2023
Staff Report Number: 23-004-CSC

Regular Business: Provide direction on the Ravenswood Avenue bike lane pilot

Recommendation

Staff requests feedback from the Complete Streets Commission on the initial implementation of the Ravenswood bike lane pilot in advance of the resurfacing of Ravenswood Avenue, which will begin at the end of April 2023 and complete by June 2023. Options for next steps include making the pilot permanent or extending the pilot for an additional six months with additional data collection.

Policy Issues

This project is consistent with policies stated in the General Plan Circulation Element (e.g., CIRC-1.2, CIRC-1.7, CIRC-2.7, etc.) These policies seek to maintain a safe, efficient, attractive, user-friendly circulation system that promotes a healthy, safe and active community and quality of life throughout Menlo Park. It is also consistent with the City's Transportation Master Plan. This project is included in the City's five-year Capital Improvement Program (CIP.)

Background

Ravenswood Avenue, from El Camino Real to Middlefield Road, is classified in the General Plan Circulation Plan as an Avenue – Mixed Use, which is intended to provide balanced service for people on all modes. It is a primary east-west route in the City, providing access to key destinations including the Menlo Park Caltrain Station, downtown Menlo Park, Burgess Park, Civic Center and Menlo-Atherton High School. It is a primary emergency response route that is signed for 25 miles per hour between El Camino Real and Laurel Street. This route also serves local businesses and residential units.

On March 9, 2022, the Complete Streets Commission (CSC) received an update on the Ravenswood Avenue resurfacing project, including the project scope and potential pedestrian and bicycle enhancements. The project will resurface Ravenswood Avenue between El Camino Real and Laurel Street. The Commission unanimously supported implementing pedestrian and bicycle enhancements that could be implemented by reducing automobile lane widths and piloting improvements that require eliminating one of two westbound travel lanes on Ravenswood Avenue between Noel Drive and Alma Street, or approximately 300 feet.

On April 26, 2022, the City Council received an update on the Ravenswood Avenue resurfacing project and supported the same set of proposed improvements, including the pilot of the westbound bicycle lane and removal of one travel lane between Noel Drive and Alma Street. A hyperlink to the City Council staff report is provided as Attachment A. A schematic plan showing the changes supported by the CSC and City Council is included in Attachment B.

On February 28, 2023, the City Council awarded a contract to Radius Earthwork, Inc. to resurface

Ravenswood Avenue between El Camino Real and Laurel Street. The resurfacing project will begin at the end of April 2023 and is expected to be completed by June 2023. The first phase of the resurfacing project includes reconstruction of curb ramps and a median. During this phase of work, there will be limited access to curb ramps, which will be phased to limit the impact on pedestrians.

After the concrete work is complete, the contractor will repave, which is currently anticipated to take place in early to mid-May. This work will require short term closure of Ravenswood Avenue and is planned to be conducted on a weekend to limit the impact on traffic. After the resurfacing is complete, the final phase will be the replacement of the lane markings.

On March 2, 2023, staff worked with an on-call contractor to install the pilot of the westbound bike lane between Noel Drive and Alma Street. The pilot was begun in advance of the resurfacing project to provide information to the Complete Streets Commission and City Council to inform the striping to be installed after the roadway is repaved.

Analysis

As described in the April 26, 2022 staff report to the City Council, staff identified several potential metrics to evaluate the pilot. Table 1 summarizes the data collected over the last several weeks, with a focus on vehicle queuing, community feedback, and safety.

Table 1: Ravenswood Avenue pilot metrics			
Metric	Source	Variables	Preliminary Findings
Morning / evening peak hour vehicular queues	Video observations	<ul style="list-style-type: none"> Queue distance relative to Laurel Street 	<ul style="list-style-type: none"> When Caltrain gates are up, limited impact on queuing When Caltrain gates are down for 2 or more minutes, vehicles have to wait a cycle to progress through the Ravenswood/Laurel signal
Pre- and post- pilot vehicular volumes (on Ravenswood Avenue and Oak Grove Avenue)	Counts	<ul style="list-style-type: none"> Change in vehicular volumes 	<ul style="list-style-type: none"> Survey responses suggest some route shifting by drivers No post-pilot volume data collected to date
Pre- and post- pilot bicycle volumes	Counts	<ul style="list-style-type: none"> Change in bicycle volumes Pedestrian crossing volumes at Alma Street 	<ul style="list-style-type: none"> Staff have observed a small increase in bicycling along Ravenswood No post-pilot volume data collected to date
Community feedback survey	Online survey	<ul style="list-style-type: none"> Percent support Perceived safety/comfort 	<ul style="list-style-type: none"> Half of respondents who drive indicated no increase in congestion; lower for those who do not use other modes or who commute Nearly three quarters of bicyclists indicate increased safety
Bicycle and pedestrian collisions	Police Department	<ul style="list-style-type: none"> Number of collisions 	<ul style="list-style-type: none"> No collisions during pilot Two total bicycle collisions since 2019

Queuing

Staff collected queuing data on Ravenswood Avenue in the westbound direction for the six weekdays from March 1 to March 8, 2023. This data was collected using video during the peak periods and included:

- Counts of the number of vehicles traveling in the westbound direction on Ravenswood Avenue
- The length of vehicle queues east of Noel Drive, including those that cross Laurel Street
- The number of pedestrians and bicyclists in the crosswalk across Ravenswood Avenue at Alma Street
- The times when the Caltrain gates were down

The data for March 1st are from before the pilot began. The pilot was then installed on March 2nd, with the bike lane striping completed by mid-day. From the afternoon on, the data reflect the conditions with the pilot bike lane installed.

Attachment C provides a detailed summary of the data collected during the pilot period. Staff also conducted in person observations both when video data was being collected and during subsequent weeks. Key findings of the data collected and staff observations include:

- There were relatively few queuing issues on March 1st, before the pilot began.
- Construction activity on March 2nd led to substantial delays in the AM peak.
- During the PM peak period on March 2nd, signal detection issues at Ravenswood Avenue and Laurel Street created substantial queuing.
- Once the pilot was installed and signal detection issues were resolved, the removal of the travel lane has not substantially increased queuing. Each of the peak periods from March 3rd to March 8th show one or two incidents where queuing spilled past Laurel Street.
- Queuing issues are most commonly observed when the Caltrain gates are down for extended periods of time and when there are relatively high vehicle volumes. These generally occur between 8:30 AM and 8:45 AM and between 5:30 PM and 5:45 PM. At these times, vehicles trying to turn from northbound Laurel Street onto westbound Ravenswood Avenue sometimes have to wait for a signal cycle to make the turn, generally impacting 5 to 10 vehicles.
- Staff have observed a decline in overall traffic speed during this period.

Staff observations were consistent with the data shown in Attachment C. Staff conducted observations in the most impacted time periods for eight additional days.

Public survey

On March 15, 2023, staff released a public input survey about the bike lane pilot. The survey was distributed via the City's weekly digest, through signs with QR codes posted on Ravenswood Avenue, via social media, including posts to NextDoor by the City, and via a changeable message sign. The survey included questions about how people travel on Ravenswood Avenue, how frequently they travel, and their experience of Ravenswood Avenue since the bike lane pilot was installed. It also included some demographic questions.

As of April 11, 2023, there were 132 responses to the survey. Attachment D provides a report summarizing the responses to the survey and a list of comments received. Staff are leaving the survey open through the end of April and will provide updated findings in advance of the City Council meeting on May 9, 2023.

Key findings from the survey include:

- Respondents use Ravenswood frequently (over half use it daily), for many different purposes, and using all different modes. Auto was the most frequent at 96 percent, but bicycling (46 percent) and walking (45 percent) were also common. Few respondents (7 total) used transit.

- Over half of people who drive on Ravenswood Avenue indicated that the pilot has had no impact on congestion, but 38 percent indicated that there was somewhat or much more congestion. Respondents who drive daily or who use Ravenswood Avenue to commute were somewhat more likely to say Ravenswood has become more congested. Respondents who drive but do not use other modes were much more likely to indicate there was increased congestion.
- Over three quarters of respondents who bicycle indicated that the pilot increased bicycle safety. Less than 5 percent of respondents indicated that bicycling safety was worse during the pilot.
- About half of respondents who walked indicated that there was no change in crossing safety, with 40 percent indicating that it was somewhat or much safer to cross. The initial pilot did not include a wider median and staff did not expect there to be a noticeable change in crossing safety until the wider median could be installed with resurfacing.
- Respondents who drive and live within walking distance of Ravenswood Avenue were more likely to say that congestion was somewhat or much worse (48 percent compared to 33 percent) and less likely to say that the pilot had no impact on congestion (43 percent compared to 59 percent).
- Respondents who live near Ravenswood Avenue and walk or bicycle expressed similar opinions about bicycle and pedestrian safety as respondents living elsewhere in the City.

Collisions

According to records from the Police Department, there have been 21 collisions since 2019 on Ravenswood between Laurel Street and Alma Street. The most recent recorded collisions on this segment of Ravenswood were in December 2022. From 2019 to 2023, there were two collisions between a motor vehicle and a bicycle, one in 2021 and one in 2022, both yielding minor injuries. Most collisions (14 of 21) were between two motor vehicles.

Since the pilot commenced, no collisions were reported to the Police Department on this segment of Ravenswood Avenue. Staff will continue to monitor collision records to identify if there is any change in collision patterns.

Next steps

As of the Complete Streets Commission meeting, the pilot will have been in place for six weeks. Staff is requesting feedback on whether the pilot should be made permanent or if staff should continue to collect additional data and return to the Complete Streets Commission and City Council at a future date to review the pilot a second time.

If the pilot is continued, data collection would include:

- Another round of queuing analysis similar to what has been presented in Attachment C, likely in the fall of 2023.
- Multimodal counts on Ravenswood Avenue and Oak Grove Avenue, also likely in the fall. Staff collected counts at all four streets that cross the Caltrain tracks last fall for the quiet zone study which may serve as a point of comparison.
- Extending the time for the public survey beyond April 2023 or repeating the survey in the fall.

Whether the pilot is made permanent or continued, staff will continue to observe conditions, review readily available data such as collision records, and review public feedback from residents and other users about the changed conditions.

Impact on City Resources

The pilot was installed using existing City resources from our on-call pavement contractor. The resurfacing of Ravenswood Avenue is included in the FY2022-23 capital improvement plan and the continuation of the pilot will have no impact on the resources required for the resurfacing project.

Environmental Review

This action is not a project within the meaning of California Environmental Quality Act (CEQA). On February 28, 2023, the City Council found that the resurfacing project is categorically exempt under Section 15301 – Class 1 and Section 15304 – Class 4 of the current CEQA Guidelines.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting. Staff also deployed a changeable message sign on Ravenswood Avenue to notify street users of the meeting and emailed individuals who expressed interest through the survey or reached out to staff.

Attachments

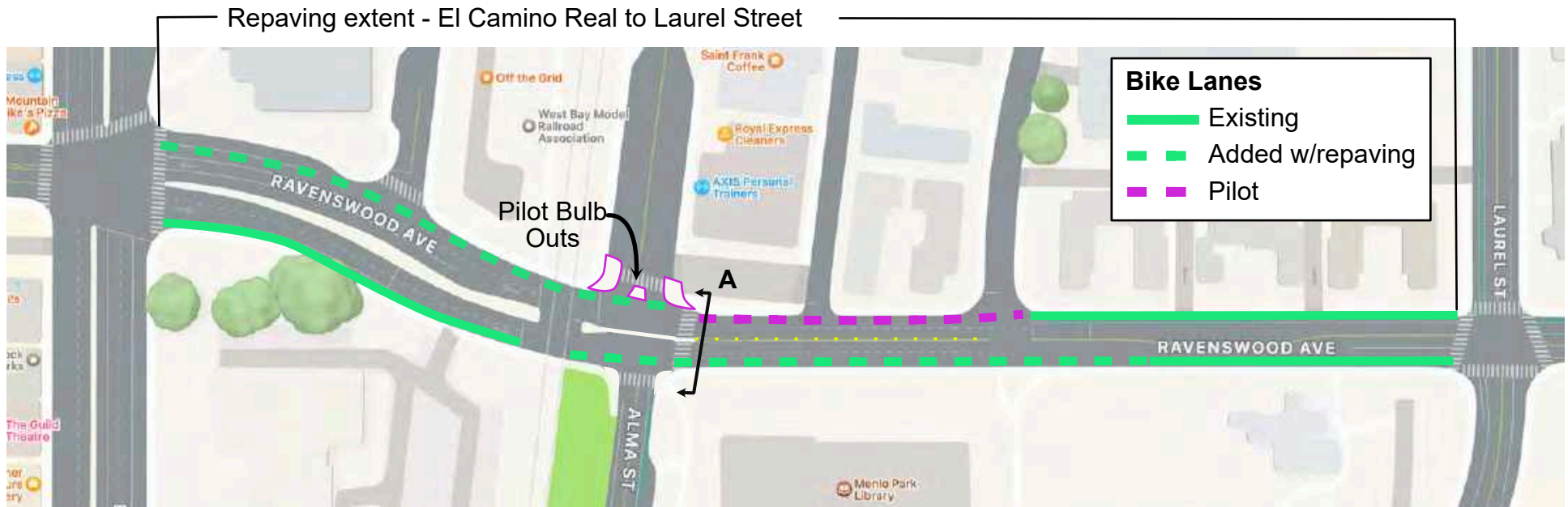
- A. Hyperlink - April 26, 2022 staff report: menlopark.gov/files/sharedassets/public/agendas-and-minutes/city-council/2022-meetings/agendas/20220426-city-council-agenda-packet.pdf#page=106
- B. Ravenswood Avenue bicycle lane additions
- C. Queuing analysis
- D. Public survey analysis

Report prepared by:

Hugh Louch, Assistant Public Works Director – Transportation

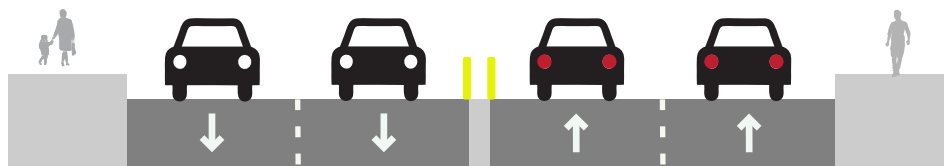
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Ravenswood Repaving Project: Bike Lane Pilot

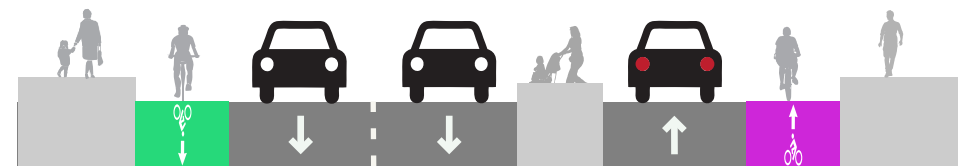


A - Cross Section At Pedestrian Crossing of Ravenswood

Existing



Enhanced Pedestrian Refuge



Pilot Bike Lane

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MEMORANDUM

Date: 4/17/2023
To: Complete Streets Commission
From: Hugh Louch, Assistant Public Works Director – Transportation
Re: Ravenswood Bike Lane Pilot Queuing Analysis

This memorandum summarizes the queuing analysis findings for the Ravenswood bike lane pilot being conducted in advance of resurfacing of Ravenswood Avenue between Laurel Street and El Camino Real.

The memo includes the following topics:

- Background
- Data collection
- Findings

Background

The Ravenswood bike lane pilot is exploring the addition of a bike lane on westbound Ravenswood Avenue between Noel Drive and Alma Street, a distance of about 300 feet. This pilot is being conducted as part of the Ravenswood resurfacing project, which will repave Ravenswood Avenue between Laurel Street and El Camino Real, and include a number of bicycle and pedestrian enhancements (Figure 1.)

The resurfacing project will add bike lanes in two areas of the street that do not require any change in vehicle capacity:

- New bike lanes eastbound between the railroad tracks and the existing bike lanes near Laurel Street.
- New bike lanes on westbound Ravenswood between Alma Street and El Camino Real.

The project also included adding the remaining westbound bike lane gap between Noel Drive and Alma Street as a pilot because it requires removing one of the two westbound travel lanes. As part of this pilot, the project will provide a wider refuge median for pedestrians crossing Ravenswood Avenue at Alma Street.

The pilot elements were installed on March 2, 2023 in advance of resurfacing to test the impact of the automobile lane removal.

Figure 1. Ravenswood Resurfacing Bicycle and Pedestrian Enhancements



Data collection

This analysis is focused on the potential impact on vehicular queuing. To support this analysis, the City hired a data collection contractor to collect the following data:

- Counts of the number of vehicles traveling in the westbound direction on Ravenswood Avenue
- The length of vehicle queues east of Noel Drive, including those that cross Laurel Street
- The number of pedestrians and bicyclists in the crosswalk across Ravenswood Avenue at Alma Street
- The times when the Caltrain gates were down, including the duration

Data were collected during the AM and PM peak periods (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM) for 6 weekdays between March 1 and March 8, 2023, including:

- March 1 – before pilot started
- March 2 – the day the pilot was installed. Data from the AM peak reflect the impact of ongoing work during the peak period and data from PM peak reflect the installation of the bike lane. There were also signal detection issues and Laurel Street and Ravenswood Avenue that added delay.
- March 3 to March 8 – pilot was installed and signal was functioning normally.

Findings

The following charts show the data for each of the individual data items collected.

Vehicle counts

Vehicle volumes fluctuate throughout the AM and PM peak periods. In the morning, the volumes generally increased steadily until about 8:15 or 8:30 AM, and then declined slightly (Figure 2.) In the evening peak, volumes are more consistent across the period, with slightly higher volumes between 5:00 and 6:00 PM (Figure 3.)

Figure 2. Auto Volumes by Day (AM Peak 5-min increments)

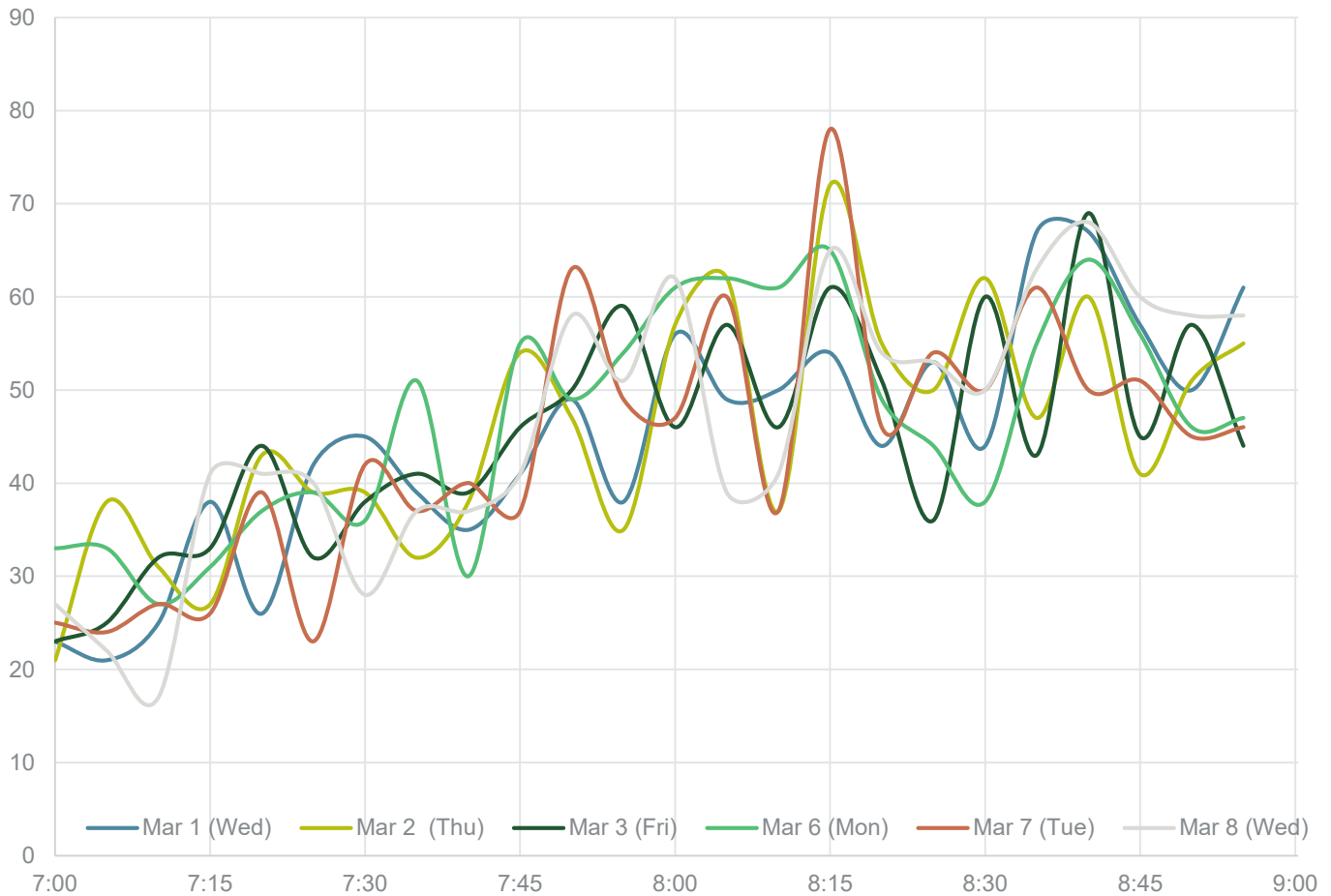
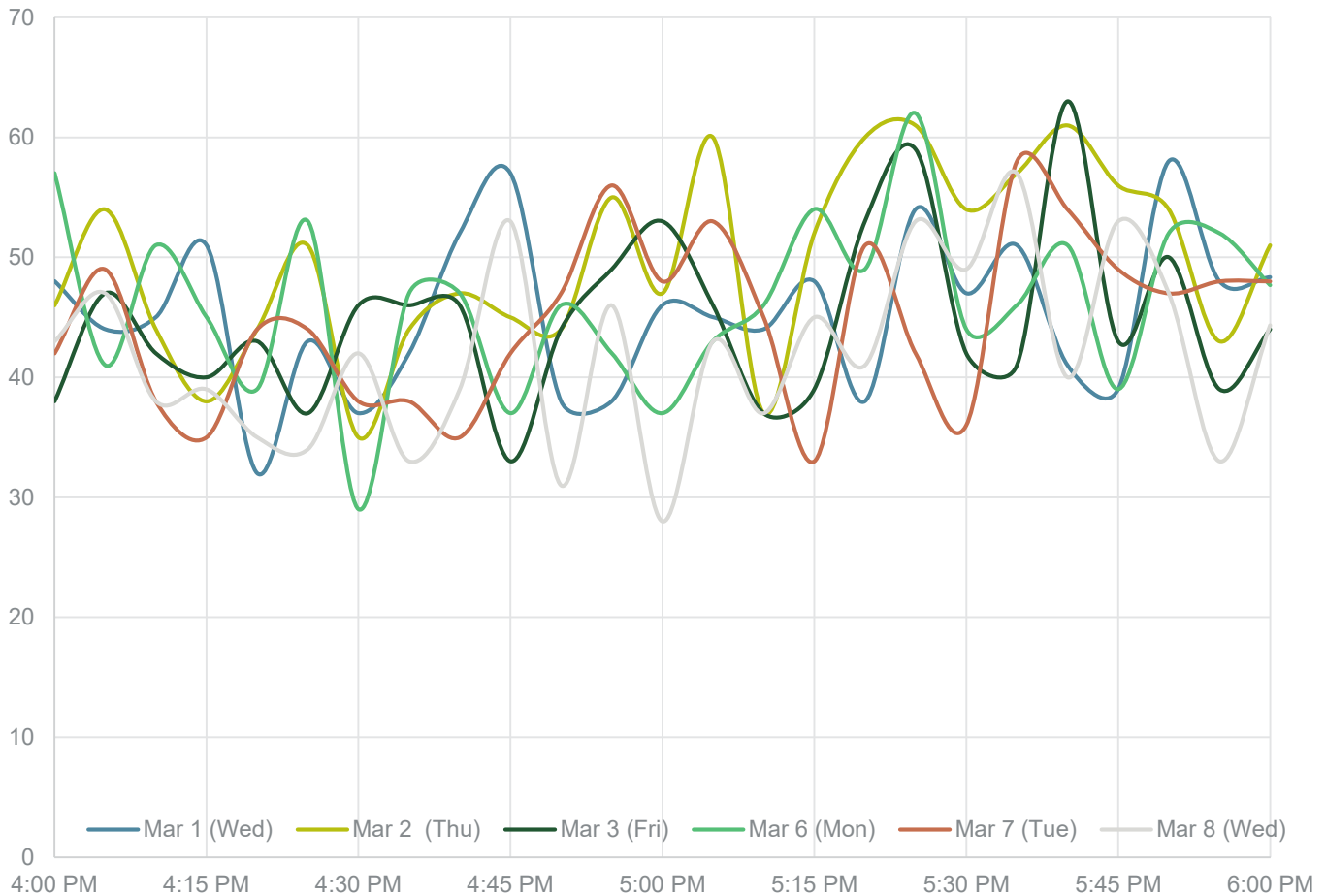


Figure 3. Auto Volumes by Day (PM Peak - 5-min increments)



Pedestrian and bicycle crossings of Ravenswood at Alma

Pedestrian and bicycle crossing counts vary by day, depending on school schedules and weather. During this period, there were days of clear weather, but also days of rain.

