

# NORTH FAIR OAKS

## BICYCLE AND PEDESTRIAN RAILROAD CROSSING AND COMMUNITY CONNECTIONS STUDY



# FINAL REPORT

*FEBRUARY 2024*





# TABLE OF CONTENTS

Acknowledgments ..... v

Acronyms and Glossary ..... vi

Study Overview ..... ES-1

Study Approach..... ES-2

Railroad Crossing Options Development Process..... ES-3

Outreach Overview ..... ES-4

Conclusions and Next Steps ..... ES-5

Introduction ..... 1

Project Need and Background..... 1

Study Area ..... 1

Previous Planning Efforts ..... 1

Project Goals ..... 2

Study Approach ..... 2

Baseline Conditions..... 3

Existing/Planned Transportation Network ..... 3

Middlefield Junction Affordable Housing Project..... 3

Utilities ..... 3

Transportation Network Improvements..... 3

Community Outreach Round 1 ..... 5

Project Priorities and Evaluation..... 6

Option Development and Evaluation ..... 6

Evaluation Considerations ..... 6

Evaluation Criteria..... 7

Rail Crossing Options Selected for Evaluation ..... 7

Rail Crossing Options..... 8

Option A: Dumbarton Avenue Tunnel..... 8

Option B: Dumbarton Avenue Bridge..... 9

Option C: Middlefield Junction Bridge..... 10

Community Connections..... 11

Recommendation Development ..... 11

Community Connections Improvements ..... 14

Option Evaluation ..... 15

Options Evaluation Summary..... 15

Community Outreach Round 2 ..... 16

Implementation Considerations ..... 17

Bridge Constructability Review..... 17

Community Outreach Round 3 ..... 17

Study Considerations ..... 18

Complexities Associated with a Potential Rail Crossing ..... 18

Considerations for Community Connections Improvements ..... 19

## LIST OF FIGURES

Executive Summary

Figure 1: Study Area Map..... ES-1

Figure 2: Rail Crossing Options Map ..... ES-3

Report

Figure 3: Study Area Map..... 1

Figure 4: Transportation Network Overview ..... 4

Figure 5: Pop-Up Event Map – Outreach Round 1..... 5

Figure 6: Option Location Map ..... 7

Figure 7: Proposed Community Connections Improvements – Option A ..... 11

Figure 8: Proposed Community Connections Improvements – Option B ..... 12

Figure 9: Proposed Community Connections Improvements – Option C ..... 13

Figure 10: Community Connections Preferences Among Survey Respondents..... 14

Figure 11: Projected Cost of Options ..... 15

Figure 12: Pop-Up Event Map – Outreach Round 2..... 16

Figure 13: Crossing Preference of Study Area Residents ..... 16

Figure 14: Survey Respondent Demographics ..... 16

## LIST OF TABLES

Report

Table 1: Options Evaluation Criteria Table ..... 7

Table 2: Options Evaluation Summary Table..... 15





# APPENDICES

Appendix A – Existing Conditions Memorandum

Appendix B – Community Outreach Round 1 Summary

Appendix C – Goals and Evaluation Criteria Memorandum

Appendix D – Concept Plans

Appendix E – Community Outreach Round 2 Summary

Appendix F – Bridge Constructability Review

Appendix G – Community Outreach Round 3 Summary

Appendix H – Option Analysis Presentation

Appendix I – Potential Funding Sources

Appendix J – Answers to Common Questions



**NORTH  
FAIR OAKS**

BICYCLE AND PEDESTRIAN RAILROAD CROSSING  
AND COMMUNITY CONNECTIONS STUDY



# ACKNOWLEDGMENTS





## ACKNOWLEDGMENTS

### *San Mateo County Board of Supervisors*

- Dave Pine, District 1
- Noelia Corzo, District 2
- Ray Mueller, District 3
- Warren Slocum, District 4
- David Canepa, District 5

### *San Mateo County Advisory Bodies*

#### **North Fair Oaks Community Council**

- Brooks Esser, Chair
- Blair Whitney, Vice-Chair
- Kathleen Daly
- Juan Carlos Prado
- Everardo Rodriguez
- Jennifer Ruiz
- Niket Sirsi

#### **San Mateo County Planning Commission**

- Kumkum Gupta
- Frederick Hansson
- Lisa Ketcham
- Manuel Ramirez Jr.
- Carlos Serrano-Quan

#### **San Mateo County Bicycle and Pedestrian Advisory Committee**

- Cristina Aquino
- Michael Barnes
- William Kelly
- John Langbein
- Mark Lee
- Elaine Salinger
- Annie Tsai
- Fred Zyda