The greatest use of the crosswalk during the morning was between 7:45 and 8:30 AM (Figure 4), corresponding with the timing of travel to school. In the evening, pedestrian and bicycle crossings were highest between 4:00 and 4:45 PM (Figure 5), and were generally slightly higher overall than the morning.

Caltrain gate down time

Figure 6 and 7 show the times when Caltrain gates were down through the morning and evening peaks by day. The length of the bars indicates a longer train crossing. Several times a day, when there are multiple trains passing, the gates are down for periods lasting two or more minutes.

Figure 4. Pedestrian & Bicycle Volumes in Crosswalk (AM Peak)

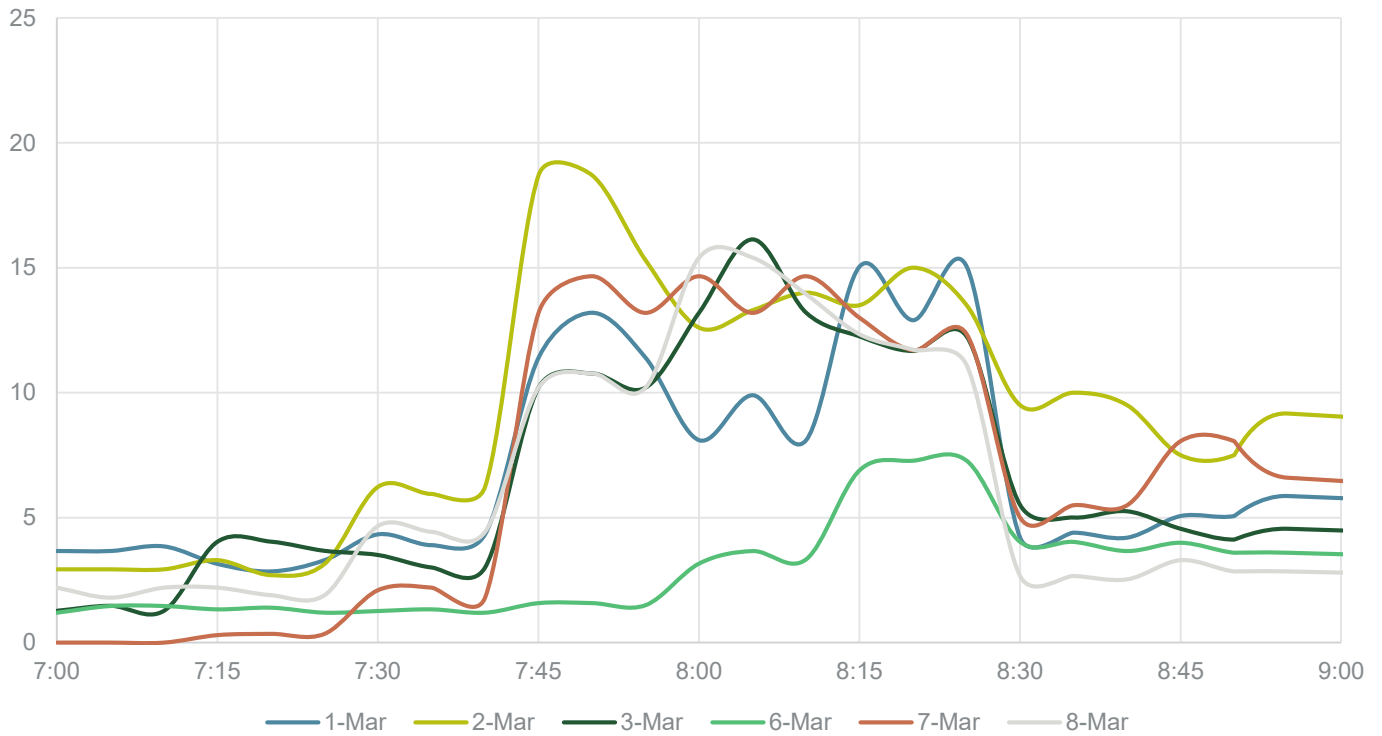


Figure 5. Pedestrian & Bicycle Volumes in Crosswalk (PM Peak)

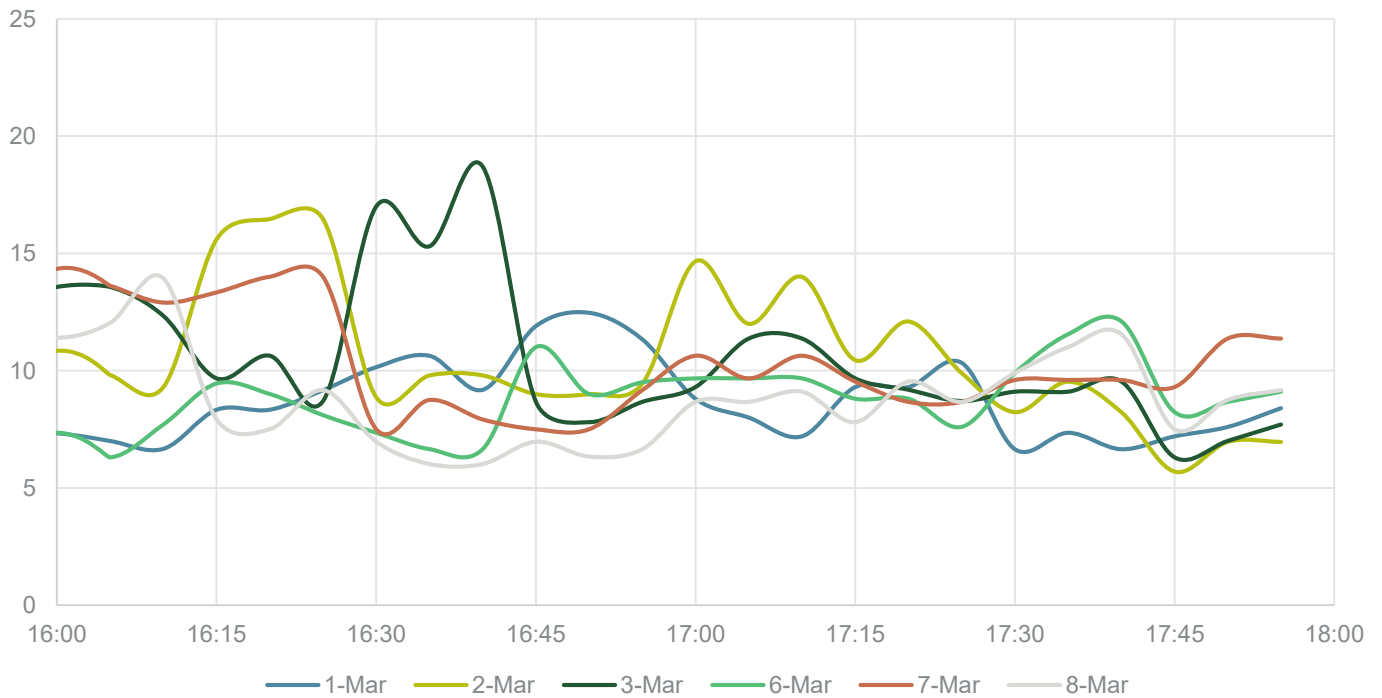


Figure 6. Caltrain Gate Down Times at Ravenswood (AM Peak)

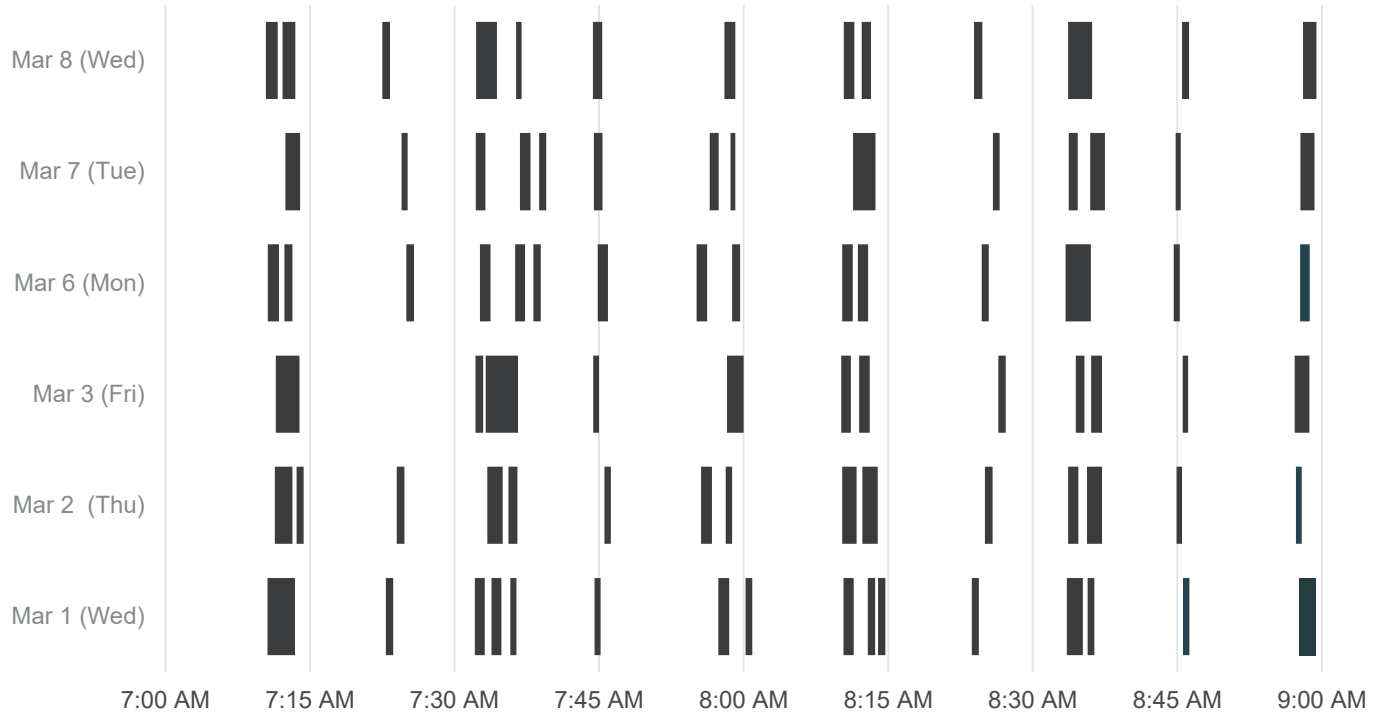
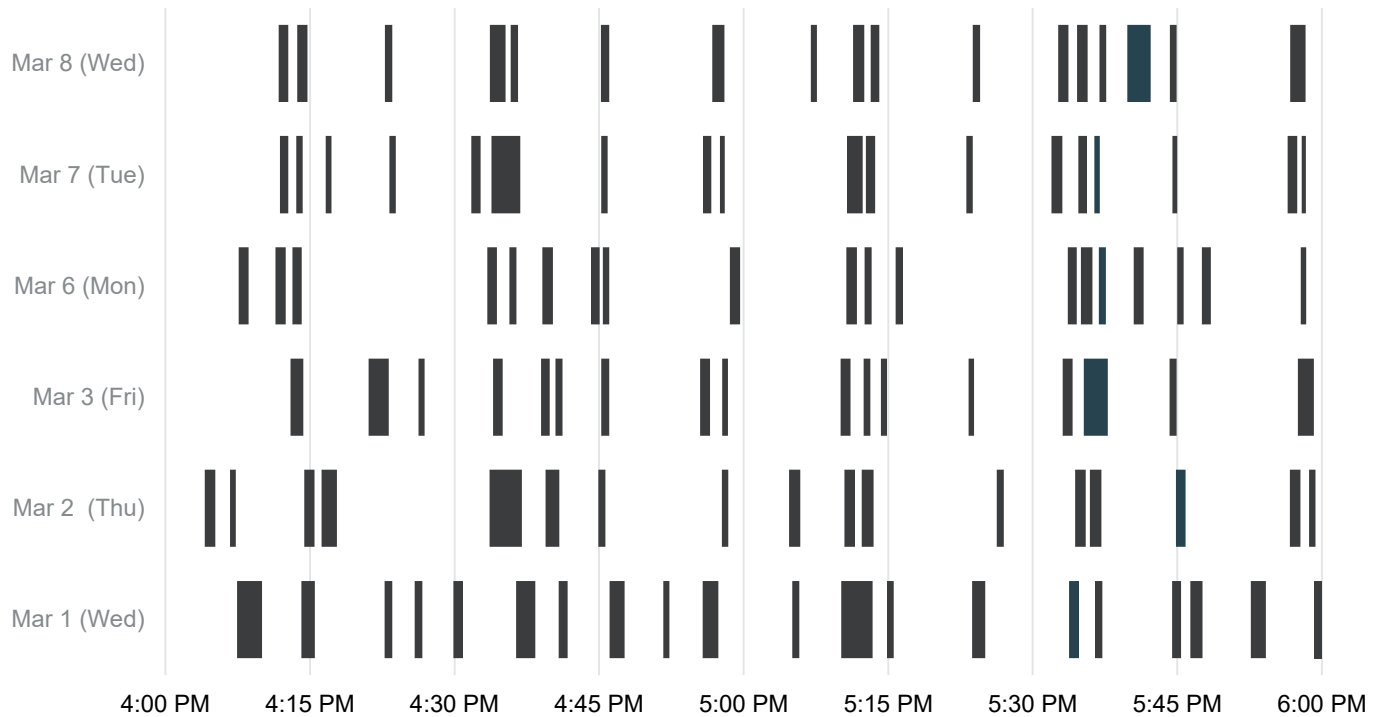


Figure 7. Caltrain Gate Down Times at Ravenswood (PM Peak)



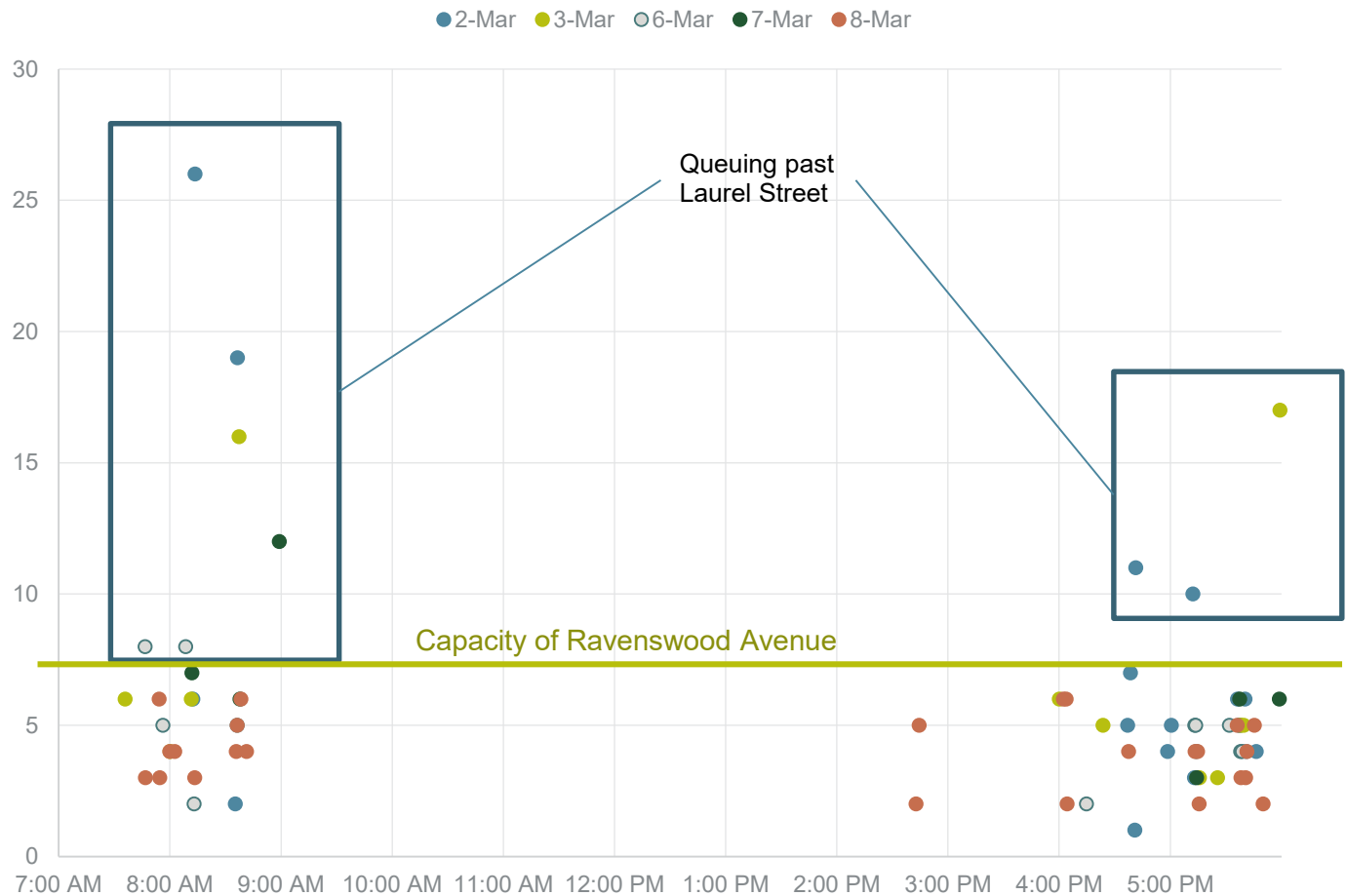
Queuing Data

The final data item collected is the length of the queues. These were collected using a camera positioned on a pole just east of Noel Drive. Staff observation showed that queuing to Noel Drive was routine before the pilot began, so the focus was on queues that extend to or beyond Laurel Street.

Figure 8 presents the number of vehicles that were queuing during the morning and evening peak periods. The dots show the number of vehicles past the position of the camera. Approximately seven additional vehicles can fit within Ravenswood past this point.

The worst queuing was observed on March 2nd during the installation of the pilot. The pilot installation began at 8:00 AM and created substantial queues. That evening, signal detection issues also generated one substantial queue because Ravenswood Avenue was receiving much less green time than it normally does. These issues were resolved that evening.

Figure 8. Queuing past Noel Drive (# of vehicles) - All Days



Combined analysis

The following charts show the combined impact of vehicle volumes, pedestrian and bicycle crossings, and Caltrain gate down times on vehicle queues. On the following charts, incidents of queuing past Noel Drive are shown with gold colored dots by day and time of day (AM and PM.) The gold line represents the capacity of Ravenswood Avenue during the pilot.

Key findings include:

- March 1 – pre-pilot. There was one morning (Figure 9) and three evening (Figure 10) incidences of queuing, none of which extended past Laurel Street. As anticipated, queuing was generally observed following extended Caltrain gate down time.
- March 2 – pilot installation. The most significant queuing occurred on this day. In the morning (Figure 11), the installation began around 8:00 AM and led to the longest queues observed. In the evening (Figure 12), the combination of ongoing pilot installation and signal detection issues created numerous queuing observations, but few that exceeded the capacity of Ravenswood Avenue.
- March 3 – first full day. There were four observations of queuing in the morning (Figure 13) and seven in the evening (Figure 14), of which two (one in the morning and one in the evening) exceeded the capacity of Ravenswood. All observations occurred during extended gate down time. Most, but not all, of the queues were associated with higher vehicle volumes.
- March 6 – Monday during pilot. There were five observations of queuing in the morning (Figure 15) and six in the evening (Figure 16.) Only two observations, both in the morning, exceeded the capacity of Ravenswood Avenue and only by one or two vehicles.
- March 7 – Tuesday during pilot. There were three observations of queuing in the morning (Figure 17) and three in the evening (Figure 18.) Despite much higher vehicle volumes than other days, only a single incidence of queuing was observed that exceeded the capacity of Ravenswood Avenue.
- March 8 – Wednesday during pilot. This day had the greatest number of queuing observations – ten in the morning (Figure 19) and thirteen in the evening (Figure 20.) It also had generally higher vehicle volumes than other days, especially in the morning. However, there were no incidents of queuing that exceeded the capacity of Ravenswood Avenue during either peak period.

Overall, the individual observations reveal that during periods of extended gate down time, especially when there are higher peaks of vehicle time, there are queues towards Laurel Street and sometimes extend past. Staff have used the data from this analysis to inform further observations. When queues reach Laurel Street, it generally has a greater impact on left turns from Laurel Street onto Ravenswood Avenue westbound. In these instances, vehicles sometimes have to wait for a second cycle to make the turn onto Ravenswood Avenue, but the queue clears quickly once the Caltrain gates reopen.

Figure 9. Queuing on Ravenswood - 3/1 (Wed) Pre-Pilot AM Peak

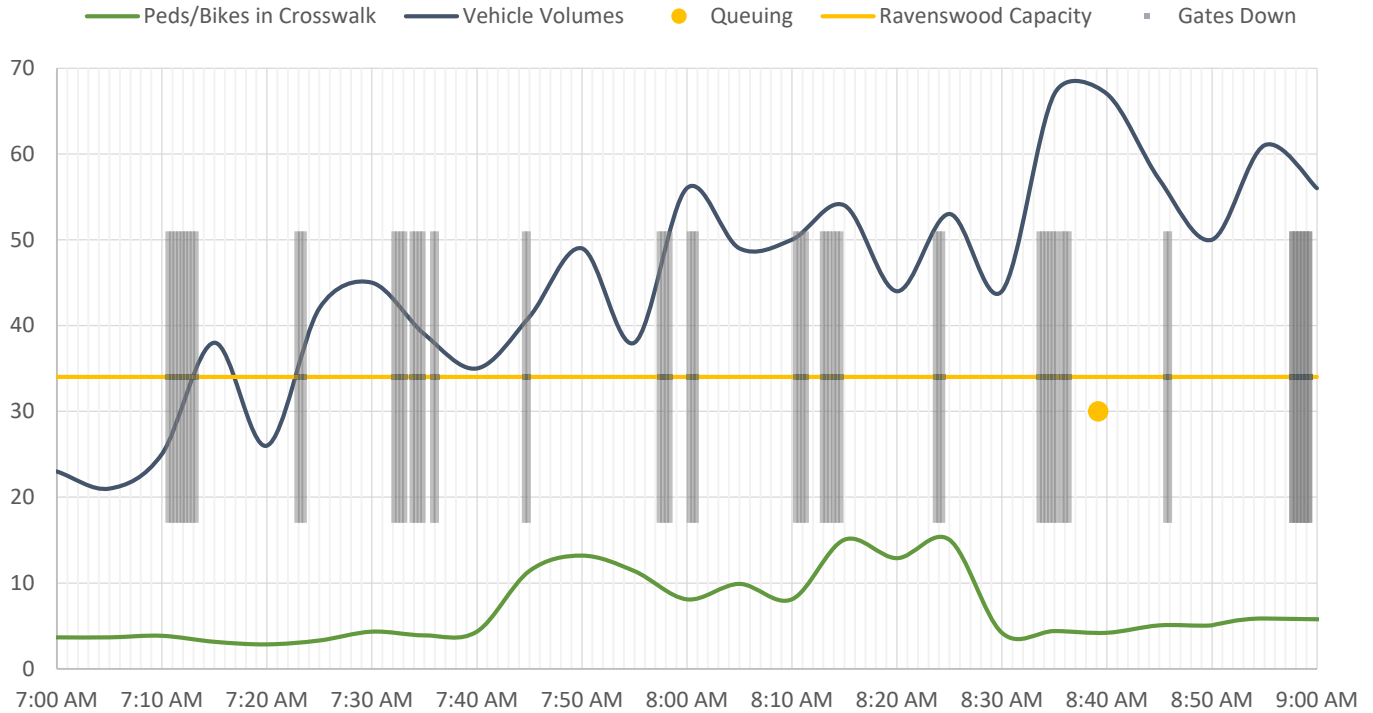


Figure 10. Queuing on Ravenswood - 3/1 (Wed) Pre-Pilot PM Peak

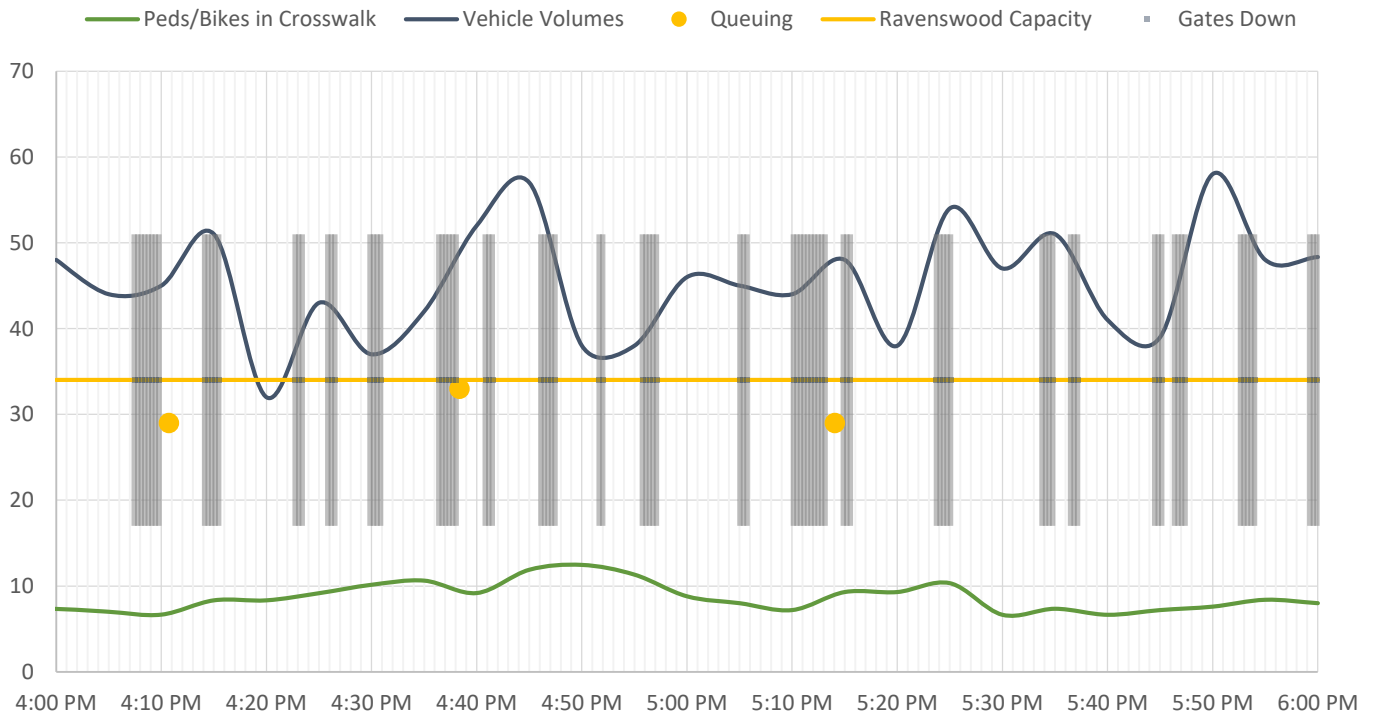


Figure 11. Queuing on Ravenswood - 3/2 (Thu) - AM Peak

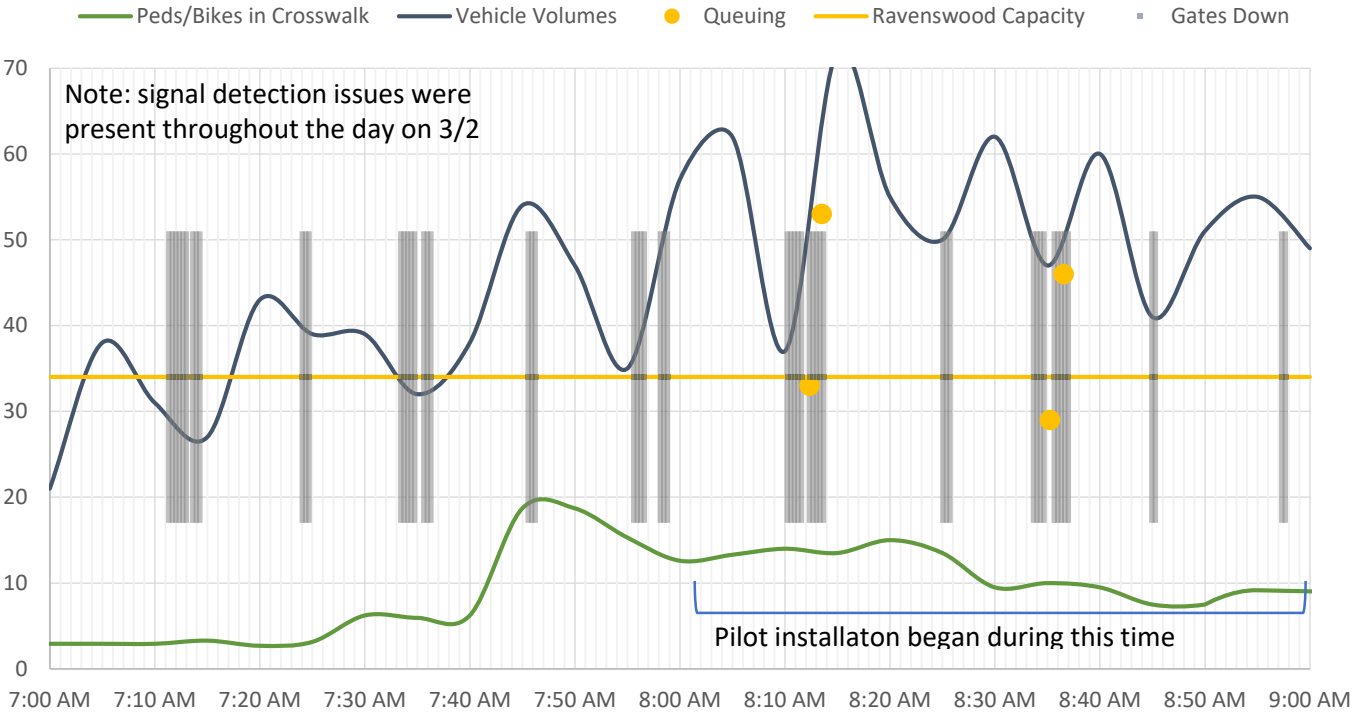


Figure 12. Queuing on Ravenswood - 3/2 (Thu) PM Peak

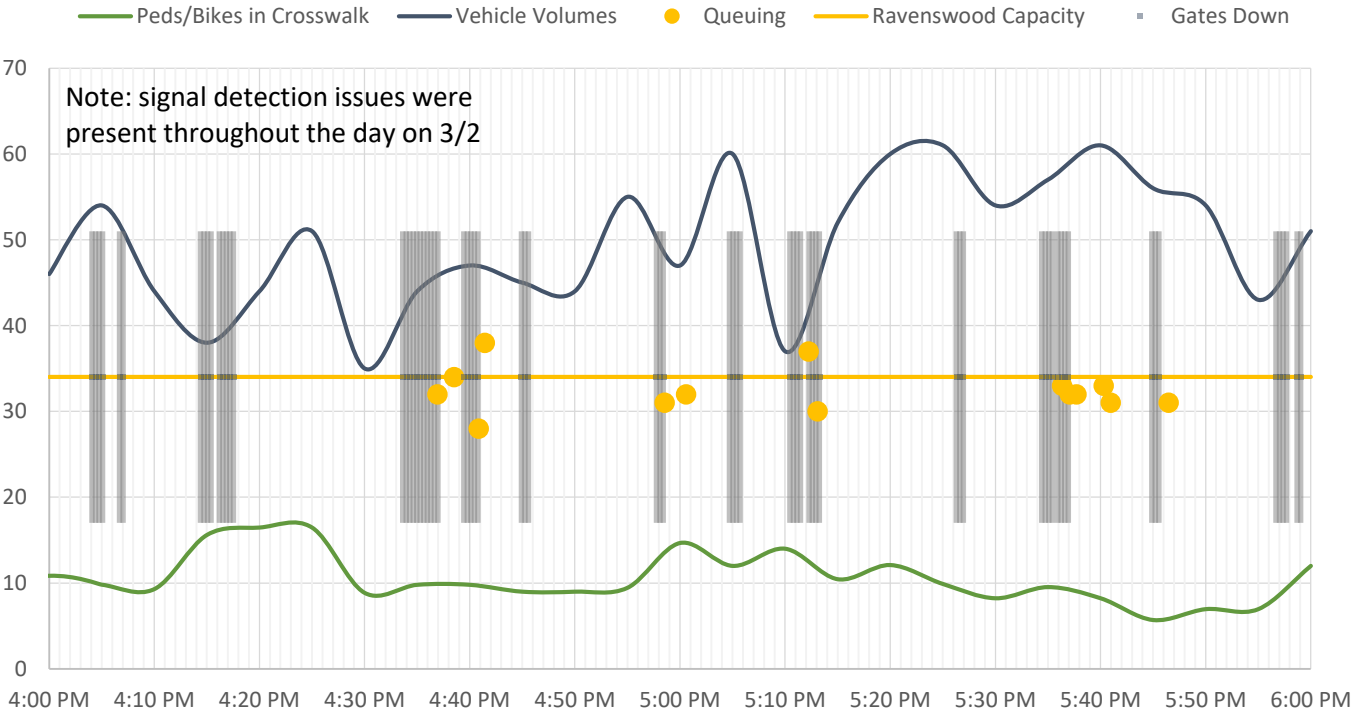


Figure 13. Queuing on Ravenswood - 3/3 (Fri) AM Peak

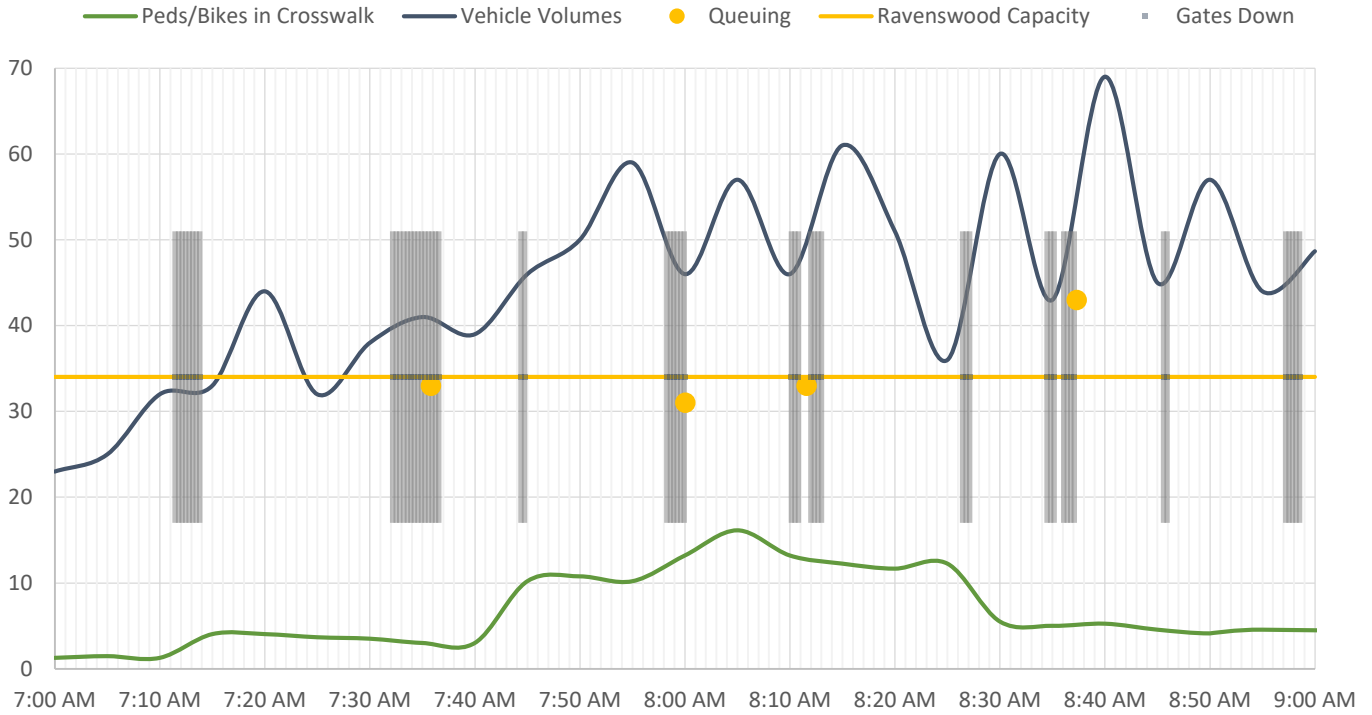


Figure 14. Queuing on Ravenswood - 3/3 (Fri) PM Peak

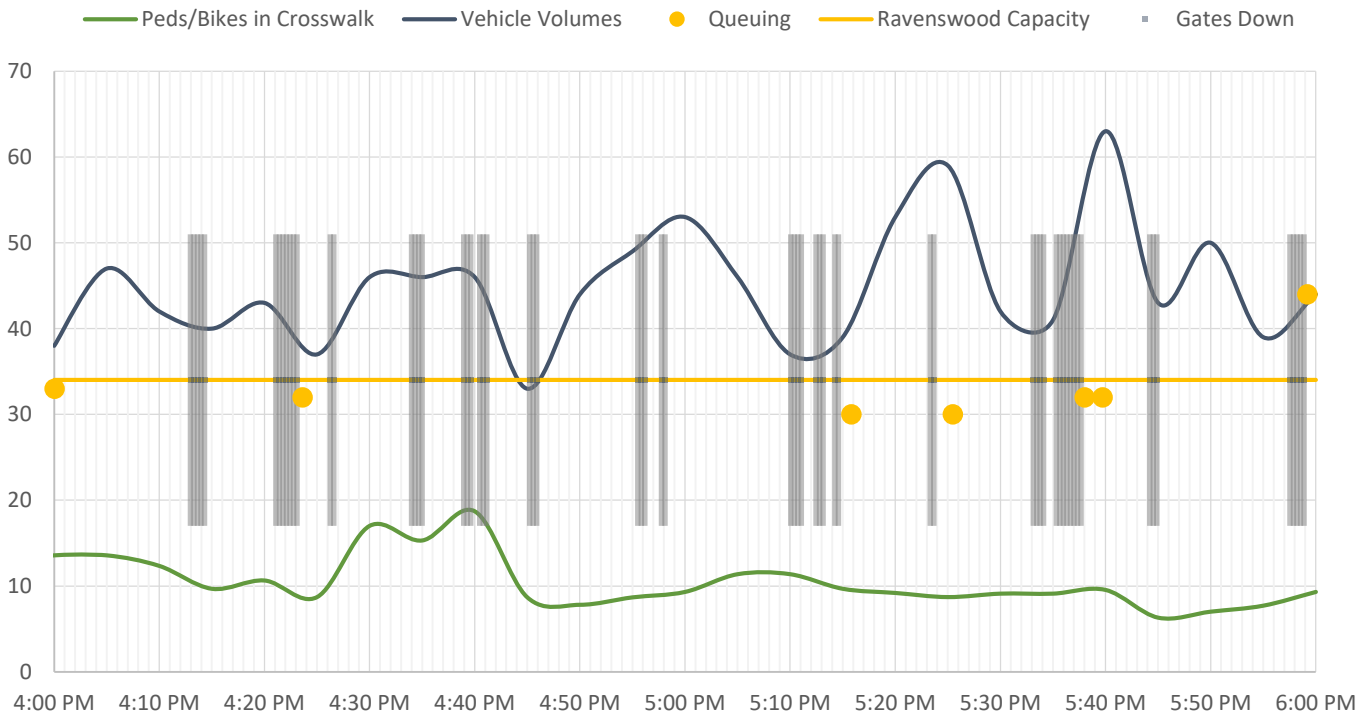


Figure 15. Queuing on Ravenswood - 3/6 (Mon) AM Peak

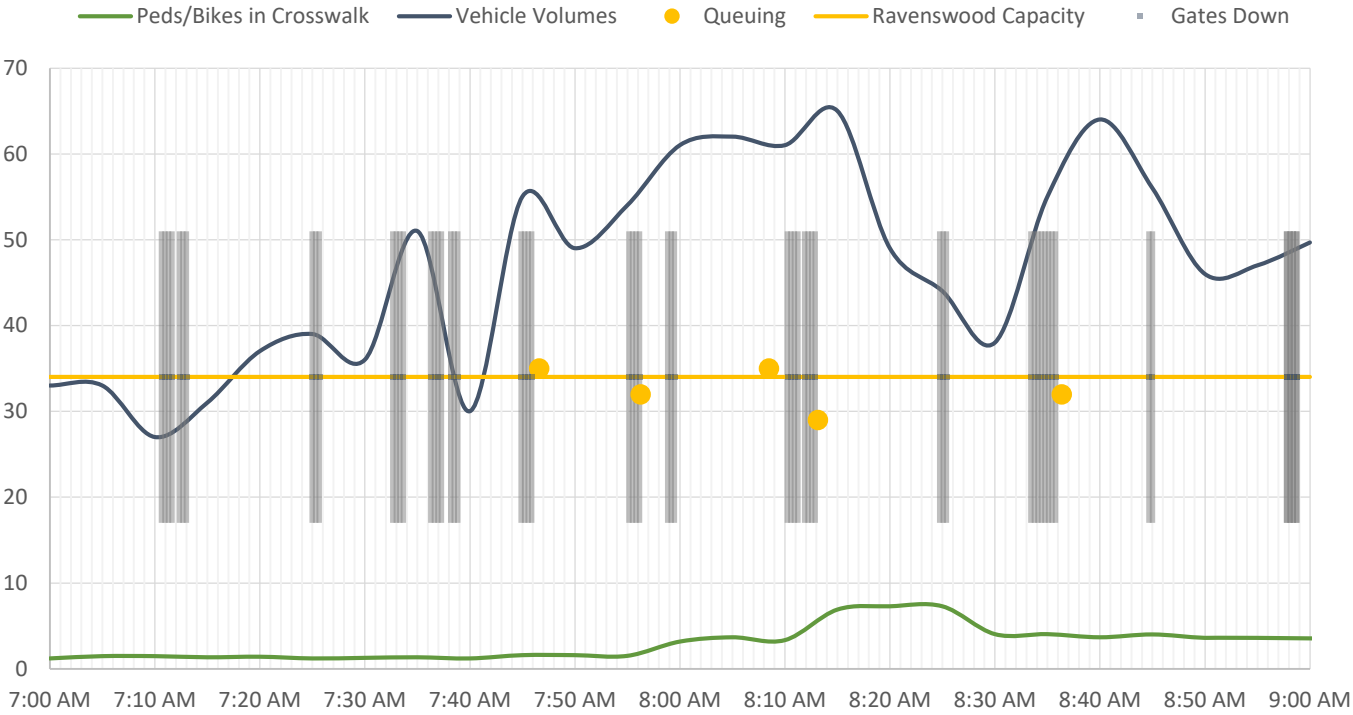


Figure 16. Queuing on Ravenswood - 3/6 (Mon) PM Peak

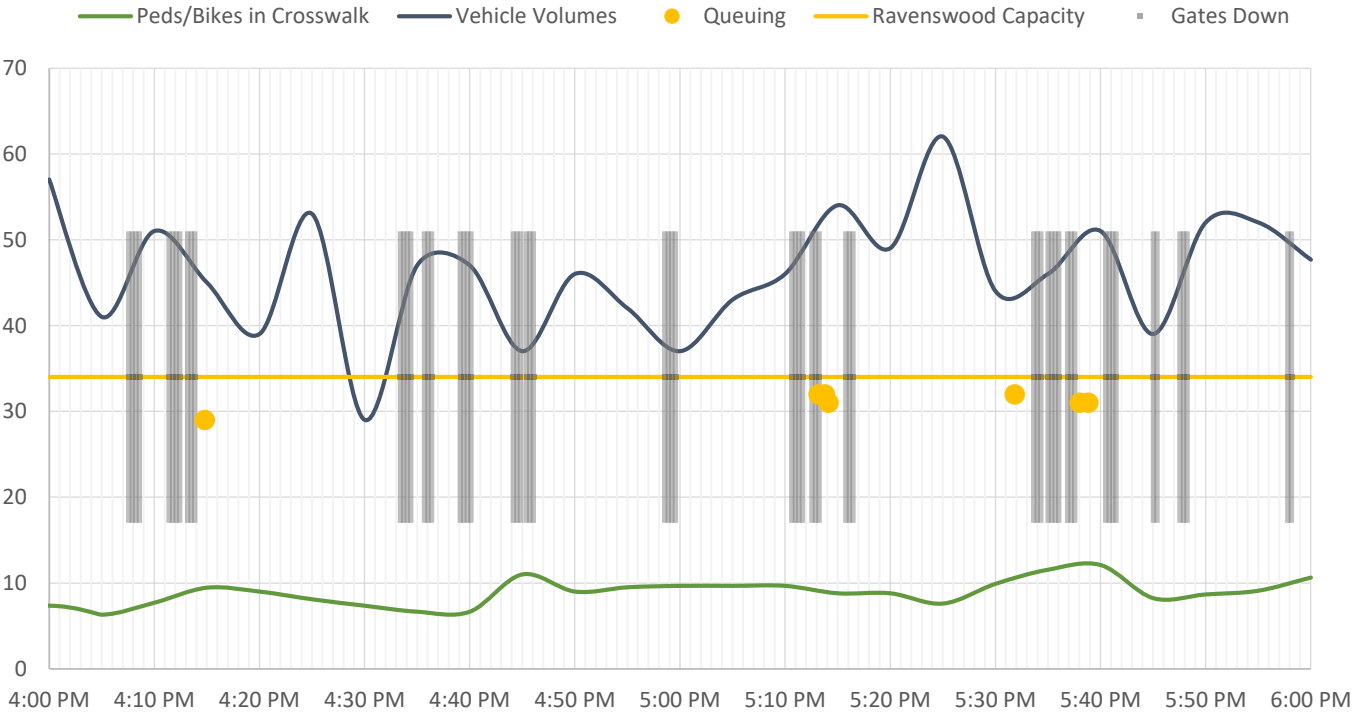


Figure 17. Queuing on Ravenswood - 3/7 (Tue) AM Peak

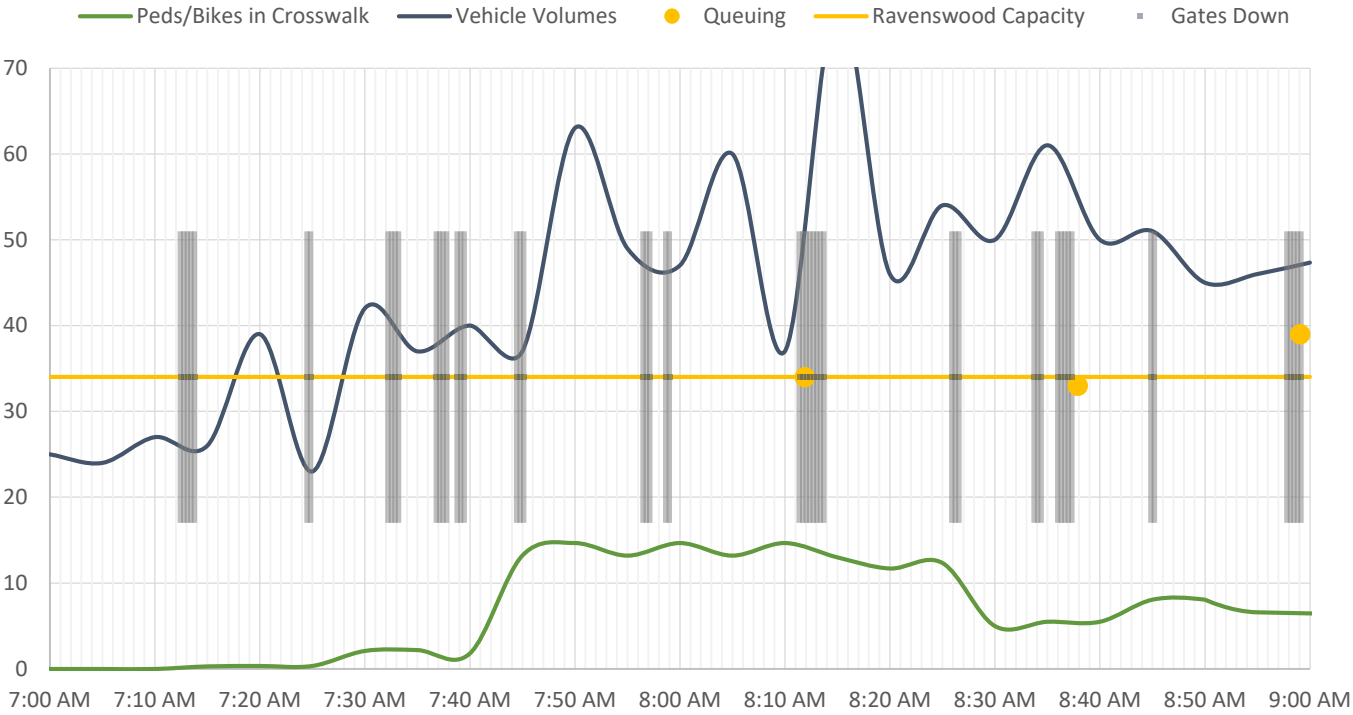


Figure 18. Queuing on Ravenswood - 3/7 (Tue) PM Peak

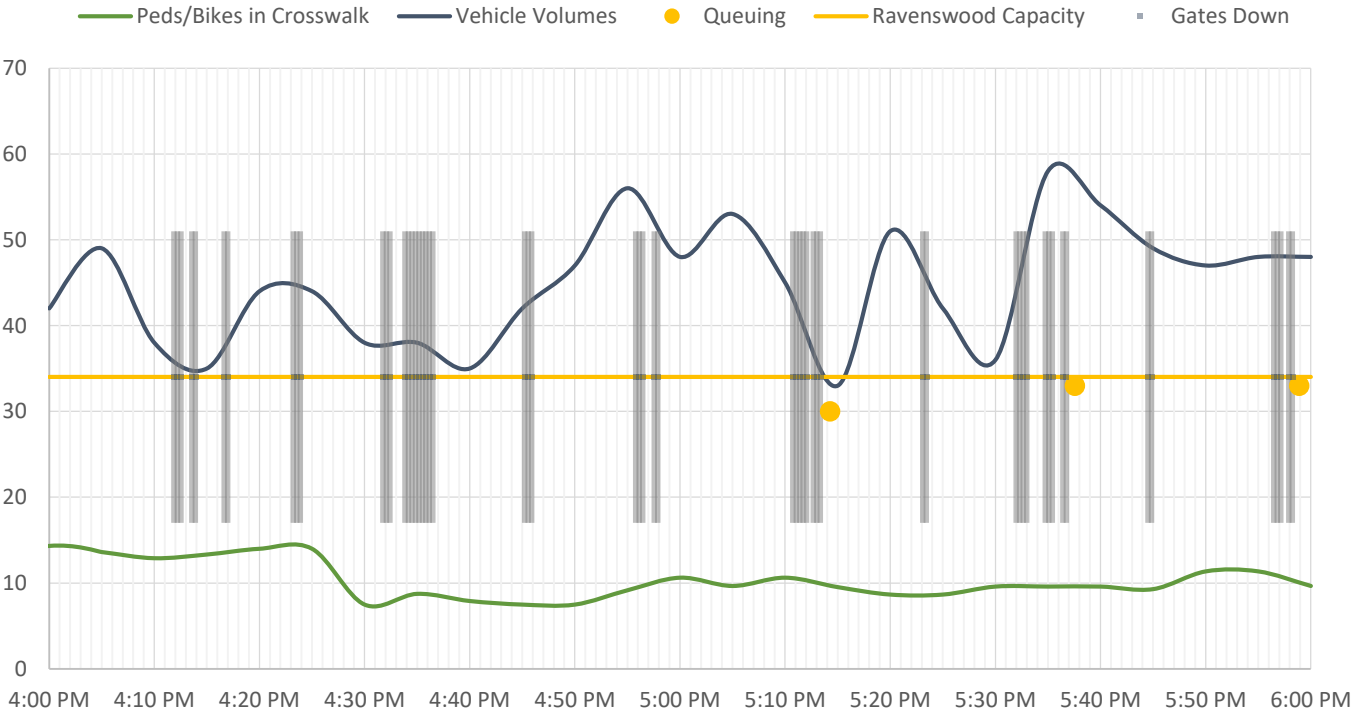


Figure 19. Queuing on Ravenswood - 3/8 (Wed) AM Peak

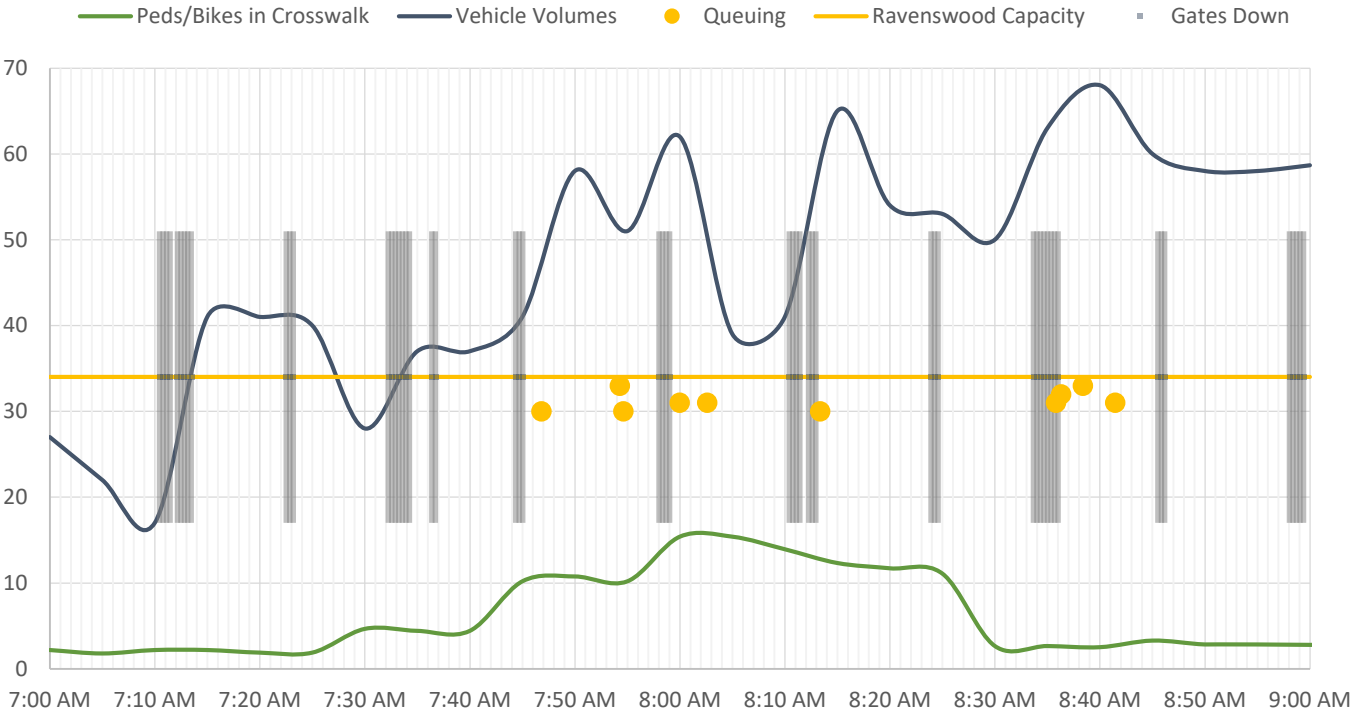
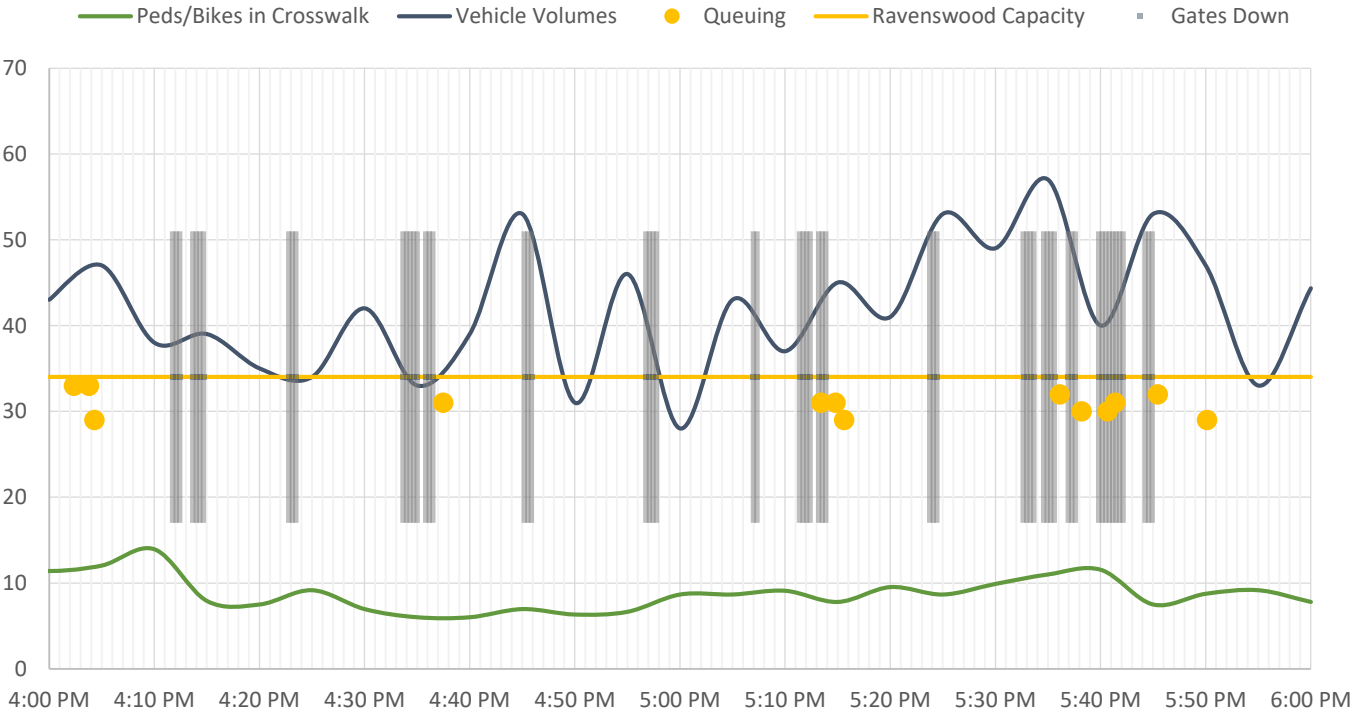


Figure 20. Queuing on Ravenswood - 3/8 (Wed) PM Peak



Public Works



MEMORANDUM

Date: 4/17/2023
To: Complete Streets Commission
From: Hugh Louch, Assistant Public Works Director – Transportation
Re: Ravenswood Bike Lane Pilot Public Survey Analysis