### *San Mateo County Staff Project Team*

#### **Sustainability Department**

- Joel Slavitt, Study Project Manager/ Senior Sustainability Specialist
- Jessica Stanfill Mullin, Program Manager
- Karen Wang, Communications Officer
- Rachael Londer, Senior Sustainability Specialist
- Vanessa Castro, Sustainability Specialist

#### **Office of Community Affairs**

- Emma Gonzalez, Program Services Manager II
- Cesia Velasquez Berg, Associate Management Analyst
- Kenny Chu, Senior Community Program Specialist

#### **Planning and Building Department**

- Bharat Singh, Planning Services Manager
- Chanda Singh, Senior Transportation Planner
- Will Gibson, Planner III
- Richard Vallejos, GIS Specialist/IT Analyst

#### **Public Works Department**

- Khoa Vo, Deputy Director
- Hanieh Houshmandi, Associate Civil Engineer
- Tim Cheng, Associate Civil Engineer

#### **Supervisor Slocum's Office**

- Maggie Cornejo, Legislative Aide

### *Technical Advisory Committee*

#### **County Health Policy & Planning**

- Tamarra Jones, Director
- Liz Sanchez, Community Program Specialist

#### **County Department of Housing**

- Bryan Briggs, Housing & Community Development Supervisor
- Tim Ponti, Housing/Community Development Specialist

#### **County Office of Equity**

- Belén Seara, Equity and Belonging Manager

#### **County Real Property Services**

- Caroline Shaker, Real Property Services Manager

#### **County Sheriff's Office**

- Salvador Zuno, Sheriff's Sergeant

#### **California Department of Transportation (Caltrans)**

- Hunter Oatman-Stanford, Associate Transportation Planner
- Joel Mandella, Associate Transportation Planner
- Jake Freedman, Associate Transportation Planner

#### **California High Speed Rail Authority**

- Kelly Doyle, Supervising Transportation Planner

#### **City/County Association of Governments**

- Susy Kalkin, Transportation Program Coordinator

#### **City of Redwood City**

- Malahat Owrang, Senior Transportation Planner

#### **County Office of Education**

- Nina Garde, Safe Routes to School Coordinator

#### **Menlo Park Fire Protection District**

- Jon Johnston, Fire Marshal

#### **Peninsula Corridor Joint Powers Board**

- Nicole Soultanov, Deputy Director
- Lyne-Marie Bouvet, Principal Planner

#### **San Francisco Public Utilities Commission**

- John Fournet, Community Liaison

#### **SamTrans**

- Jonathen Steketee, Operations Planning Manager
- Justin Horng, Senior Transportation Planner

### *Community Advisory Committee*

- Jose Luis Aguirre, Community Alliance to Revitalize Our Neighborhoods (CARON)
- Ana Avendano, El Concilio
- Patricia Cordona, Familia Cristiana Verbo
- Veronica Escamez, Casa Circulo Cultural
- Joel Flores, Siena Youth Center
- Iliana Garcia, Redwood City Police Activities League
- Josh Griffith, Redwood City School District
- Sandhya Laddha, Silicon Valley Bicycle Coalition
- Mary Martinez, Fair Oaks Community Center
- Josue Revolorio, Multicultural Institute
- Ever Rodriguez, North Fair Oaks Community Alliance
- Peter Shih, Fair Oaks Health Center
- Edgar Tenorio, Siena Youth Center
- Blair Whitney, North Fair Oaks Community Council
- Fred Zyda, San Mateo County Bicycle and Pedestrian Advisory Committee Chair

### *Consultant Team*

- Biggs Cardosa Associates
- Kimley-Horn
- Nelson-Nygaard
- Nuestra Casa
- Parikh

Prepared by:

**Kimley»Horn**  
Expect More. Experience Better.

In Partnership with:



**COUNTY OF SAN MATEO**  
PLANNING AND BUILDING







ACRONYMS AND GLOSSARY

Acronyms

- ADA** – Americans with Disabilities Act
- CAC** – Community Advisory Committee
- OCS** – Overhead Contact System
- PG&E** – Pacific Gas and Electric Company
- SFPUC** – San Francisco Public Utilities Commission
- TAC** – Technical Advisory Committee

Glossary

- Americans with Disabilities Act (ADA)** – A federal law that prohibits discrimination against people with disabilities in several areas, including employment, transportation, public accommodations, communications and access to state and local government’ programs and services.
- Bicycle Boulevard** – Streets with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority.
- Class I Bikeway** – Two-way shared use path that is physically separated from motor vehicle traffic and used exclusively for bicyclists, pedestrians and other nonmotorized users.
- Class II Bikeway** – Bike lanes that provide an exclusive space for bicyclists in the roadway with painted lines and symbols on the roadway surface.
- Class III Bikeway** – Bike routes that are shared with motor vehicle traffic and demarcated with signage and/or shared lane markings.
- Class IV Bikeway** – Bike lanes that are separated from motor vehicle traffic with vertical and horizontal features that provide the greatest separation of on-street bikeway types.