This memorandum summarizes the results of the survey for the Ravenswood bike lane pilot being conducted in advance of resurfacing of Ravenswood Avenue between Laurel Street and El Camino Real.

As of April 10, 2023, there were 132 responses to the survey. The survey will remain open through the end of April and this memo will be updated with the latest set of responses at that time.

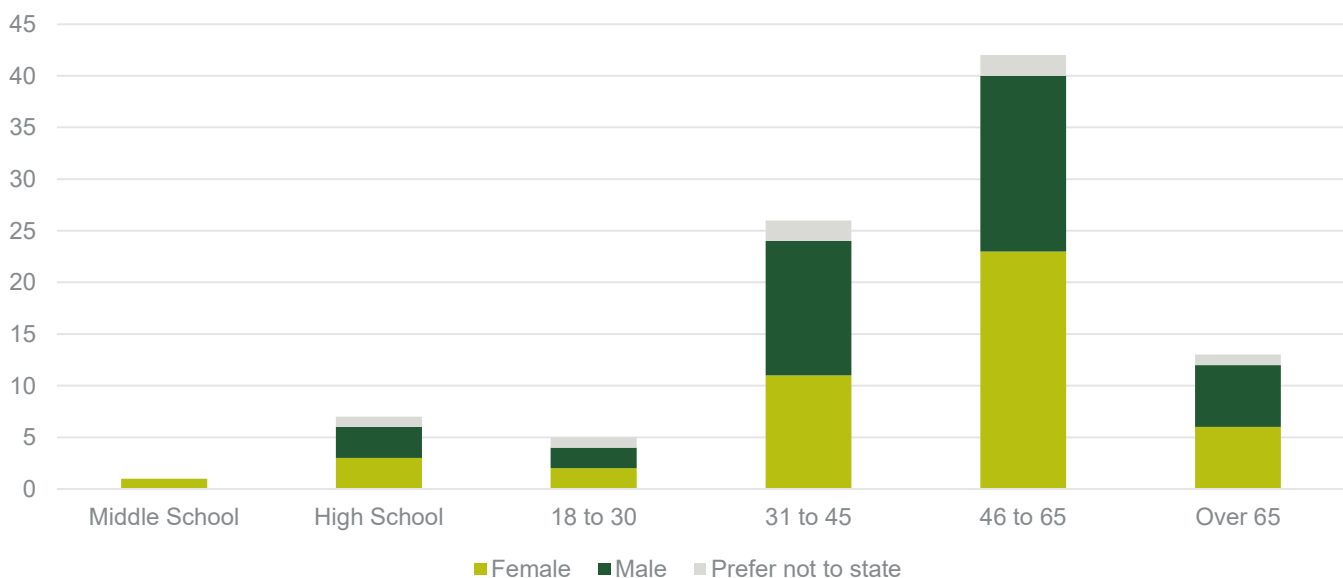
The memo includes the following topics:

- Who took the survey?
- How do respondents use Ravenswood?
- What are respondent's reactions to the pilot?

Who took the survey?

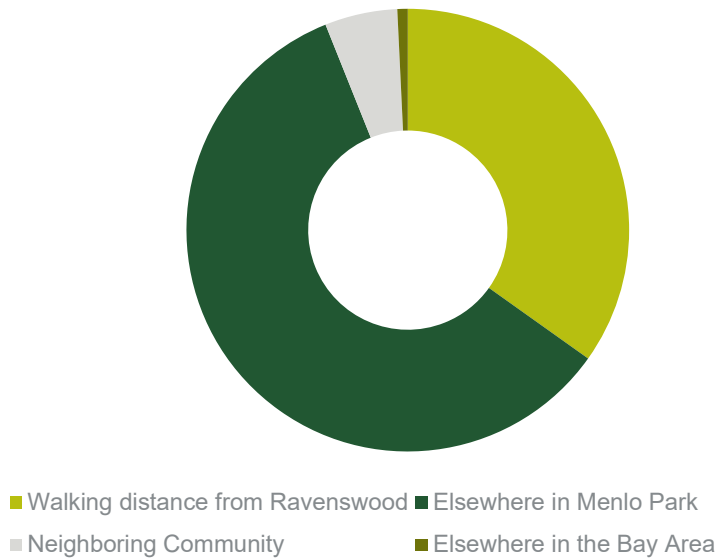
The distribution of respondents by gender is relatively even with 50 percent female, 43 percent male and 7 percent decline to state (Figure 1.) Respondents were primarily working aged adults from 46 to 65 (47 percent) or 31 to 45 (26 percent.) To date ten students have responded to the survey.

Figure 1. Respondent Age and Gender



Over a third of the respondents live within walking distance of Ravenswood Avenue and about 60 percent live somewhere else in Menlo Park, with a handful responding who live elsewhere in the Bay Area (Figure 2.)

Figure 2. Respondent Residence

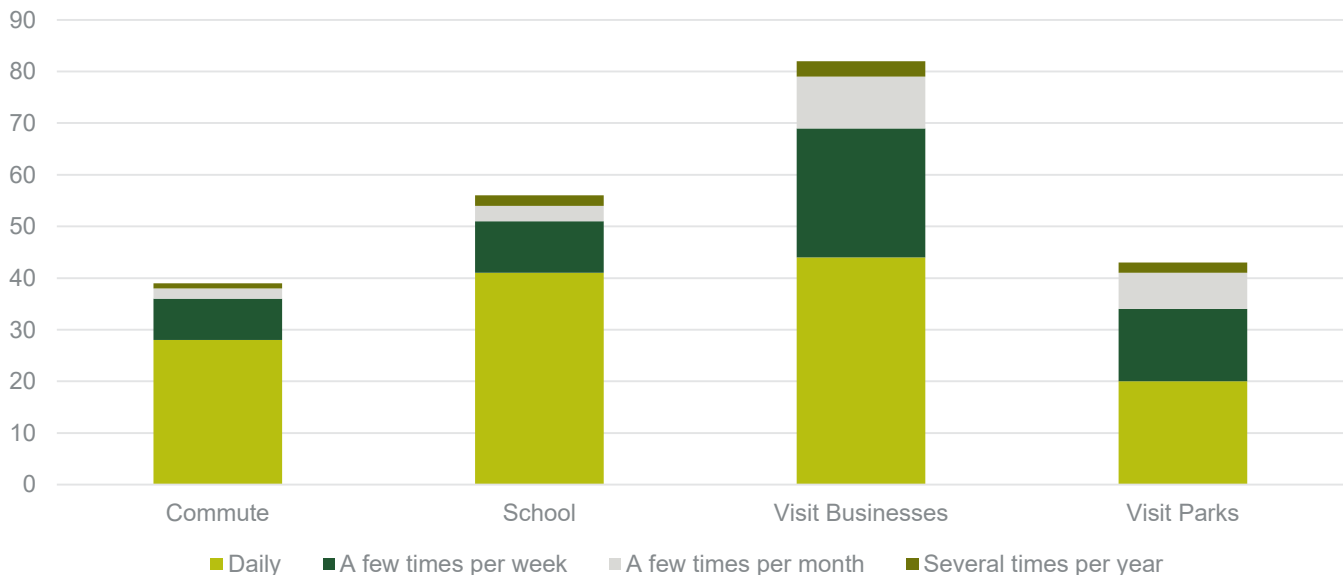


How do Respondents Use Ravenswood?

Respondents used Ravenswood Avenue for a variety of trip purposes, including commuting, getting to school, visiting local business and visiting parks (Figure 3.)