- Contra-flow Bikeway** – Bikeway designed to allow bicyclists to ride in the opposite direction of motor vehicle traffic.
- Grade-separated bicycle and pedestrian railroad crossing** – A bicycle and pedestrian crossing that may be either over or under railroad tracks.
- Green Infrastructure** – Infrastructure that uses vegetation, soils, and natural processes to manage water and create healthier urban environments.
- Overhead Contact System (OCS)** – A power distribution system that delivers power to electric trains, such as those that are planned to operate on the Caltrain Corridor, and streetcars.
- Pedestrian Hybrid Beacon (PHB)** – A type of traffic control device intended to allow pedestrian and bicyclists to stop traffic to cross high-volume or high-speed arterial streets.
- Rectangular Rapid Flashing Beacon (RRFB)** – A type of traffic control device that combines a pedestrian crossing sign with a bright flashing indication that is pedestrian-activated. RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at a crossing to drivers. RRFBs are generally used on roads with lower-traffic volume or speed than PHBs, and while intended for pedestrians, may also benefit bicyclists.

**Two Stage Turn Queue Box** – A bike box is a designated area at the approach to a signalized intersection to wait in front of stopped motor vehicles during the red signal phase. Two-stage turn queue boxes offer bicyclists a way to make left turns at a signalized intersection in two separate moves, which is helpful for bicyclists who are uncomfortable merging left across vehicle travel lanes to make a left turn.

For issues relating to individual access to County programs and services, the County’s ADA Title II Coordinator is available for consultation on any issue related to Title II and Public Accessibility:

Title II ADA Coordinator  
Human Resources Department, Risk  
Management Division  
455 County Center, 5th Floor  
Redwood City, CA, 94063

(650) 363-4343 (HR Main Desk)  
(650) 647-9930 cell  
(650) 363-4864 fax



**NORTH  
FAIR OAKS**

BICYCLE AND PEDESTRIAN RAILROAD CROSSING  
AND COMMUNITY CONNECTIONS STUDY

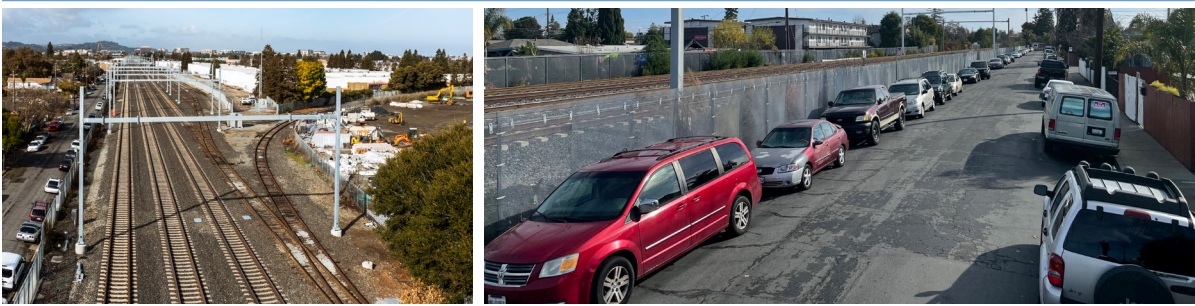


# EXECUTIVE SUMMARY





STUDY OVERVIEW



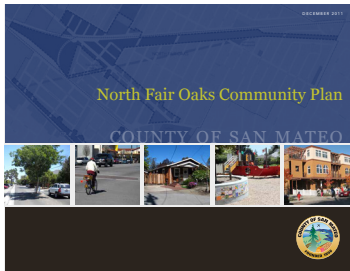
Introduction

Supported by a Caltrans Sustainable Communities Grant award, the San Mateo County Sustainability Department launched the North Fair Oaks Bicycle and Pedestrian Railroad Crossing and Community Connections Study in March 2022 (see Study Timeline on the top right) to assess the potential for a new grade-separated bicycle and pedestrian crossing of the Caltrain railroad tracks with accompanying street enhancements, improving access to local destinations in the neighborhoods on both sides.

The unincorporated community of North Fair Oaks has approximately 14,000 residents and is one of the more densely populated unincorporated communities in San Mateo County. North Fair Oaks has both the highest potential demand for walking and bicycling and the highest concentration of bicycle and pedestrian collisions per square mile of the County’s unincorporated communities.<sup>1</sup> As shown in Figure 1, on the bottom right, the Study area for this project is bounded by Middlefield Road, El Camino Real, Fifth Avenue, and the Redwood City border. The Study area has been identified as a Priority Equity Community by the Metropolitan Transportation Commission (MTC), as it contains a significant concentration of underserved populations that include households with low income and people of color.