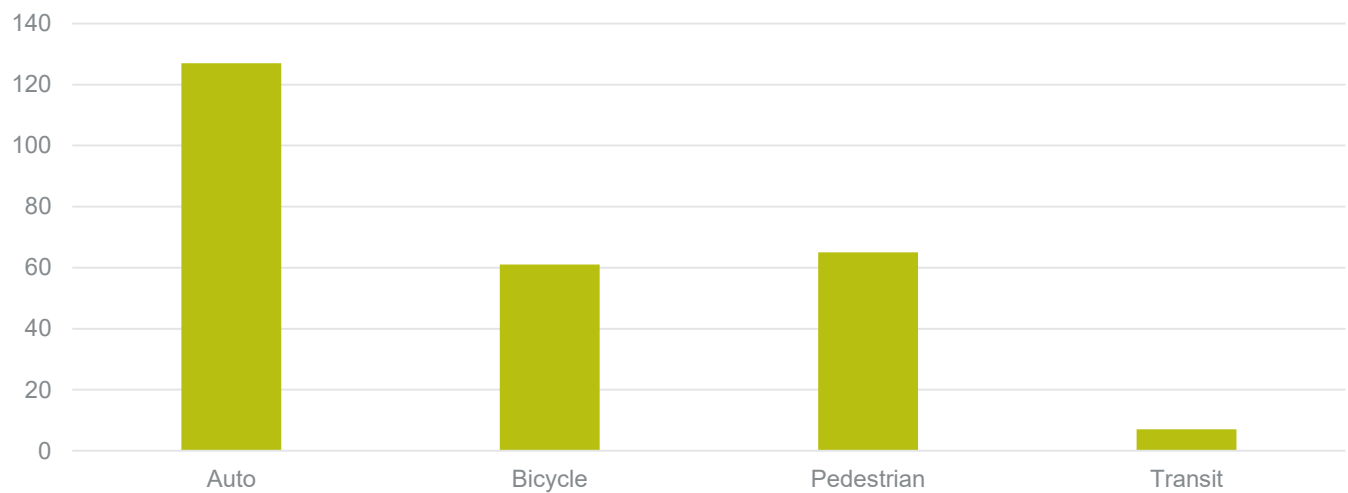
Visiting local businesses was the most common, followed by school. Almost all respondents use Ravenswood Avenue daily or a few times a week, with a small portion using it less frequently.

Figure 3. Number of responses by trip purpose and frequency



Respondents used all different modes of travel on Ravenswood Avenue (Figure 4.) Nearly everyone who responded to the survey drove or traveled in a vehicle for at least some trips on Ravenswood Avenue, but a substantial biked or walked. Only three respondents used transit. Respondents were able to select more than one mode.

Figure 4. Mode of Travel



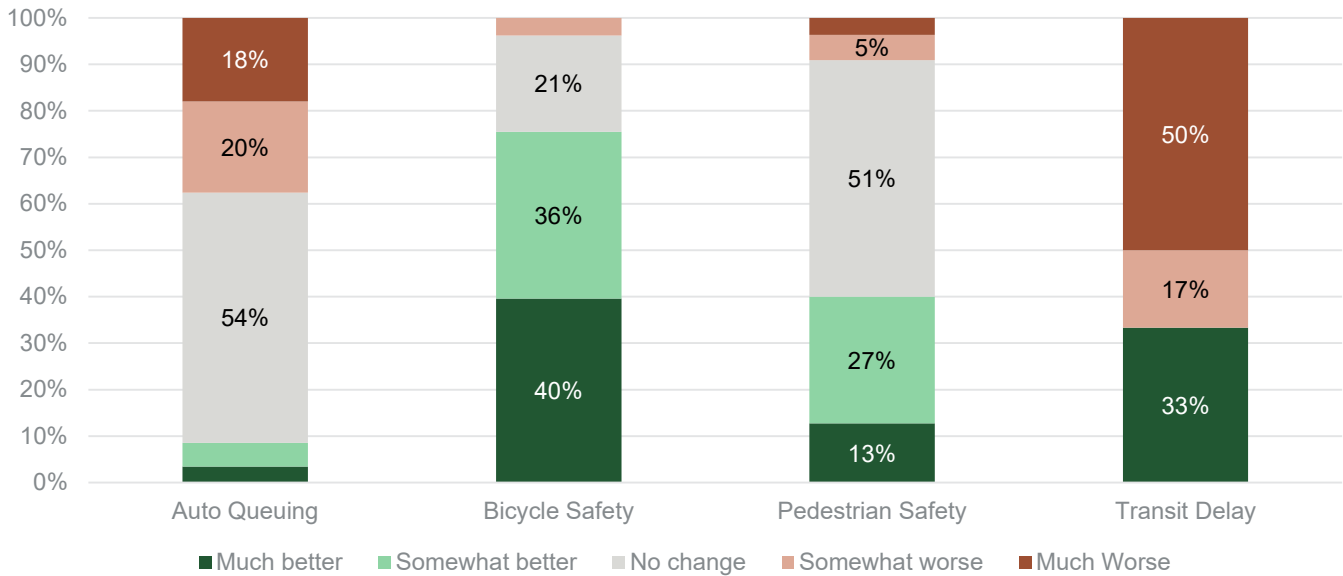
Respondent Reactions to the Pilot

Figure 5 summarizes respondent’s reactions to potential impacts and benefits by each mode, including:

- Automobile users: over half indicated there was no change in congestion, while 38 percent indicated there was some or much more congestion.
- Bicycle: three quarters indicated that the pilot increased bicycle safety.
- Pedestrians: over 50 percent indicated no change in crossing safety; 40 percent indicated crossing safety was somewhat or very improved.



Figure 5. Respondent Reactions to the Pilot

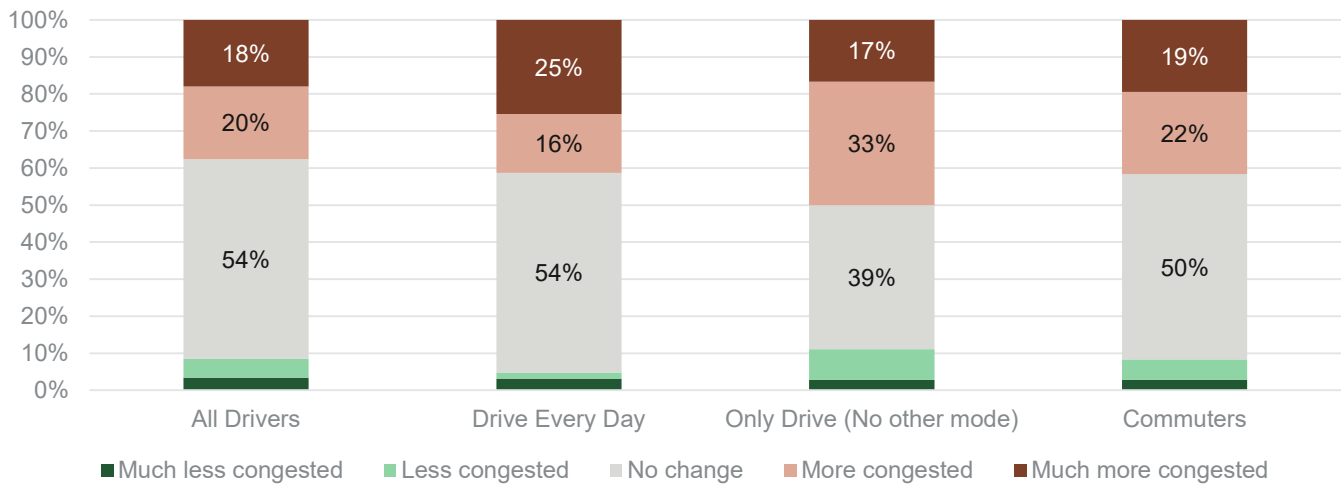


Impact on Automobile Congestion

While the overall findings indicated that most people who drove or rode in a vehicle did not identify an increase in congestion, these responses varied by frequency of use and other factors (Figure 6), including:

- Respondents who drive every day were slightly more likely to indicate that the road was somewhat or much more congested (41 percent) compared to all people who said they drive on Ravenswood Avenue (38 percent).
- Respondents who use Ravenswood Avenue to commute were, similarly, slightly less likely to indicate that there was no change in congestion (50 percent compared to 54 percent).
- Respondents who only drove and did not bicycle, walk or take transit were much less likely to indicate there was no change in congestion (39 percent) and more likely to indicate that Ravenswood Avenue is somewhat or much more congested since the pilot (50 percent). Of this group, nearly 10 percent indicated that Ravenswood Avenue was somewhat or much less congested.

Figure 6. Perception of Congestion by Several User Groups



Respondents who drive were also asked if they changed their route at all during the pilot (Figure 7.) Overall, 83 percent of respondents indicated they continue to use Ravenswood Avenue for their travel. This share was somewhat lower for people who drive every day (79 percent) or commute (78 percent) and substantially less for respondents who indicate that they only drive and do not use other modes (69 percent.) Most people who are not using Ravenswood Avenue indicated that they use Oak Grove, with about half indicating they use other routes.

Staff are planning to review data from Streetlight to evaluate potential shifts in route choice. Streetlight uses cell phone location data and similar sources to estimate vehicle volumes. Data for March 2023 will be available in a few months.

Figure 7. Drivers Route Choice Changes

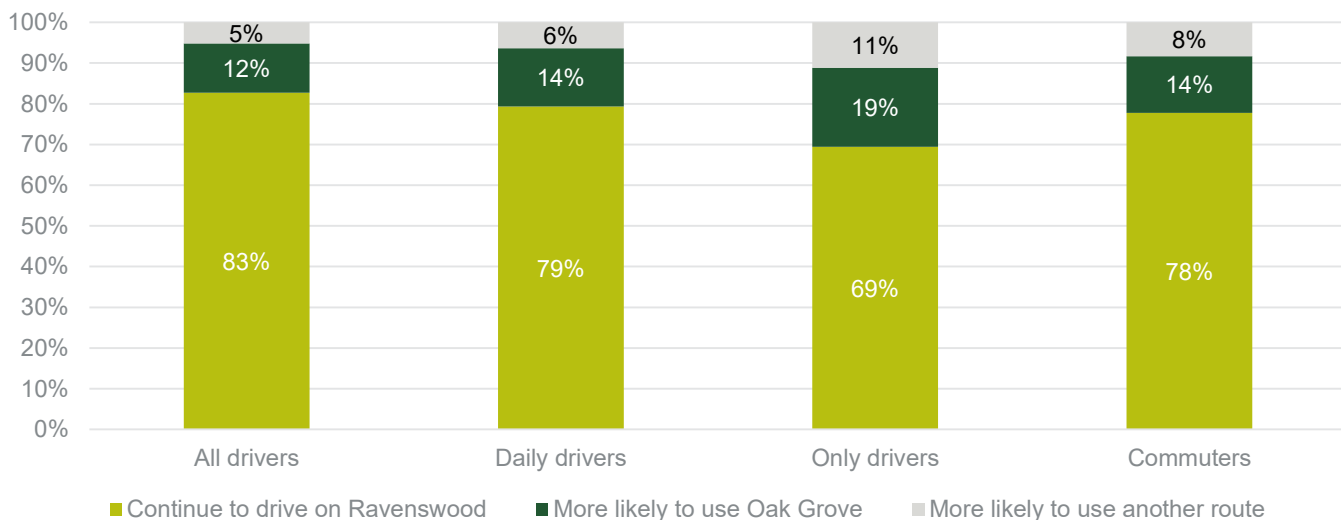
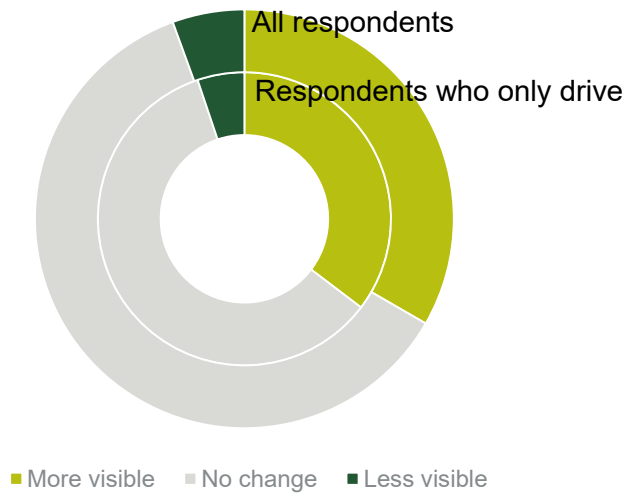


Figure 8. Are Pedestrians more Visible to Drivers?

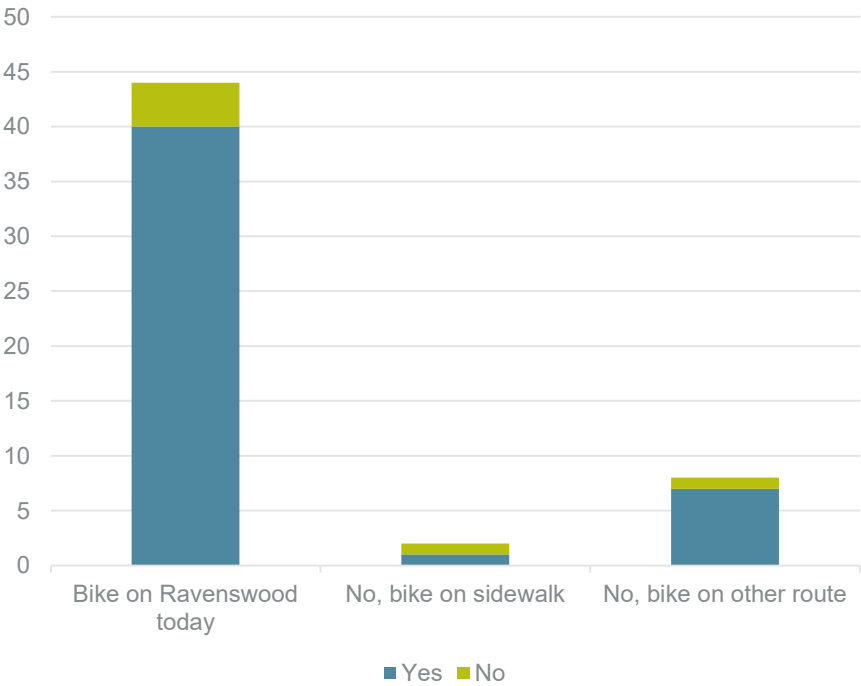


People who drive or travel in vehicles were also asked if the pilot had increased the visibility of pedestrians crossing Ravenswood Avenue (Figure 8.) About one third of drivers indicated that pedestrians were more visible to drivers and 61 percent indicated no change. These numbers were similar for respondents who only drove and all respondents.

After resurfacing, the pilot will include a wider median that will provide more visibility to pedestrians crossing.

Bicycle Users

Figure 9. Will You Bike More on Ravenswood When Lanes Are Complete?



Respondents who bicycle were also asked if the long term plans for Ravenswood would change their likelihood of bicycling. Once the City completes resurfacing, continuous bike lanes will be available on both sides of Ravenswood Avenue between Laurel Street and El Camino Real if the pilot is found to be successful.

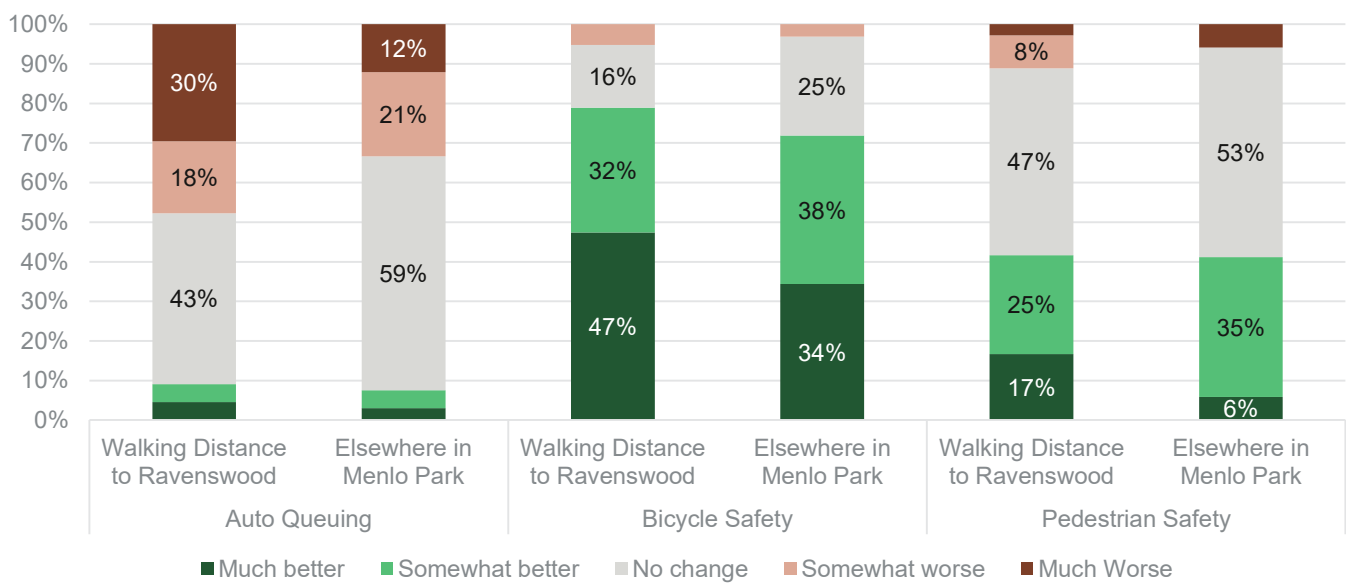
Respondents who bicycle indicated that the availability of continuous bike lanes would make them more likely to bicycle (Figure 9.) This was true for respondents who bike on Ravenswood Avenue today, as well as respondents who say they use other routes. Only two respondents indicated that they ride on the sidewalk on Ravenswood Avenue.

Respondent Reactions by Location

Figure 10 compares the reactions to the pilot for people who live within walking distance of Ravenswood Avenue and those who live elsewhere in Menlo Park. Data for people who live outside the City and for transit users are not shown because of the low number of responses. Key comparisons include:

- Drivers who live nearby were more likely to indicate that auto queuing has increased (48 percent compared to 33 percent.)
- Bicyclists who live nearby were somewhat more likely to indicate that bicycle safety had improved (79 percent compared to 72 percent.)
- Pedestrians who live nearby and who live elsewhere in Menlo Park gave similar responses about pedestrian safety.

Figure 10. Respondent Reactions by Location



Respondent Reactions by Trip Purpose

Figures 11, 12, and 13 identify respondent reactions to automobile queuing, bicycle safety, and pedestrian safety by trip purpose. Respondents were allowed to select all relevant trip purposes, so there are overlaps across the three charts.

For people who drive or travel in a vehicle, there were relatively small differences in perceptions of automobile queuing by trip purpose (Figure 11.) Similarly, people who bicycle had similar reactions to bicycle safety, with slightly more respondents indicating that there was no change in safety for people who visit local businesses or parks compared to people who indicate they commute or travel to school (Figure 12.)

Figure 11. Respondent Perceptions of Queuing by Trip Purpose

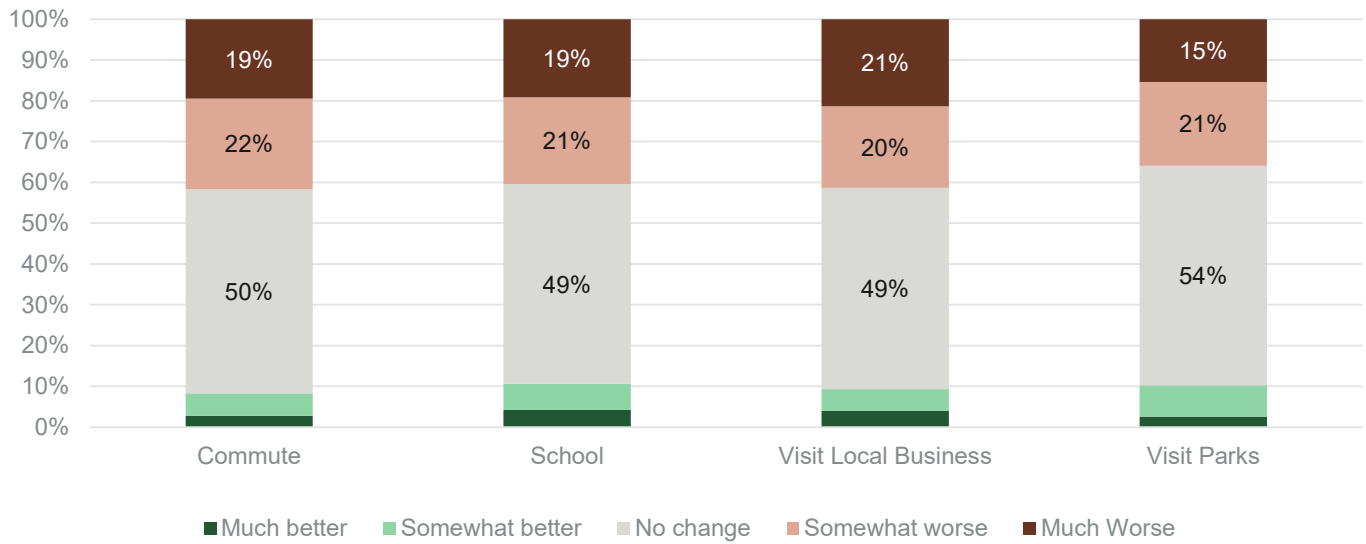


Figure 12. Respondent Perceptions of Bicycle Safety by Trip Purpose

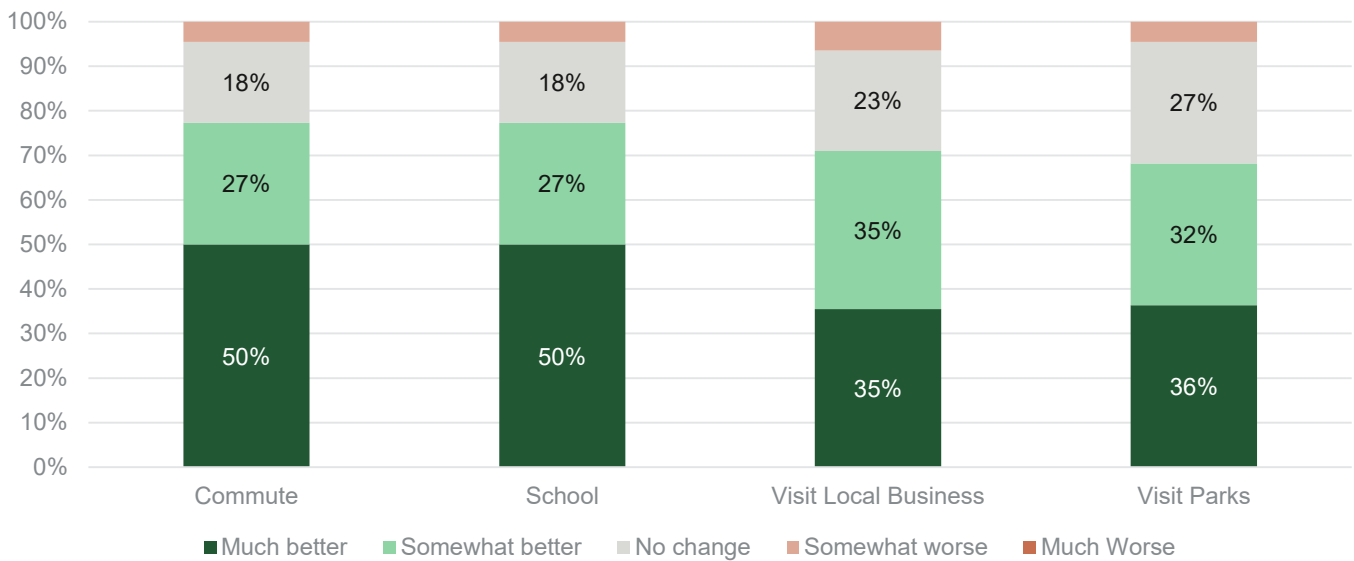
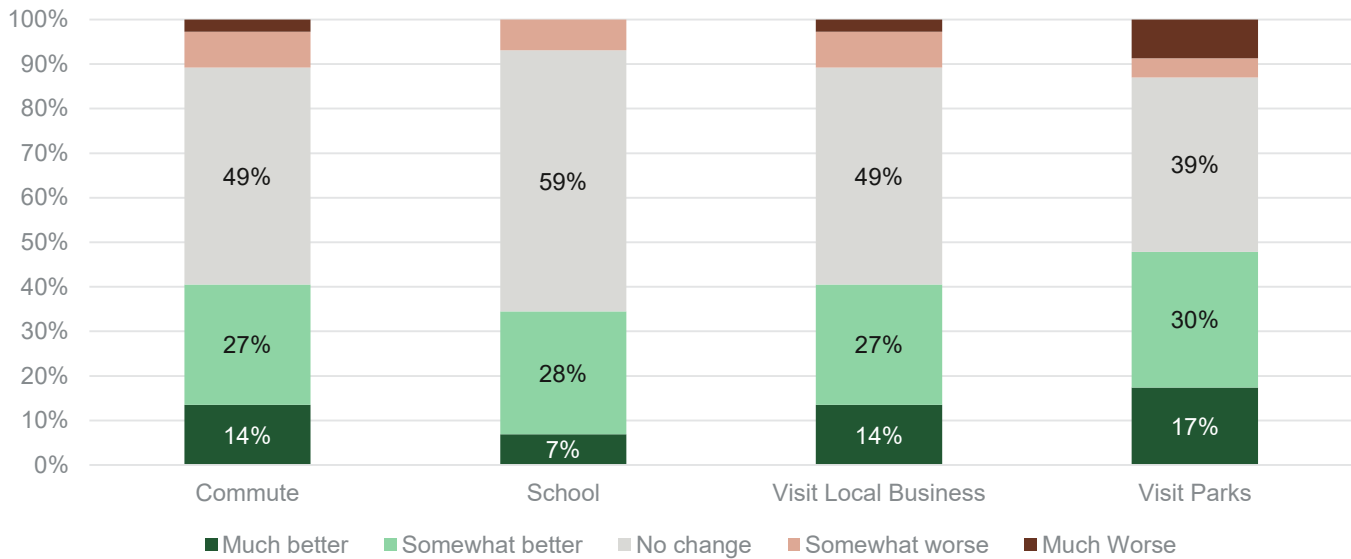


Figure 13 identifies pedestrian perceptions of safety by trip purpose. Respondents accessing school were more likely to say the pilot has not changed crossing safety (63 percent) compared to those who commute or visit local businesses (49 percent), and especially compared to those who say they are visiting parks (39 percent.)

Figure 13. Respondent Perceptions of Pedestrian Safety by Trip Purpose



Appendix – Comments on the Survey

Respondents were able to comment on individual question and provide general comments at the end of the survey. All comments received are provided below by question.

Have you changed your driving route since the pilot?

Comments are shown below with the level of congestion indicated.

Do you experience more congestion?	Comment
c. No change in queueing and congestion	Please keep the bike lane extension and car lane elimination. Add green treatment to new bike lane. Add a pedestrian refuge in the middle of Ravenswood when crossing near alma
d. Somewhat more queueing and congestion	At certain times of the day, Ravenswood is too backed up with one lane.
d. Somewhat more queueing and congestion	Coming from Laurel Ave, depending on my destination I choose between queueing on Ravenswood or crossing the tracks at Oak Grove or Encinal Ave.
d. Somewhat more queueing and congestion	I like this route because it's more visually pleasing than Oak Grove and sometimes I see a friend who bike commutes there. But if the queueing gets worse, I'll have to change. Turning left onto Laurel at Ravenswood has gotten much easier.
d. Somewhat more queueing and congestion	Oak Grove now looks like a better route for me back to downtown and Valparaiso Ave; maybe go all the way to Glenwood, but that is not ideal. My observation is that there is a much longer weekday evening backup before the RR tracks now. Let's face it, this pilot isn't doing anything to improve vehicle traffic flow OR biking safety.
e. Much more queueing and congestion	Because the Ravenswood is so backed up and a left turn onto Ravenswood is impossible and I have to sit through at least 3 stop lights for a left turn only if I am lucky!!! Laurel's left turn lane has 8 or more cars trying to turn and no one moves as the Ravenswood lane is already backed up.
e. Much more queueing and congestion	Between the light at Laurel and the train tracks, the congestion during peak hours is unbearable; my commute time home is nearly doubled when I take this route.
e. Much more queueing and congestion	Between the train tracks and regular congestion, the traffic was already congested, now it's even more and it backs up down Laurel now too (towards Willow). It's frustrating.
e. Much more queueing and congestion	Lane is often backed up all the way to Laurel.
e. Much more queueing and congestion	Ravenswood is now backed up at the Laurel intersection! Sometimes there's no way to turn left onto Ravenswood because the traffic is so backed up! We need the extra lane back!
e. Much more queueing and congestion	The traffic situation at the tracks has been bad for years, and taking a car lane out at this point has added congestion and confusion to cars heading towards El Camino Real.
e. Much more queueing and congestion	Too much congestion taking it down to 1 lane. I NEVER see the bike lane in use since installed
e. Much more queueing and congestion	Turn right on Alma by the library to get to Willow Rd. More traffic for that neighborhood. I'm sure the residents don't appreciate this.

Do you experience more congestion?	Comment
e. Much more queueing and congestion	Wrong place for this. Major traffic route, more congestion and not any safer for anyone.
e. Much more queueing and congestion	You can't get out from Noel Drive. In addition, cars speed down the bike lane when they don't want to wait.

Do you feel safer bicycling along Ravenswood Avenue?

Do you feel safer biking?	Comment
a. Feels much safer bicycling	Because it is now a dedicated bike lane, but it needs green treatment so cars understand it is not for them.
a. Feels much safer bicycling	designated area for bikes is much safer.
a. Feels much safer bicycling	Have own lane. Cars stay in their lane.
a. Feels much safer bicycling	I'm no longer squeezed by cars
a. Feels much safer bicycling	Knowing that cars won't try to speed past me or merge into that lane while I'm in it makes me feel much safer than I expected.
a. Feels much safer bicycling	Lots of cars criss-crossing across the bike's path before. This is a big improvement.
a. Feels much safer bicycling	More space feels safer
a. Feels much safer bicycling	More space when cars are passing
a. Feels much safer bicycling	While in the past I have avoided biking on that stretch of Ravenswood and have not biked on it since the implementation of the pilot in early March, I will try it the next opportunity. I replied as I did because with the extended bike lane, I would feel much safer and comfortable using it due to less proximity to the cars, that I do not trust when that close on a busy stretch of street.
a. Feels much safer bicycling	There used to be two lanes on the right side of the road and there was no space for bikes to get by without using the sidewalk. Sometimes cars would come up from behind and squish us, on bikes, right up to the curb, to the point where you couldn't bike because there wasn't enough space. Especially when there were busses in the right lane, it was impossible to get by, and if you got stuck between the car and the curb you had no way of knowing if the car was turning right (potentially cutting you off) and it was hard to see the crosswalk. It's much much better now with the bike lane :) it still comes up probably once a week with my friends on the way home from school how much easier and less stressful it is to be there now
a. Feels much safer bicycling	I don't have to squeeze between a car and the curb with a 3 in space between my handle bar and the car while both of us are trying to move forward
a. Feels much safer bicycling	I no longer have to go on the sidewalk when biking on Ravenswood. Before, I had to go on the sidewalk when there were cars in both lanes, and that was scary because there were sometimes people walking there or I had to navigate around someone who wanted to cross the crosswalk. If I stayed on the street, sometimes there wasn't enough space for my bike and I had to stop really quickly. Now, I can stay on the street safely.
a. Feels much safer bicycling	I noticed the very first day that there is much more room for bicycles and much better visibility. This is a huge improvement. Now please give them a little room once they cross El Camino between Mtn. Mikes and Trader Joe's. That is a very bad stretch.

Do you feel safer biking?	Comment
a. Feels much safer bicycling	i don't have to use the sidewalk anymore to bike on. before i had to because although the lane was shared with bikes and cars, it would just be too unsafe to use the lane as a biker
b. Feels somewhat safer bicycling	A little bit more clear to me and to autos where everyone belongs on the road
b. Feels somewhat safer bicycling	Less likely to get rear-ended by a driver who doesn't realize I'm going to stop for a pedestrian at the crosswalk.
b. Feels somewhat safer bicycling	more physical barrier protection would improve bike safety on this high speed route
b. Feels somewhat safer bicycling	Need bollards to create a safety barrier for bikes. Also, the green strip to give that visibility to vehicles. Crossing the train tracks is still dangerous since vehicles can back up turning right on to El Camino from Ravenswood.
b. Feels somewhat safer bicycling	The one feels safer but cars don't always stop for the cross walk at Ravenswood and Alma. I've seen a couple close calls with kids crossing on their way to school.
b. Feels somewhat safer bicycling	The westbound bike lane is better. However, it still suddenly ends at Alma St. Should be extended to ECR.
b. Feels somewhat safer bicycling	I feel that some drivers understand that cycles have the right of way with the new markings.
c. No change in feeling of safety	I have still been avoiding Ravenswood Avenue most of the time. Although Ravenswood is often the more direct route and I'd like to ride there more often - it has just always felt unsafe so I've been avoiding it for years on my bike. If the extended bike lanes are made permanent, I will switch some of my routes and ride on Ravenswood. It's just that as a temporary measure, I haven't bothered to change things up
c. No change in feeling of safety	I won't feel much safer without much more extensive fully protected bike lanes
c. No change in feeling of safety	It's just paint. The drivers still treat it like a 2nd lane. Install some physical barrier (flex posts)
c. No change in feeling of safety	This project was done on the wrong side of the road. Heading toward ECR there was already at least space for two lanes of cars and bikes even if it was a horrible 'sharrow' configuration. Heading toward Laurel in that block, there is a loss of a lane and bikes are already sharing the right lane. So all vehicles get squeezed in one place. Inevitably the 2 ton steel boxes force their way MUCH too close to the bicycles in that area. This experiment should have moved the center line northwest a few feet to have some form of bike lane on the block between Alma and Laurel. I'm not one to complain about additional bike infrastructure, but this was a failure of prioritization.
d. Feels somewhat less safe bicycling	So many people drive in the bike lane every morning making it more dangerous
d. Feels somewhat less safe bicycling	Sometimes cars are still passing in that area that makes me feel unsafe.

Do you feel safer crossing Ravenswood Avenue at Alma Street?

Do you feel safer crossing Ravenswood?	Comment
a. Feels much safer crossing Ravenswood Avenue	Reducing the number of motor vehicle travel lanes on Ravenswood and has meant that I perceive slower vehicle speeds and also that the distance I need to cover within the motor vehicle travel lanes is approximately halved. I'm delighted by the reduction in the number of lanes on Ravenswood Avenue at the intersection with Alma Street and I strongly encourage the City of Menlo Park to apply similar treatments that reduce the width of roads and reduce the travel speeds of drivers across the city.

a. Feels much safer crossing Ravenswood Avenue	Stepping into the bicycle lane is much safer than stepping into the lane of traffic. With two lanes, a bus would often block visibility of pedestrians or flashing lights for a car traveling in the second lane. This was dangerous when crossing towards the park.
a. Feels much safer crossing Ravenswood Avenue	With only one lane of traffic, cars go slower and can see me crossing more easily. With a dog and a baby, it was sometimes scary crossing the second lane and hoping that the cars noticed us — and very frustrating and dangerous the many times they did not.
b. Feels somewhat safer crossing Ravenswood Avenue	I've noticed the cars stopping more frequently than before
b. Feels somewhat safer crossing Ravenswood Avenue	It feels safer because cars can see you from the westbound lanes. In the previous configuration, two westbound lanes could block site lines.
b. Feels somewhat safer crossing Ravenswood Avenue	Single lane of traffic to watch out for, but there are some drivers who still drive in that bike lane.
b. Feels somewhat safer crossing Ravenswood Avenue	We need a refuge in the middle when crossing. There is room to create one by moving the west bound land somewhat to the north thereby creating space for the crossing refuge.
b. Feels somewhat safer crossing Ravenswood Avenue	When there are two cars going the same direction, one will zoom past a stopped one and almost hit you. With one side reduced to a lane, you can at least see bicycles coming more easily.
b. Feels somewhat safer crossing Ravenswood Avenue	I have to wait for fewer lanes of traffic and it's easier to see when I'm able to cross, which makes it safer
b. Feels somewhat safer crossing Ravenswood Avenue	That is just a tough crossing especially the Northbound side due to people trying to get across the train tracks. You just can't always see clearly.
b. Feels somewhat safer crossing Ravenswood Avenue	less cars to worry about
c. No change in feeling of safety crossing Ravenswood Avenue	Being a pedestrian and a commuter i find the blinking lights at the cross walk to be far more effective than the lane. Adding the bike lane did not increase visibility what so ever. In fact it made it worse as road rage drivers illegally go in the bike lane now to move around traffic
c. No change in feeling of safety crossing Ravenswood Avenue	Cars still drive too fast
c. No change in feeling of safety crossing Ravenswood Avenue	Don't notice anything different
c. No change in feeling of safety crossing Ravenswood Avenue	Honestly, I use that crosswalk all the time, including today, but it doesn't feel any more or less safe to me now. However, I didn't cross at normal commute times today and I imagine it would feel more safe when crossing during commute hours when there is heavy traffic
c. No change in feeling of safety crossing Ravenswood Avenue	I just haven't noticed a difference
c. No change in feeling of safety	If you cross Ravenswood as a pedestrian at Alma Street, the traffic from El Camino headed East backs up on to the tracks. There needs to be signage not to enter the intersection while pedestrians are in the walkways or have a timed crosswalk sign for

crossing Ravenswood Avenue	pedestrians. Make pedestrians and bikes wait like they do at an lighted intersection. Pedestrians need to be ware that when they cross can back up traffic on the tracks. Have the light up signs on a solar power with back up for evenings.
c. No change in feeling of safety crossing Ravenswood Avenue	It has always been a matter of the cars paying attention, people are in a rush to be somewhere. That has been my experience. And they are still backing up on the tracks when some stops for someone crossing Alma and Ravenswood
c. No change in feeling of safety crossing Ravenswood Avenue	Not all cars stop for the flashing lights. Some speed up.
c. No change in feeling of safety crossing Ravenswood Avenue	Same frequency of cars stopping and not stopping.
c. No change in feeling of safety crossing Ravenswood Avenue	Too often cars do not stop for flashing yellow lights. Visibility of yellow lights insufficient in daytime and not strong enough to get driver's attention at night. Illumination of cross-walk needed.
d. Feels somewhat less safe crossing Ravenswood Avenue	Bikes don't usually stop for pedestrians and have gotten very close to me.
d. Feels somewhat less safe crossing Ravenswood Avenue	<p>Cars traveling west on Ravenswood are now backed up past the Ravenswood/Laurel intersection down Laurel towards Burgess and Oak Grove and further down Ravenswood toward Middlefield. This bike lane has caused unnecessary congestion and stress for people trying to drive into Menlo Park. The one west bound lane at the crosswalk is in a hurry to get across the tracks and break free and get into one of the three lanes in front of them.</p> <p>All the kids who ride their bikes to Hillview have not changed their pattern of riding their bikes to school. They still ride their bikes thru Burgess Park, they are not using the new bike lane on Ravenswood so it's certainly not benefiting them.</p> <p>I thought when the city took away all the parking spaces on Oak Grove and put in bike lanes, that this was considered a safe bike thoroughfare to downtown Menlo Park. Why are we creating another bike lane a couple of blocks away when it is so disruptive to the traffic and creates unnecessary congestion? Are the planners forgetting that there is going to be a huge complex with many more cars coming to the Ravenswood/Laurel intersection?</p> <p>If we have a safe bike-corridor on Oak Grove, then have bikers use what has been designed and built for them. Let the cars use Ravenswood.</p>
e. Feels much less safe crossing Ravenswood Avenue	Cars having to use just one lane are distracted by navigating that
e. Feels much less safe crossing Ravenswood Avenue	There are way more cars waiting in one line and the line is now always backed up past the pedestrian crosswalk

Has it made your transit trip slower or less reliable?

Impact on transit trip?	Comment

d. Somewhat slower and/or less reliable	Congestion is much worse when the caltrain is passing. The missing car lane makes traffic back up on both sides of Laurel and when the railroad signals are going, it often takes 2 full traffic light cycles before I can turn left. I hate it.
e. Much slower and/or less reliable	It has screwed up traffic and made those who have to get out on Noel a nightmare. As soon as my lease is up I'll move.
e. Much slower and/or less reliable	It was a horrible idea, it creates much more congestion and gives you less time to get in what lane you need to be in at el camino light.

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Public Works

**STAFF REPORT****Complete Streets Commission****Meeting Date:** 4/17/2023**Staff Report Number:** 23-005-CSC

Study Session: Update on El Camino Real Crossings Pedestrian and Bicycle Improvements

Recommendation

Staff is requesting feedback on the proposed pedestrian and bicycle enhancements of crossings of El Camino Real.

Policy Issues

Improvement to El Camino Real crossings are consistent with policies and programs stated in the General Plan Circulation Element, including CIRC 2.8 – Pedestrian Access at Intersections, which identifies support for full pedestrian access across all legs of signalized intersections and other policies (e.g., CIRC-1.7, CIRC-1.8, CIRC-2.7) that seek to maintain a safe, efficient, attractive, user-friendly circulation system that promotes a healthy, safe and active community and quality of life throughout Menlo Park. El Camino Real is classified as a boulevard in the Circulation Element, which includes safe crossings within the description.

Background

In 2015, the City completed the El Camino Real Corridor study, which had two primary findings:

- Pursue buffered bike lanes along El Camino Real
- Complete missing pedestrian crossings at several locations

At the time of implementation, the City Council directed staff to pursue implementation of bicycle lanes on Oak Grove Avenue, before pursuing bicycle lanes on El Camino Real.

After completing the study, the City participated in the Managers Mobility Partnership with Redwood City, Palo Alto, Mountain View, Stanford University, and Joint Venture Silicon Valley. This group developed the Peninsula Bikeway to provide a connection between the cities, including signing an existing route across the four cities (and Atherton) and completing a planning study for a long-term bikeway. That study identified El Camino Real as the best option for a high quality, separated bikeway connecting the four cities.

The City has also been pursuing enhancements to crossings of El Camino Real, including:

- The Stanford Middle Plaza project completed the missing pedestrian crossings of El Camino Real at Middle Avenue and Cambridge Avenue. These crossings opened in April.
- The City Council approved the Middle Avenue complete streets study findings, including pursuing further crossing enhancements at Middle Avenue.
- The City has been working with a consultant to develop engineering designs to complete the remaining missing pedestrian crossings at Roble Avenue, Ravenswood Avenue, and Encinal Avenue.
- Staff have been studying potential additional bicycle and pedestrian crossing enhancements at other

locations.

On May 24, 2022, the City Council adopted Resolution 6376 authorizing staff to pursue a grant from the San Mateo County Transportation Authority (SMCTA) Alternative Commute Reduction and Transportation Demand Management (ACR-TDM) program to construct the missing pedestrian crossing at Ravenswood Avenue. Through this grant program, the City received \$200,000 to support these improvements.

Analysis

Reviewing the Circulation Element, prior planning work, and ongoing design and construction work, staff have identified a potential set of improvements to El Camino Real crossings with the goal of building a complete pedestrian and bicycle network across this significant barrier to active transportation. Staff has identified the following general principles to guide this work:

- Consistent with CIRC 2.8, provide complete pedestrian crossings at each intersection (i.e., pedestrians are able to cross El Camino Real on both sides of the intersection.)
- Provide enhanced bicycle crossings where there are bikeways on both sides of the intersection, with a priority on connecting bike routes that receive significant use by students traveling to school. Two key crossings for bikeway improvements are at Middle Avenue (to connect the in design Middle Avenue undercrossing to the future bike lanes on Middle Avenue) and at Oak Grove Avenue (which has an enhanced bikeway and is signed as the Peninsula Bikeway.)

Attachment A provides a graphical summary of potential El Camino Real crossing improvements, listed in Table 1.

Table 1: Status of El Camino Real pedestrian and bicycle crossing enhancements		
Location	Enhancement	Status
Cambridge Avenue	Complete missing pedestrian crossing	Completed by Middle Plaza development
Middle Avenue	Complete missing pedestrian crossing	Completed by Middle Plaza development
	Enhance intersection to better separate bicycle crossings	Under design as part of Middle Avenue complete streets project
Roble Avenue	Complete missing pedestrian crossing	Design in progress
Ravenswood Avenue	Complete missing pedestrian crossing	Design in progress, SMCTA ACR-TDM grant available for construction
Santa Cruz Avenue	Reduce pedestrian waiting time	Concept identified (Attachment C)
Oak Grove Avenue	Enhance bicycle crossing	Concept identified (Attachment D)
Glenwood Avenue	Mark bicycle lane in intersection	Concept identified (Attachment E)
Encinal Avenue	Complete missing pedestrian crossing	Design in progress

Additional details are provided below for several locations with work currently underway. Staff is seeking feedback from the Complete Streets Commission on the draft concepts prior to advancing projects for construction (Ravenswood Avenue) or more detailed design and potential pursuit of further funding (Santa Cruz and Oak Grove Avenues.)

Roble Avenue

Draft designs have been developed for Roble Avenue as part of the El Camino Real pedestrian crossings design project (Attachment B.) The City applied for third cycle One Bay Area Grant (OBAG-3) funding to implement improvements at this crossing and Encinal Avenue but was not successful.

Ravenswood Avenue

Ravenswood Avenue is the furthest project along of the three remaining El Camino Real intersections that are missing a pedestrian crossing. The City has received funding to implement the additional pedestrian crossing from the SMCTA Alternative Commute Reduction-Transportation Demand Management grant program. The City is currently working with Caltrans on the design of these improvements.