Purpose and Need

This Study builds upon past recommendations from the 2011 North Fair Oaks Community Plan and the 2021 Unincorporated San Mateo County Active Transportation Plan to determine the best alignment for a potential new crossing of the Caltrain tracks. This Study considers where a potential rail crossing might be located, what it might look like and what might be possible with the identification of constraints, risks, and trade-offs. As a companion effort, the Study also further explores opportunities for better bicycle and pedestrian connectivity, access, and safety improvements within the neighborhoods on both sides of the Caltrain tracks.



Residents within North Fair Oaks face widespread mobility challenges, including a need for improved bicycle and pedestrian facilities, and better access to local destinations across the Caltrain tracks, which bifurcate the community. Fifth Avenue is the only existing crossing of the Caltrain tracks in North Fair Oaks, with Woodside Road being the next nearest, creating a crossing gap of over one mile. As a result, many residents, especially those without access to an automobile, may be required to walk or bike up to a mile or more to reach destinations that could otherwise be a short trip over the Caltrain tracks.

<sup>1</sup> Unincorporated San Mateo County Active Transportation Plan (2021)

Study Timeline

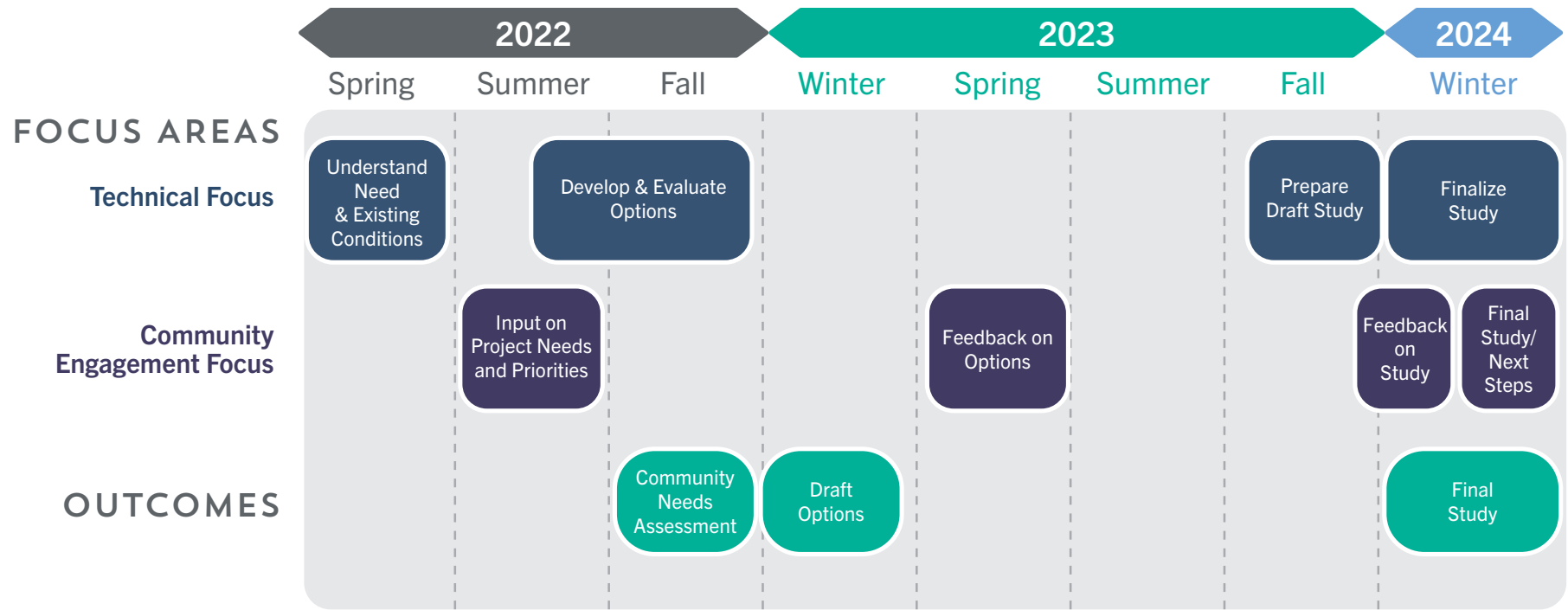
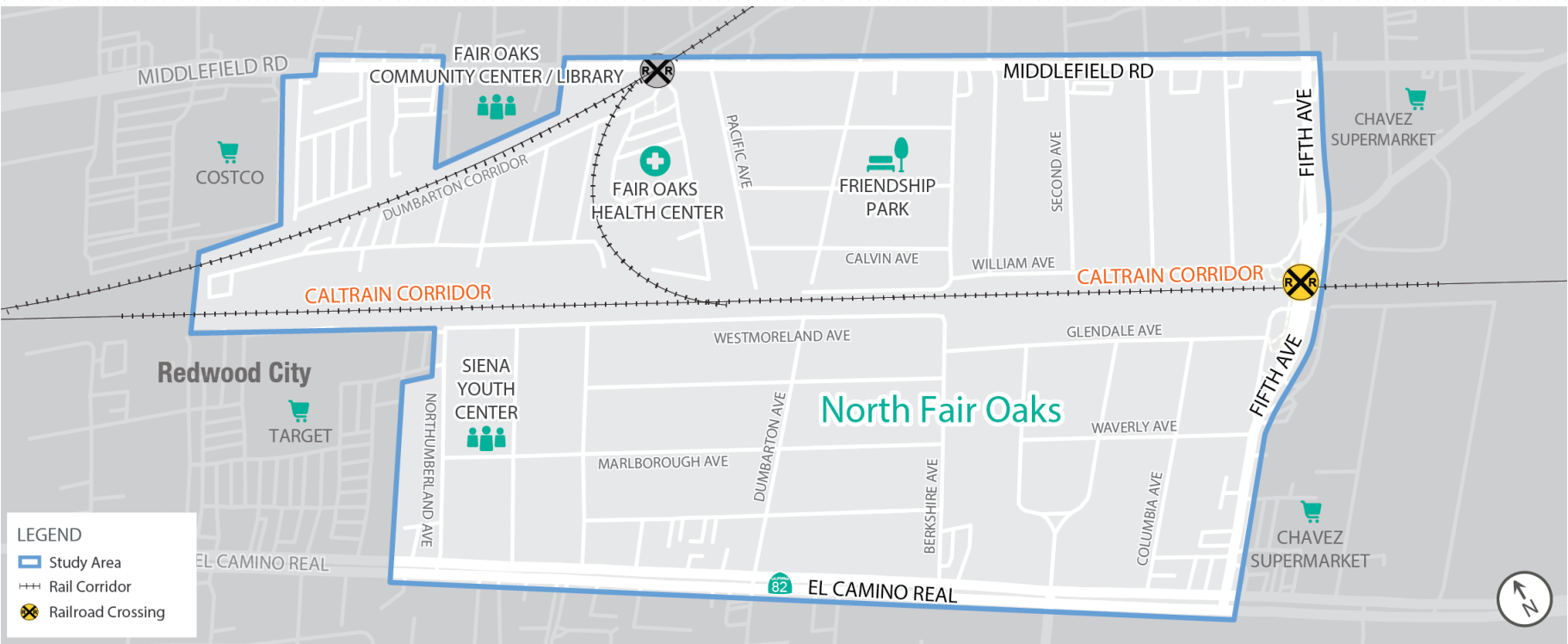