Attachment C provides the draft design documents for this intersection. The design includes:

- An additional pedestrian crossing on the southern leg of the intersection.
- Implementation of a leading pedestrian interval (LPI) as required by California Vehicle Code section 21450.5 as amended in 2022.
- Tighter curb radii to help reduce the speed of turning vehicles and allow for directional pedestrian ramps at each crossing.
- Removal of the right turn pocket on southbound El Camino Real. There is limited right of way at this corner and right turning trucks routinely damage the traffic signal equipment. This also creates a shorter pedestrian crossing.

To meet Caltrans requirements, the City's consultant conducted traffic analysis for the proposed changes at this intersection. Table 2 presents the impact of the changes on delay and level of service and Table 3 presents the impacts on queuing for southbound El Camino Real (the most impacted direction.) The results are presented for existing conditions, for the addition of the crosswalk and LPI, and the incremental increase from the removal of the right turn pocket from El Camino Real southbound to Menlo Avenue. Most of the impact comes from the addition of the crosswalk and the LPI, with the right turn pocket removal only adding a small amount of additional delay and queuing.

Table 2: Delay impacts of Ravenswood/El Camino Real crossing project

Scenario	AM peak hour		PM peak hour	
	Delay	LOS	Delay	LOS
Existing Conditions	43.8	D	46.2	D
Added crosswalk and LPI	59.7 (+5.9)	E	54.0 (+7.8)	D
Added crosswalk, LPI, and bulb out	62.8 (+3.1)	E	55.0 (+1.0)	D
Note: Change in delay relative to the prior scenario shown in italics.				

Table 3: Vehicle queuing on southbound El Camino Real

Lane	AM Peak Hour			PM Peak Hour		
	Left turn	Through	Right turn	Left turn	Through	Right turn
Storage	240	340	80	240	340	80
Existing Conditions	203	719	7	273	458	40
Added crosswalk and LPI	203 (0)	983 (+264)	0 (-7)	318 (+45)	525 (+67)	19 (-21)
Added crosswalk, LPI, and bulb out	203 (0)	1013 (+30)	Removed (0)	318 (+0)	574 (+49)	Removed (-19)
Note: Queuing measurement shown in feet (~ 20 feet per vehicle). Change in queuing relative to prior scenario shown in italics.						

In addition to these improvements, the Ravenswood Resurfacing project that is starting construction in April 2023 will extend the westbound bicycle lanes along Ravenswood all the way to El Camino Real.

Santa Cruz Avenue

Santa Cruz Avenue is the heart of the City's downtown and is heavily traveled by people walking and bicycling. While a portion of the street remains closed to through traffic, vehicle access exists in both directions at El Camino Real.

The current lane configuration of Santa Cruz Avenue at El Camino Real in each direction has a right turn lane, through lane, left turn lane, and receiving through lane for the other direction. Santa Cruz Avenue does not travel through past the railroad tracks and traffic volumes are generally lower at this crossing compared to Ravenswood Avenue and Oak Grove Avenue (even when the street was fully open to vehicles.) The design of the signal system here is inefficient, with each direction of Santa Cruz Avenue operating in its own phase.

Staff are exploring modifying the lane sections (Attachment C) to be one left turn lane, one combined through and right turn lane, and one receiving lane.) This could enable the left turn phase of each direction of Santa Cruz to occur at the same time and would allow the pedestrian phases of each crossing to occur simultaneously. Because pedestrian crossing phases are the longest phase for these crossing, this would make the overall signal operation more efficient for all users.

In place of the existing right turn lanes, staff recommends installing bulb outs to highlight the pedestrian-focused nature of Santa Cruz Avenue. These bulbouts could initially be installed using temporary materials if there was a desire to pilot that improvements, though the signal efficiency benefits would require more substantial changes to the detection equipment.

Oak Grove Avenue

Oak Grove Avenue is a key crossing of El Camino Real for bicyclists. The current Peninsula Bikeway is signed along Oak Grove Avenue and the street is used by many students bicycling to Hillview Middle School and Menlo-Atherton High School.

Like Santa Cruz Avenue, the lane alignment of the intersection of Oak Grove Avenue with El Camino Real has a right turn lane, bike lane, through lane, left turn, and receiving vehicle and bike lanes. In this configuration, the lanes shift as they cross the intersection, requiring bicyclists and vehicles to travel with caution to avoid collisions. Staff have received feedback from members of the City's Safe Routes to School

Task Force asking for improvements to this crossing.

Staff are recommending to consolidate the lanes to be a protected bicycle lane, combined right turn/through lane, left turn lane, and receiving vehicle and bicycle lanes (Attachment D.) This reconfiguration would create a more direct path of travel for all users of the intersection and would provide better defined, separate space for bicyclists. Staff are also recommending enhanced pavement markings across the intersection and could consider evaluating signal improvements, such as a bicycle signal, to further reduce conflicts between right turning vehicles and bicyclists.

Staff are also aware of two recent collisions between bicyclists and left turning vehicles at Oak Grove Avenue and Maloney Lane. Staff recommends restricting movements at this location to be right in, right out only to address these issues. That could be achieved by installing signage and a small raised median at the intersection.

Glenwood Avenue/Valparaiso Avenue

The Glenwood Avenue/Valparaiso Avenue crossing of El Camino Real is substantially skewed. Unlike Oak Grove Avenue and Santa Cruz Avenue, reconfiguring the vehicle capacity of these streets would not produce benefits of improved signal operations or pedestrian and bicycle safety. Valparaiso Avenue also has double left turn to El Camino Real, providing a significant connection. At this location, staff are recommending adding bike lane conflict striping across El Camino Real. Because of the offset intersection, Glenwood Avenue and Valparaiso Avenue will continue to operate in their own signal phase, so the primary conflicting movements for people walking and bicycling across El Camino Real are from right turns.

Encinal Avenue

Draft designs have been developed to add the missing pedestrian crossing at Encinal Avenue as part of the El Camino Real pedestrian crossings design project (Attachment F.) The City applied for third cycle One Bay Area Grant (OBAG-3) funding to implement improvements at this crossing and Encinal Avenue but was not successful.

Impact on City Resources

This work has been conducted using resources allocated by City Council. The project to add the missing pedestrian crossing of El Camino Real at Ravenswood Avenue is included in the City's capital improvement plan and will be funded, in part, by the SMCTA ACR-TDM grant received in 2022. Additional work on the design and implementation of improvements at Santa Cruz Avenue or Oak Grove Avenue would require further allocation of resources by City Council in a future budget.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§ 15378 and 15061(b)(3) as it will not result in any direct or indirect physical change in the environment.

Projects at some of the crossings summarized in this staff report have undergone or will undergo separate environmental review as needed.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72

hours prior to the meeting.


Attachments


- A. Summary of pedestrian and bicycle crossing improvements of El Camino Real
- B. 65% design plans for Roble Avenue-El Camino Real pedestrian crossing enhancement
- C. 90% design plans for Ravenswood-El Camino Real pedestrian crossing enhancement
- D. Concept for Santa Cruz Avenue-El Camino Real pedestrian crossing enhancement
- E. Concept for Oak Grove Avenue-El Camino Real bicycle crossing enhancement
- F. Concept for Glenwood Avenue-El Camino Real bicycle marking
- G. 65% design plans for Encinal Avenue-El Camino Real pedestrian crossing enhancement


Report prepared by:

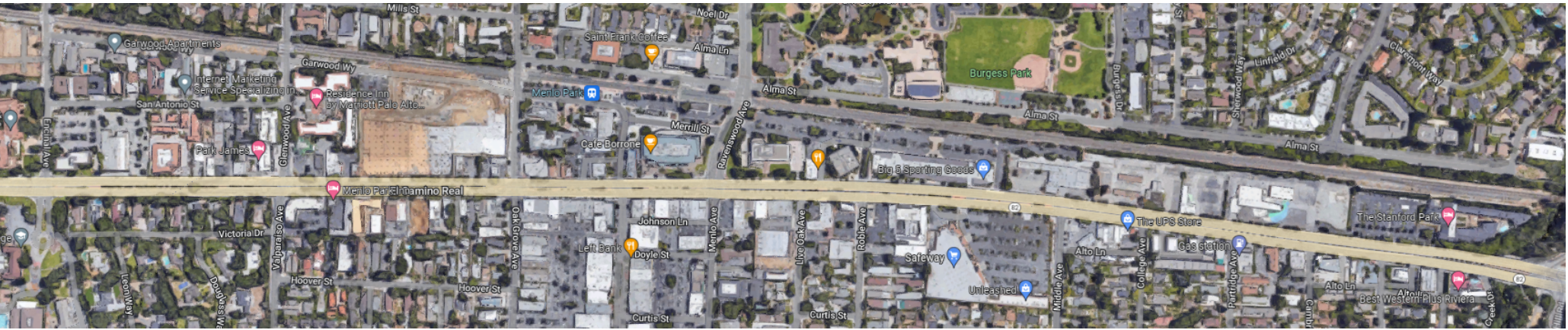
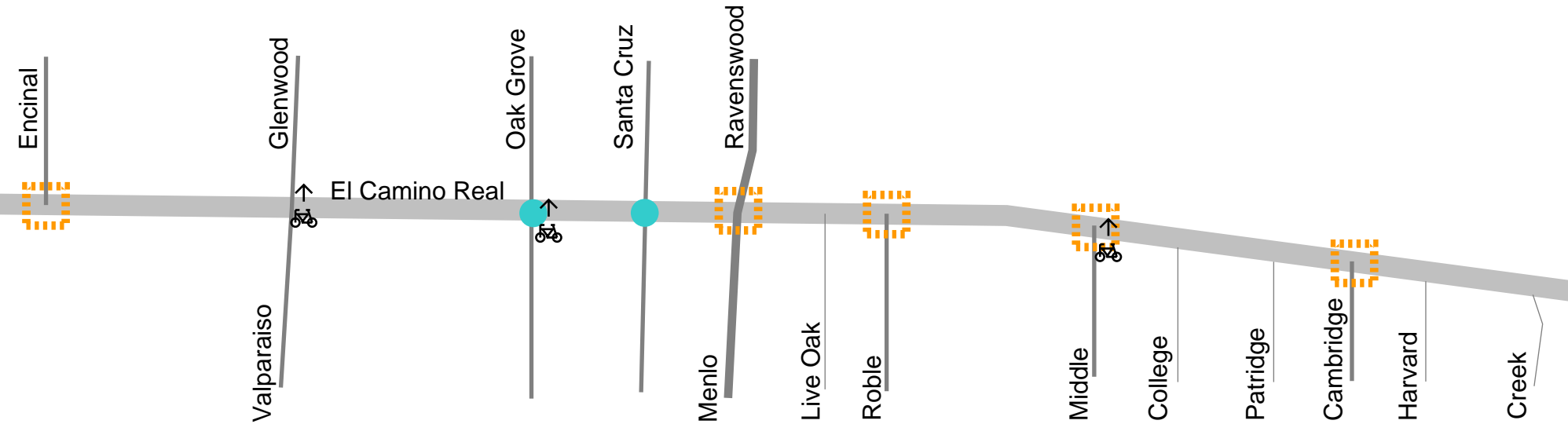
Hugh Louch, Assistant Public Works Director – Transportation

El Camino Real Crossing Improvements

 Complete missing pedestrian crossing

 Explore lane reductions on cross street

 Bikeway crossing improvements



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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	82	0.558,0.685,1.272	5	22

JCH

7/28/22
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

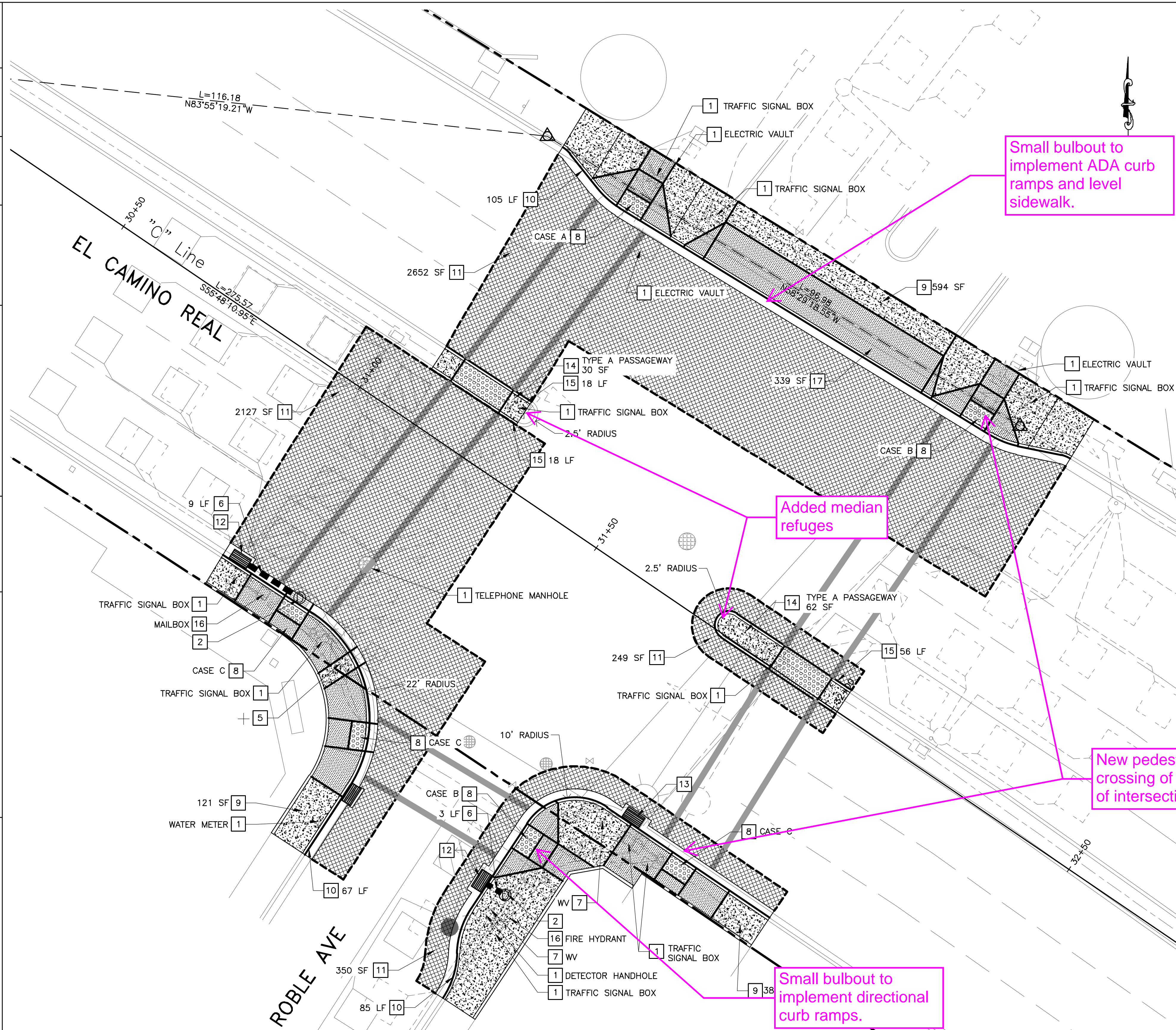
REGISTERED PROFESSIONAL ENGINEER
GEORGE H. WILLIAMS
No.C 70058
CIVIL
STATE OF CALIFORNIA

CONSTRUCTION NOTES:

- 1 ADJUST UTILITY COVER TO GRADE PER STANDARD DETAIL A88A, SEE SHEET 10 FOR DETAIL.
- 2 CONVERT INLET TO MANHOLE PER DETAIL 1, SHEET 11
- 3 EXISTING CURB RAMP TO REMAIN.
- 4 PROTECT IN PLACE.
- 5 REMOVE EXISTING TYPE I PEDESTRIAN BARRICADE.
- 6 INSTALL 12" RCP STORM DRAIN PER CALTRANS 2018 STANDARD DETAIL
- 7 RAISE WATER VALVE
- 8 CONSTRUCT CURB RAMP PER CALTRANS 2018 STANDARD DETAIL A88A, SEE SHEET 10 FOR DETAIL.
- 9 CONSTRUCT SIDEWALK PER CITY STANDARD DETAIL CG-3, SEE SHEET 12 FOR DETAIL.
- 10 CONSTRUCT CURB & GUTTER PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 12 FOR DETAIL.
- 11 CONSTRUCT 12" AC PAVEMENT SECTION PER CALTRANS 2018 STANDARD DETAIL A87B, SEE SHEET 12 FOR DETAIL.
- 12 INSTALL STORM DRAIN CURB INLET PER CALTRANS 2018 STANDARD DETAIL D72B (TYPE G3), SEE SHEET 11 FOR DETAIL.
- 13 ADJUST TO GRADE
- 14 CONSTRUCT RAISED ISLAND PER CALTRANS STANDARD DETAIL A88B, SEE SHEET 10 FOR DETAIL.
- 15 CONSTRUCT CURB PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 12 FOR DETAIL.
- 16 RESET EXISTING STRUCTURE.
- 17 CONSTRUCT DRIVEWAY PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 12 FOR DETAIL.

NOTES:

1. ALL CURB RAMPS SHALL COMPLY WITH THE MAXIMUM SLOPES, MINIMUM DIMENSIONS, DETECTABLE WARNING SURFACE, AND OTHER MISCELLANEOUS REQUIREMENTS PER CALTRANS STANDARD DETAILS A88A AND A88B, SEE SHEET 10 FOR DETAILS.
2. COUNTER SLOPE ADJOINING GUTTERS AND PAVEMENT WITH 24" OF CURB RAMP SHALL NOT BE GREATER THAN 5% (TYPICAL FOR ALL CURB RAMPS).
3. SIDEWALK DETAIL SHALL COMPLY WITH CITY STANDARD DETAIL CG-3.
4. REMOVE AND REPLACE PCC AND CONFORM TO EXISTING SIDEWALK AND CURB & GUTTER AT NEAREST SCORELINE/CONSTRUCTION JOINT.
5. SCORE LINE PATTERNS ON NEW SIDEWALK SHALL MATCH EXISTING ON ADJACENT SIDEWALK.
6. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT PRIOR TO THE START OF CONSTRUCTION.
7. MAINTAIN EXISTING CURB RETURN RADIUS AND FLOW LINE ALIGNMENT, UNLESS NOTED OTHERWISE.
8. CONTRACTOR TO COORDINATE WITH IMPACTED UTILITY FACILITY COMPANIES PRIOR TO THE START OF CONSTRUCTION.
9. EXISTING LANDSCAPE OR LAWN, IRRIGATION SYSTEM SHALL BE ADJUSTED ACCORDINGLY TO FIT NEW CURB RAMP OR PASSAGEWAY.
10. ALL MANHOLES, VALVES AND PULL BOXES WITHIN THE LIMIT OF CONCRETE IMPROVEMENT SHALL BE ADJUSTED TO FINAL GRADE.
11. ALL IMPROVEMENTS SHALL BE WITHIN CITY RIGHT OF WAY, UNLESS OTHERWISE NOTED.
12. ALL TRAFFIC SIGNAL RELATED COMPONENTS OF PROJECT ARE FURTHER SPECIFIED WITHIN THE TRAFFIC SIGNAL MODIFICATION PLANS IN THIS PLAN SET.



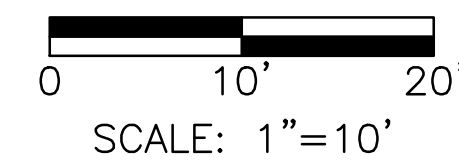
Small bulbout to implement ADA curb ramps and level sidewalk.

Added median
refuges

New pedestrian crossing of south side of intersection

Small bulbout to implement directional curb ramps.

LOCATION 3 – ROBLE AVE & EL CAMINO REAL INTERSECTION
SCALE: 1"=10'



IMPROVEMENT PLANS
ROBLE AVE
SCALE: AS SHOWN C-4

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STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED—DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED



Know what's below.
Call before you dig.

USERNAME =>hebam
DGN FILE => C2 - IM.DWG

BORDER LAST REVISED 7/2/2010

RELATIVE BORDER SCALE
IS IN INCHES

0 1 2 3

UNIT 0716

PROJECT NUMBER & PHASE


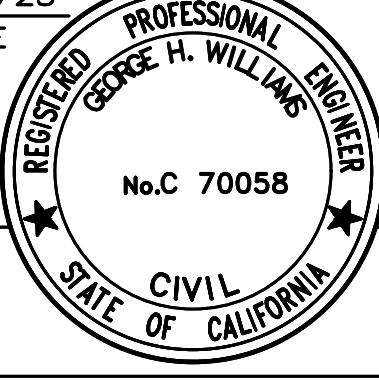
XXXXXXXXXX

C-2

DATE PLOTTED => 10 January 2023
TIME PLOTTED => 16:45
LAST REVISION
5-6-21

LEGEND:

- CONCRETE CURB & GUTTER
- RETAINING CURB
- CONCRETE SIDEWALK
- COBBLESTONE
- CONCRETE CURB RAMP
- DETECTABLE WARNING SURFACE
- 12" AC PAVEMENT SECTION
- SAW CUT
- RIGHT-OF-WAY LINE
- SURVEY BENCHMARK

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	82	0.685	3	12
 REGISTERED CIVIL ENGINEER			1/11/23 DATE		
PLANS APPROVAL DATE					
<p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>					
CSG CONSULTANTS, INC 550 PILGRIM DR FOSTER CITY, CA 94404			CITY OF MENLO PARK 701 LAUREL ST MENLO PARK, CA 94025		

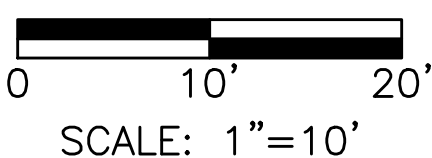
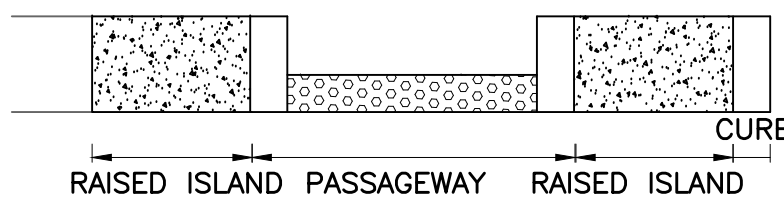
CONSTRUCTION NOTES:

- ADJUST UTILITY COVER TO GRADE.
- CONVERT INLET TO MANHOLE PER DETAIL 1, SHEET 6.
- PROTECT IN PLACE.
- REMOVE EXISTING TYPE I PEDESTRIAN BARRICADE.
- INSTALL 12" RCP STORM DRAIN. TRENCH BACKFILL SHALL BE PER CITY STANDARDS DRAWINGS NO ST-9A. AT LOCATION WHERE STORM DRAIN LATERAL IS ROUTED UNDER NEW SIDEWALK, THE SIDEWALK SECTION SHALL BE INSTALLED OVER THE TRENCH BACKFILL SECTION.
- ADJUST WATER VALVE COVER TO GRADE.
- CONSTRUCT CURB RAMP PER CALTRANS 2018 STANDARD DETAIL A88A, SEE SHEET 5 FOR DETAIL.
- CONSTRUCT SIDEWALK PER CITY STANDARD DETAIL CG-3, SEE SHEET 7 FOR DETAIL.
- CONSTRUCT CURB & GUTTER TYPE A2-6 PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 7 FOR DETAIL.
- CONSTRUCT 12" AC PAVEMENT SECTION PER DETAIL 1, SEE SHEET 7.
- INSTALL STORM DRAIN CURB INLET PER CALTRANS 2018 STANDARD DETAIL D72B (TYPE G3), SEE SHEET 6 FOR DETAIL.
- CONSTRUCT RAISED ISLAND PER CALTRANS STANDARD DETAIL A88B, SEE SHEET 5 FOR DETAIL.
- CONSTRUCT CURB TYPE A1-6 PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 7 FOR DETAIL.
- CONSTRUCT RETAINING CURB TYPE A1-6 PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 7 FOR DETAIL.
- CONSTRUCT COBBLESTONE.
- RELOCATE WATER VALVE.