Figure 1: Study Area Map







STUDY APPROACH

Tasks Performed

Multiple inputs were considered to inform the process for recommending a preferred new bicycle and pedestrian crossing of the Caltrain tracks with accompanying surface street improvements.

**Community Outreach**

Conducted multi-channel and in-language community engagement to establish project needs, guide project priorities, learn about community preferences, and receive input on potential options.

**Coordination with Advisory Committees**

Engaged with community stakeholders through a Community Advisory Committee (CAC) and received input from participating public agencies through a Technical Advisory Committee (TAC) at key points throughout the Study process.

**County Advisory Body Engagement**

Engaged with the North Fair Oaks Community Council, the Planning Commission, and the Bicycle and Pedestrian Advisory Committee (BPAC) to inform and receive feedback.

**Goals and Priorities**

Based on stakeholder and community input, established a set of comprehensive needs, goals, and objectives for the project, which were used to develop evaluation criteria.

**Existing Conditions**

Assessed existing community needs and opportunities within the Study area.

**Option Development and Refinement**

Identified potential solutions for grade-separated railroad crossing facilities and community connections and assessed engineering feasibility.

Screened range of potential solutions to three that were selected for further development and community input.

**Evaluation**

Further evaluated three project options, assessing implementation impacts, community integration, and high-level project costs.

**Implementation Planning**

Coordinated with Caltrain on constructability and permitting. Assessed steps toward implementation and key areas for further investigation in future project phases.

Project Goals

Throughout the Study, community input was continuously solicited and guided each phase of project development. In the first phase of this Study, the team collected extensive community input to establish a set of overarching goals intended to guide the development and evaluation of the railroad crossing options and associated surface street improvements. Each of the three rounds of community engagement efforts are discussed in more detail on ES-4.

After receiving input from several key sources within the community, the team developed the following set of project goals:

**Access**

Provide widely accessible pedestrian and bicycle connections across the railroad corridor and to adjacent communities to create a more useful, inclusive, and safer transportation network.

**Community Integration**

Confirm that newly constructed facilities enhance the sense of community and the aesthetics of North Fair Oaks through improved connections and by incorporating public art, public spaces, and attractive structures.