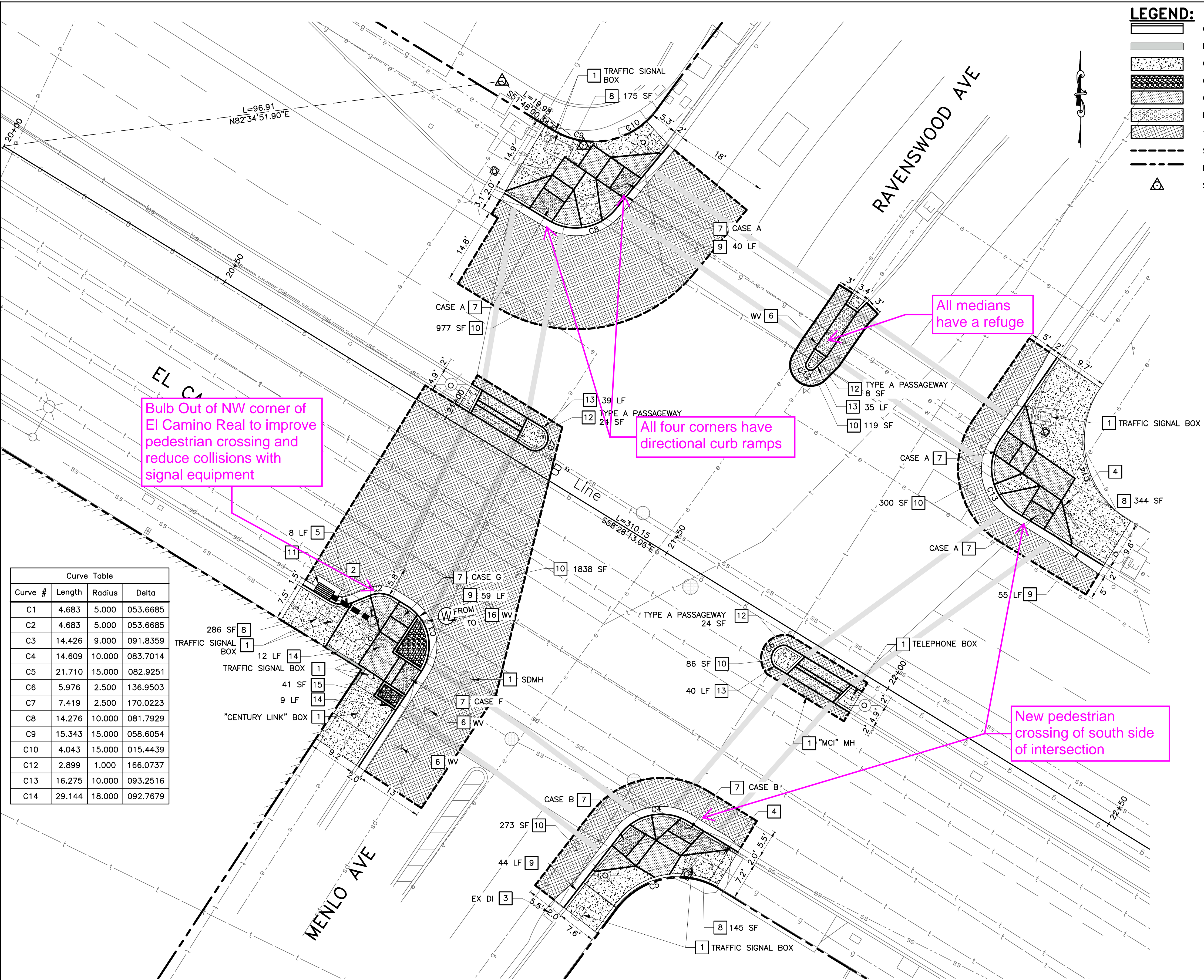
NOTES:

- ALL CURB RAMPS SHALL COMPLY WITH THE MAXIMUM SLOPES, MINIMUM DIMENSIONS, DETECTABLE WARNING SURFACE, AND OTHER MISCELLANEOUS REQUIREMENTS PER CALTRANS STANDARD DETAILS A88A AND A88B, SEE SHEET 10 FOR DETAILS.
- COUNTER SLOPE ADJOINING GUTTERS AND PAVEMENT WITH 24" OF CURB RAMP SHALL NOT BE GREATER THAN 5% (TYPICAL FOR ALL CURB RAMPS).
- SIDEWALK DETAIL SHALL COMPLY WITH CITY STANDARD DETAIL CG-3.
- REMOVE AND REPLACE PCC AND CONFORM TO EXISTING SIDEWALK AND CURB & GUTTER AT NEAREST SCORELINE/CONSTRUCTION JOINT.
- SCORE LINE PATTERNS ON NEW SIDEWALK SHALL MATCH EXISTING ON ADJACENT SIDEWALK.
- CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT PRIOR TO THE START OF CONSTRUCTION.
- MAINTAIN EXISTING CURB RETURN RADIUS AND FLOW LINE ALIGNMENT, UNLESS NOTED OTHERWISE.
- CONTRACTOR TO COORDINATE WITH IMPACTED UTILITY FACILITY COMPANIES PRIOR TO THE START OF CONSTRUCTION.
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- ALL MANHOLES, VALVES AND PULL BOXES WITHIN THE LIMIT OF CONCRETE IMPROVEMENT SHALL BE ADJUSTED TO FINAL GRADE.
- ALL IMPROVEMENTS SHALL BE WITHIN CITY RIGHT OF WAY, UNLESS OTHERWISE NOTED.
- ALL TRAFFIC SIGNAL RELATED COMPONENTS OF PROJECT ARE FURTHER SPECIFIED WITHIN THE TRAFFIC SIGNAL MODIFICATION PLANS IN THIS PLAN SET.

PAYMENT QUANTITY:



IMPROVEMENT PLANS
RAVENSWOOD AVE/MENLO AVE
SCALE: AS SHOWN



Bulb Out of NW corner of El Camino Real to improve pedestrian crossing and reduce collisions with signal equipment

All four corners have directional curb ramps

All medians have a refuge

New pedestrian crossing of south side of intersection

LOCATION 2 - RAVENSWOOD AVE & EL CAMINO REAL INTERSECTION

SCALE: 1"=10'

CALTRANS PERMIT SUBMITTAL 1/11/23

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Santa Cruz Avenue
Crossing improvement
concept

- 1

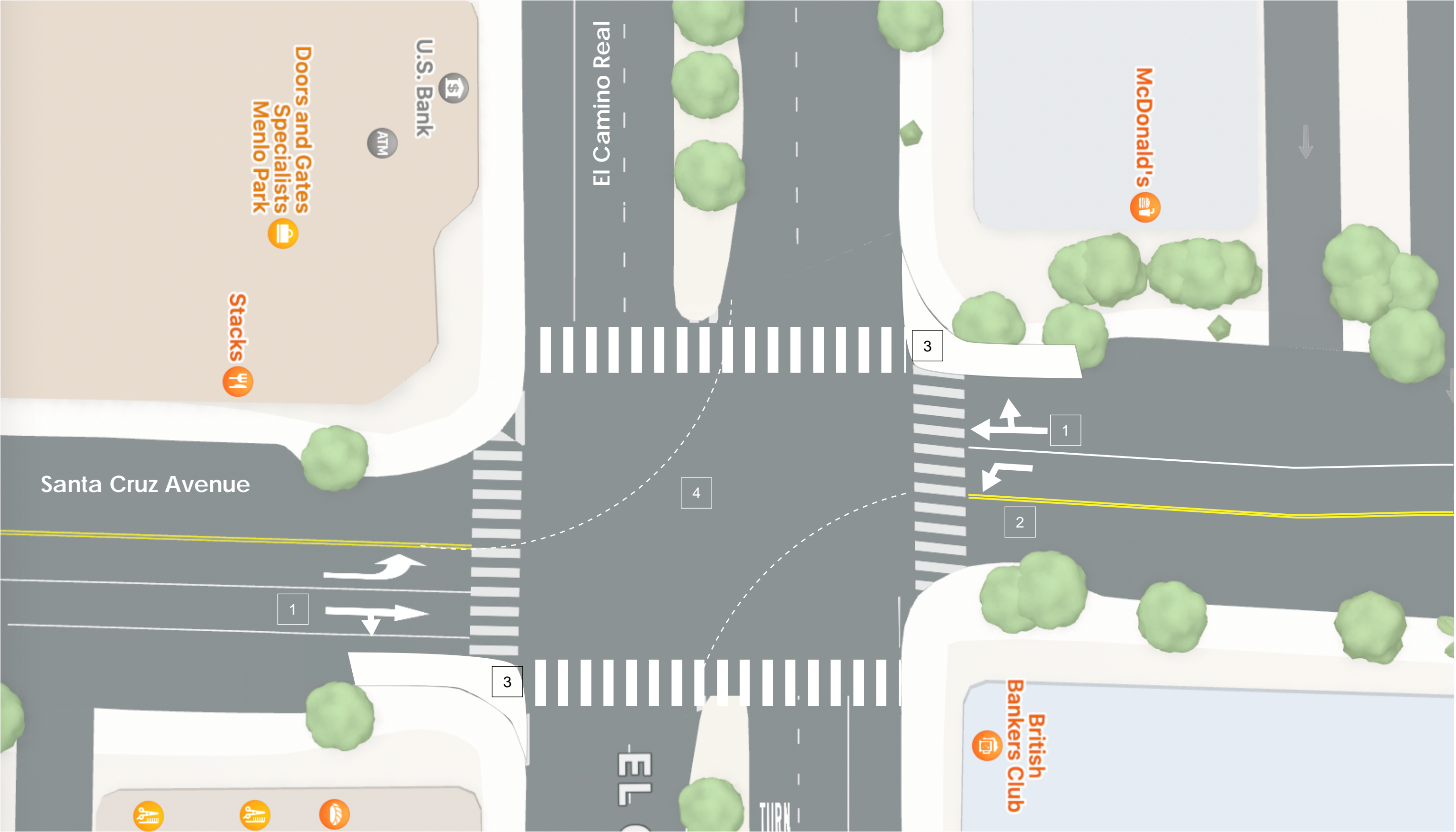
Combine through and right turn lanes
- 2

Shift centerline, allow left turns in same signal phase

- 3

Bulb outs on two corners, straighten crosswalks
- 4

Provide guide markings for left tuns



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Oak Grove Avenue crossing improvement concept

- 1 Combine through and right turn lanes
- 2 Shift centerline on to allow left turns in the same phase

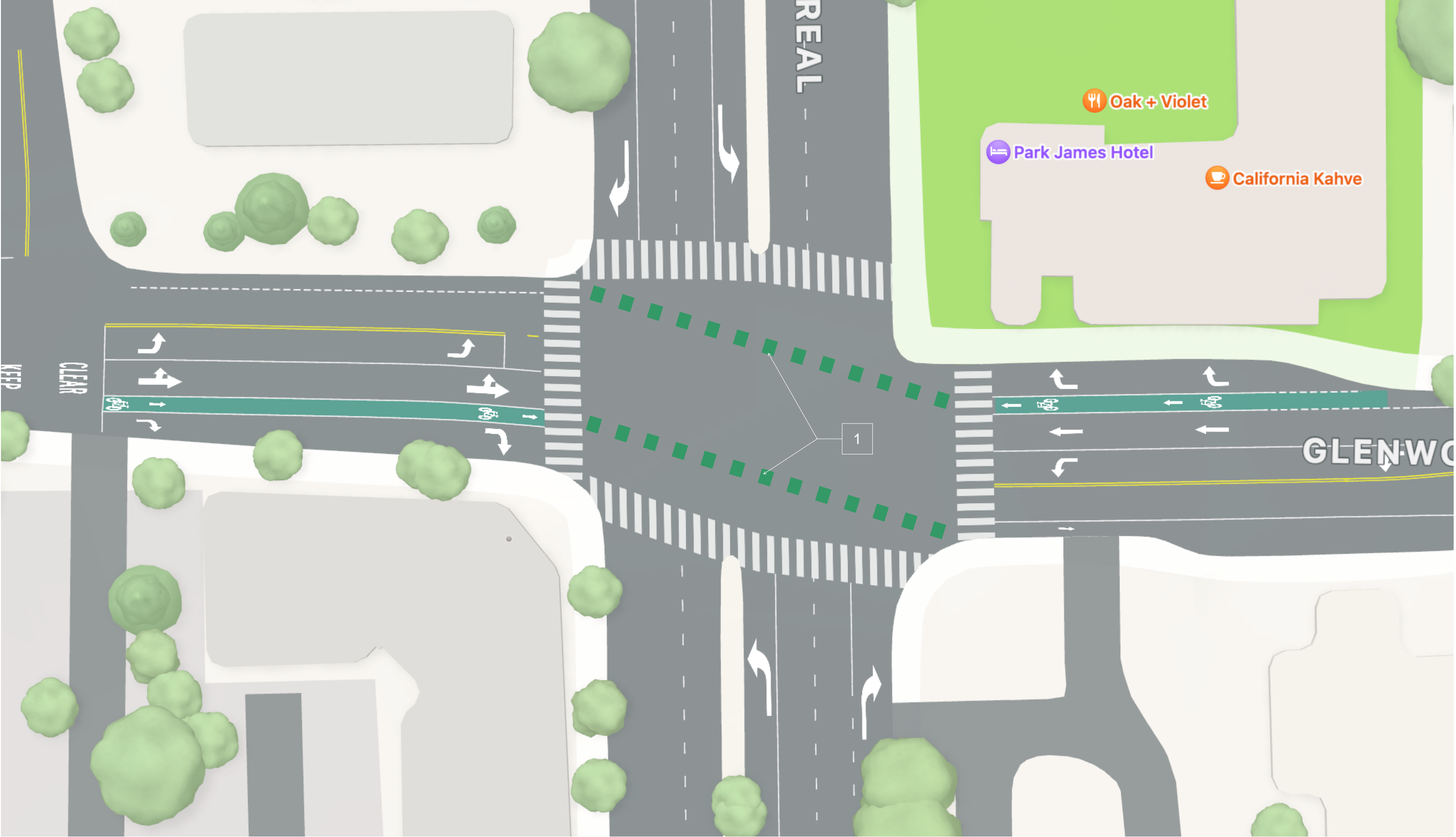
- 3 Align bikeway crossings for clearer travel across the intersection
- 4 Install separation on Oak Grove bike lanes at intersection, add R10-15 sign, potential bike signal



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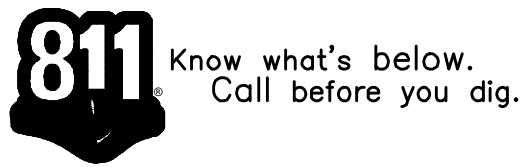
Glenwood Avenue
crossing improvement
concept

1 Stripe bike lane through intersection



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STATE OF CALIFORNIA	DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED— DESIGNED BY	CHECKED BY	REVISOR	DATE



BORDER LAST REVISED 7/2/2010

USERNAME =>kareema
DGN FILE => C4 TO C6 - IM.DWG

RELATIVE BORDER SCALE
IS IN INCHES

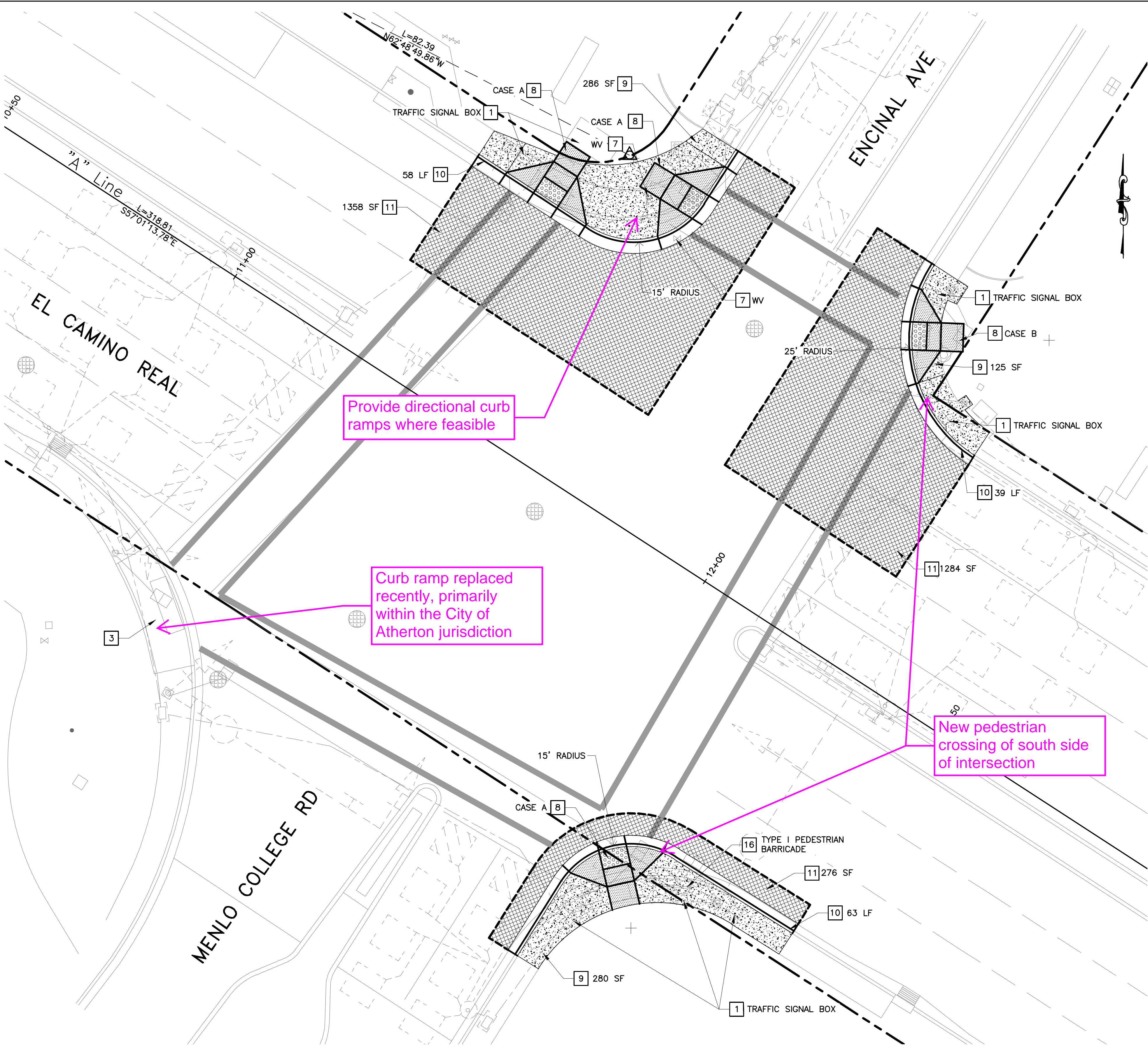


UNIT 0716

PROJECT NUMBER & PHASE

XXXXXXXXXX

C-6



LOCATION 1 – ENCINAL AVE & EL CAMINO REAL INTERSECTION

SCALE: 1"=10'

LEGEND:

- CONCRETE CURB & GUTTER
- CONCRETE SIDEWALK
- CONCRETE CURB RAMP
- DETECTABLE WARNING SURFACE
- 12" AC PAVEMENT SECTION
- SAW CUT
- RIGHT-OF-WAY LINE
- SURVEY BENCHMARK

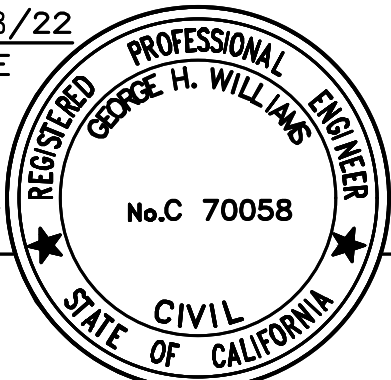
CONSTRUCTION NOTES:

- ADJUST UTILITY COVER TO GRADE PER CITY STANDARD DETAIL A88A, SEE SHEET 10 FOR DETAIL.
- CONVERT INLET TO MANHOLE PER DETAIL 1, SHEET 11
- EXISTING CURB RAMP TO REMAIN.
- PROTECT IN PLACE.
- REMOVE EXISTING TYPE I PEDESTRIAN BARRICADE.
- INSTALL 12" RCP STORM DRAIN PER CALTRANS 2018 STANDARD DETAIL
- RAISE WATER VALVE
- CONSTRUCT CURB RAMP PER CALTRANS 2018 STANDARD DETAIL A88A, SEE SHEET 10 FOR DETAIL.
- CONSTRUCT SIDEWALK PER CITY STANDARD DETAIL CG-3, SEE SHEET 12 FOR DETAIL.
- CONSTRUCT CURB & GUTTER PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 12 FOR DETAIL.
- CONSTRUCT 12" AC PAVEMENT SECTION PER CALTRANS 2018 STANDARD DETAIL A87B, SEE SHEET 12 FOR DETAIL.
- INSTALL STORM DRAIN CURB INLET PER CALTRANS 2018 STANDARD DETAIL D72B (TYPE G3), SEE SHEET 11 FOR DETAIL.
- ADJUST TO GRADE
- CONSTRUCT RAISED ISLAND PER CALTRANS STANDARD DETAIL A88B, SEE SHEET 10 FOR DETAIL.
- CONSTRUCT CURB PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 12 FOR DETAIL.
- RESET EXISTING STRUCTURE.
- CONSTRUCT DRIVEWAY PER CALTRANS 2018 STANDARD DETAIL A87A, SEE SHEET 12 FOR DETAIL.

NOTES:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	82	0.558,0.685,1.272	7	22
REGISTERED CIVIL ENGINEER			7/28/22	DATE	
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
CSG CONSULTANTS, INC 550 PILGRIM DR FOSTER CITY, CA 94404			CITY OF MENLO PARK 701 LAUREL ST MENLO PARK, CA 94025		



DATE PLOTTED => 20 July 2022
TIME PLOTTED => 10:27
LAST REVISION
5-6-21

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