**Constructability**

To the extent possible, limit adverse impacts to the surrounding community and infrastructure during construction, while striving to minimize construction and maintenance costs given limited funding.

**Equity**

Prioritize equitable transportation implementation, especially for those without access to a car, while limiting community impacts to housing, and adhering to larger community and regional sustainability goals.

**Safety**

Design facilities guided by the prioritization for the most vulnerable populations, and create safe, well-lit spaces that are comfortable to access and utilize, with personal security in mind.





## RAILROAD CROSSING OPTIONS DEVELOPMENT PROCESS

### Development Process

Initially, a wide array of potential railroad crossing options were developed to find the most optimal alignments. The process of designing these preliminary options is shown below. The locations of the three advanced options are displayed on Figure 2 and are further described and illustrated below.

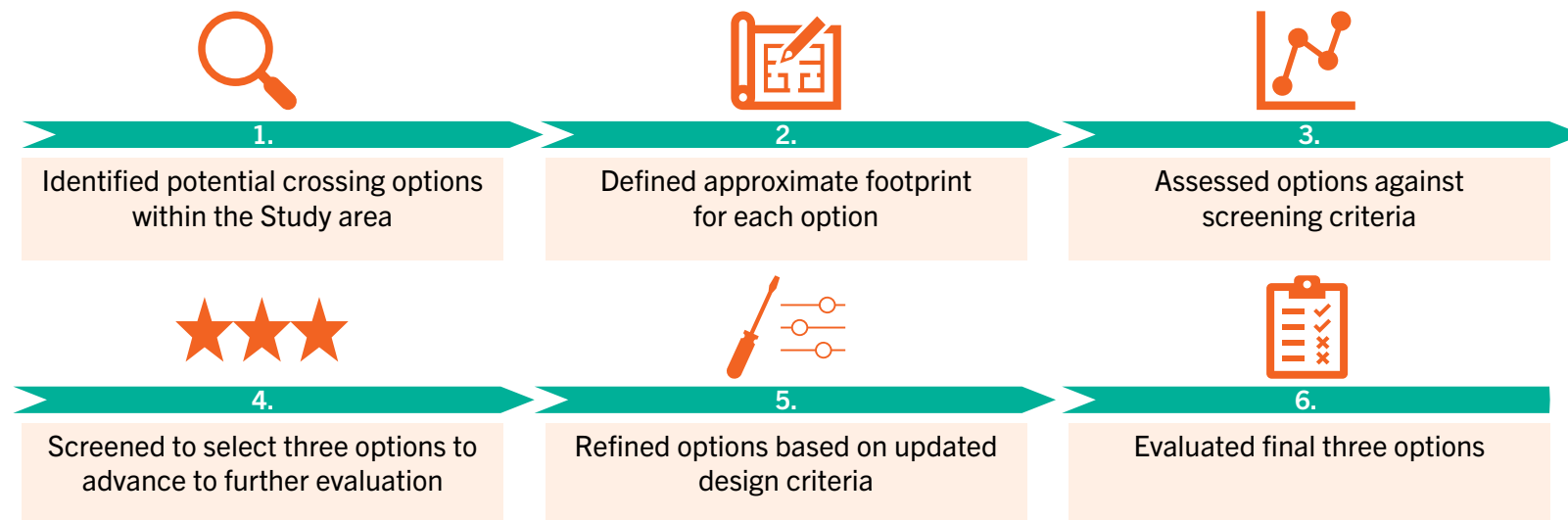
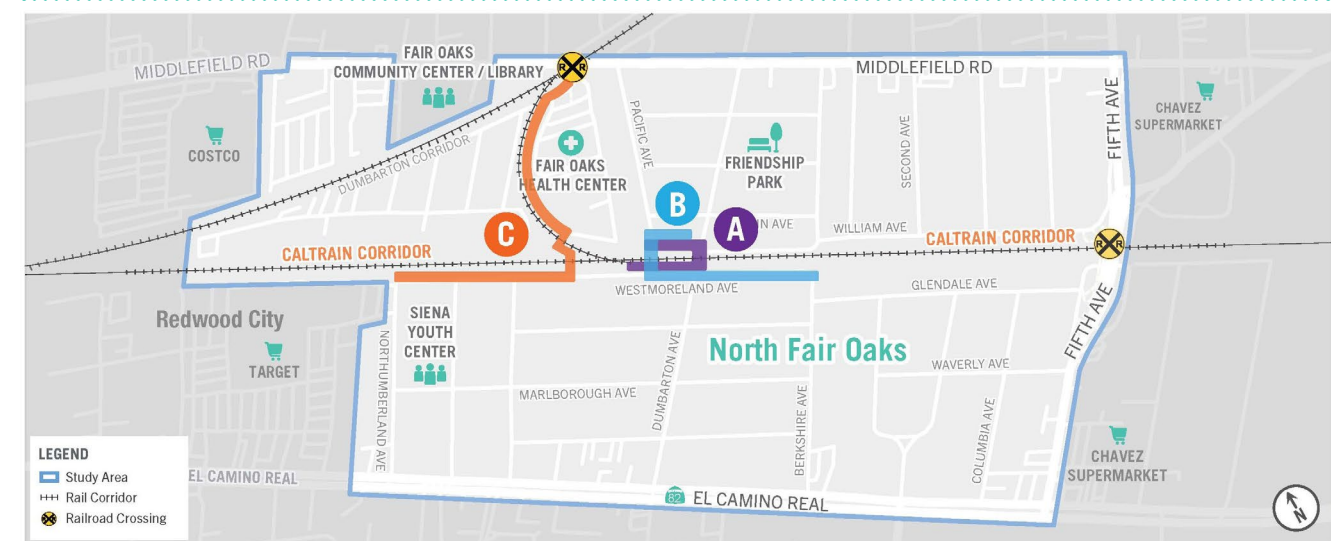


Figure 2: Rail Crossing Options Map



### Option A: Dumbarton Avenue Tunnel

**Option A** is a tunnel roughly aligned with Dumbarton Avenue. The north side of the Caltrain tracks has stair and ramp access on Pacific Avenue and stair access on Dumbarton Avenue, while the south side has ramp and stair access along Westmoreland Avenue.



Note: Concepts and renderings were prepared prior to several design guidance changes from Caltrain. Future concepts may look different based on the evolving guidance.

### Option B: Dumbarton Avenue Bridge

**Option B** is a bridge that crosses the Caltrain tracks around Pacific Avenue. The north side of the Caltrain tracks has stair access at Pacific Avenue and ramp access at Dumbarton Avenue, while the south side has accesses on either side of Dumbarton Avenue, with the stairs to the west and the ramp to the east.



### Option C: Middlefield Junction Bridge

**Option C** is a bridge that crosses the Caltrain tracks around Buckingham Avenue and ties into the Middlefield Junction site to the north. Travelers would use ramps or stairs located in the current Health Center parking lot north of the tracks, while users south of the tracks can use the stairs east of Buckingham Avenue or the ramp along Northumberland Avenue.



### Community Connections

Additionally, this Study explores surface street improvements in the neighborhoods on both sides of the tracks that make walking and biking in the community easier and safer. The following street improvement options were the most popular based on a community survey:



#### Sidewalk and Crosswalk Lighting

Pedestrian-scale lighting along key corridors to provide a better sense of security and more attractive facilities for users.



#### ADA Curb Ramp

Graded curb ramps designed for users in compliance with the Americans with Disabilities Act.



#### High-Visibility Crosswalk

Crosswalks striped with patterns designed to enhance pedestrian visibility.



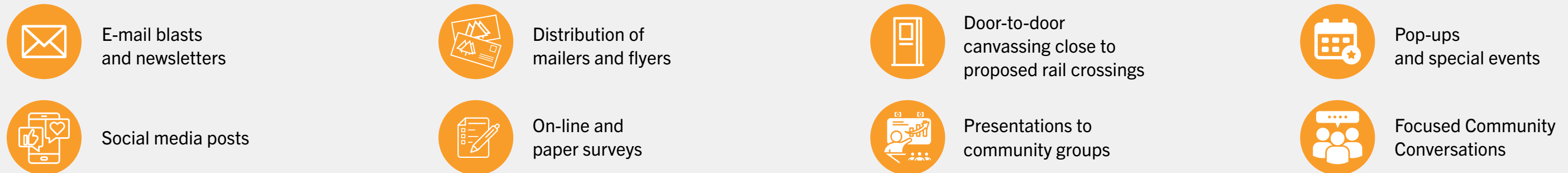


## OUTREACH OVERVIEW

### Outreach Summary

Engagement activities were conducted as part of a partnership between the County, the Study's consultant team, and Nuestra Casa and their trusted local team of promotoras as well as other key community partners, including representatives from the Study CAC. Outreach activities were conducted primarily in Spanish, with English language support provided.

Over the course of the project, the Study's team reached the community through a variety of strategies (see below) to inform and engage:



The team conducted a number of outreach events at three key points (see below) in the Study to engage with residents and businesses.

### Outreach Round 1

#### Summer 2022

Introduced the project to the community, gained an understanding of community values and transportation needs, and informed refinement of project goals and priorities.



### Outreach Round 2

#### Spring 2023

Residents were presented with the final three crossing options, including renderings and preliminary evaluation findings, and community connections strategies. Feedback was solicited on community preferences and expected level of use of the railroad crossing solutions.



### Outreach Round 3

#### Winter 2023

Shared outcomes of the Study and discussed next steps toward completion with the community based on closer evaluation and further coordination with stakeholder partners.







# CONCLUSIONS AND NEXT STEPS

## Conclusions

A key goal of this Study was to identify a preferred new railroad crossing of the Caltrain tracks. Throughout the Study, the community expressed support for a new bicycle and pedestrian crossing of the Caltrain tracks. Thirteen different potential preliminary crossing options were explored and after a screening review they were reduced to three. Each of the remaining three rail crossing concepts were further assessed with extensive community input and feasibility considerations, including compatibility with other infrastructure facilities and projects. Given these complexities, a single preferred option is not being identified. This report provides a summary of the preferred locations and conceptual designs, a technical evaluation and associated community feedback, should agencies revisit this project.

## Study Considerations

Should conditions change at a future point in time, some key considerations that would need to be further addressed include, but are not limited to the following:

- Coordination with the **San Francisco Public Utilities Commission (SFPUC)** to further assess and resolve impacts with the potential relocation of a major water line
- Coordination with **Caltrain** to study the feasibility of lowering electrification infrastructure (overhead contact system) to allow for a lower bridge crossing to reduce elevation change, ramp and stair length and visual impacts
- Coordination with **SamTrans** and the **Union Pacific Railroad (UPRR)**, to address future plans for transit and freight along the Dumbarton Corridor where one of the bridge crossings is proposed

Concepts may need to be refined and re-designed where necessary, with more significant changes contingent upon feasibility findings considering construction concerns and methodology. The continued inclusion of community input is essential prior to the selection of a recommended railroad crossing option. Before a preferred railroad crossing option can proceed into the environmental review, design and construction phases of development, approval from Caltrain will be required to confirm that a new crossing is compatible with the existing and planned future use and operation of the Caltrain corridor.

Some of the community connections elements (as noted on pages 11-14) could be implemented separate from a rail crossing, providing improved community access and mobility to local destinations within the neighborhoods on both sides of the tracks.

## Complexities and Considerations for a Potential Rail Crossing

	Impacts to SFPUC facilities and conflict coordination		Potential to Lower Caltrain's OCS Wires		Contract Delivery Method
	Potential UPRR encroachment during construction and conflict coordination		Bridge Width		Alternate Tunnel Options
	Parking Impacts		Construction Methodology <ul style="list-style-type: none"><li>Staging</li><li>Schedule</li><li>Impact to Revenue Service</li><li>Costs</li></ul>		Community Connections Improvements
	Visual and Privacy Impacts		Community Sentiment towards Updated Concepts		





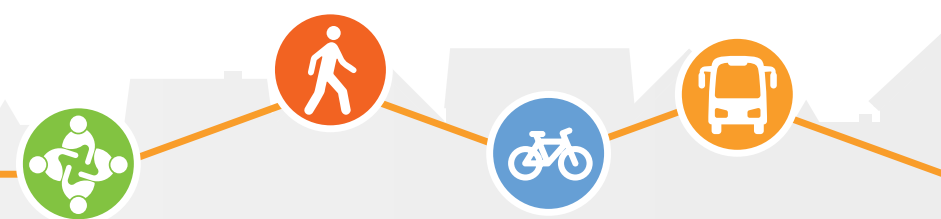
**NORTH  
FAIR OAKS**

BICYCLE AND PEDESTRIAN RAILROAD CROSSING  
AND COMMUNITY CONNECTIONS STUDY



# FINAL REPORT





## INTRODUCTION

### Project Need and Background

Unincorporated North Fair Oaks contains a concentration of underserved populations that include households with low income and people of color. Historic mobility and equity barriers within the community have led the Study area to be designated by the Metropolitan Transportation Commission (MTC) as an Equity Priority Community. North Fair Oaks is bifurcated by the Caltrain tracks. Fifth Avenue is the only existing railroad crossing within the community and the next nearest crossing is located approximately one mile away (Woodside Road), which limits mobility, especially for those who do not have access to an automobile.

Consequently, planning documents, like the 2011 *North Fair Oaks Community Plan*, have identified crossing(s) of the Caltrain tracks as a major mobility priority. Successive planning efforts, the most recent being the 2021 *Unincorporated San Mateo County Active Transportation Plan*, have continued to identify North Fair Oaks as a community with high potential multi-modal transportation demand but limited or inadequate infrastructure. The purpose of this Study is to build on past County planning efforts, as part of a community-driven process, to determine the location and design of a potential new railroad crossing facility while identifying constraints and trade-offs associated with potential crossing options. As a companion effort, this Study also seeks to explore smaller-scale opportunities to improve existing community roadway facilities to make them safer, more accessible, and more connected to better serve neighborhoods on both sides of the tracks.

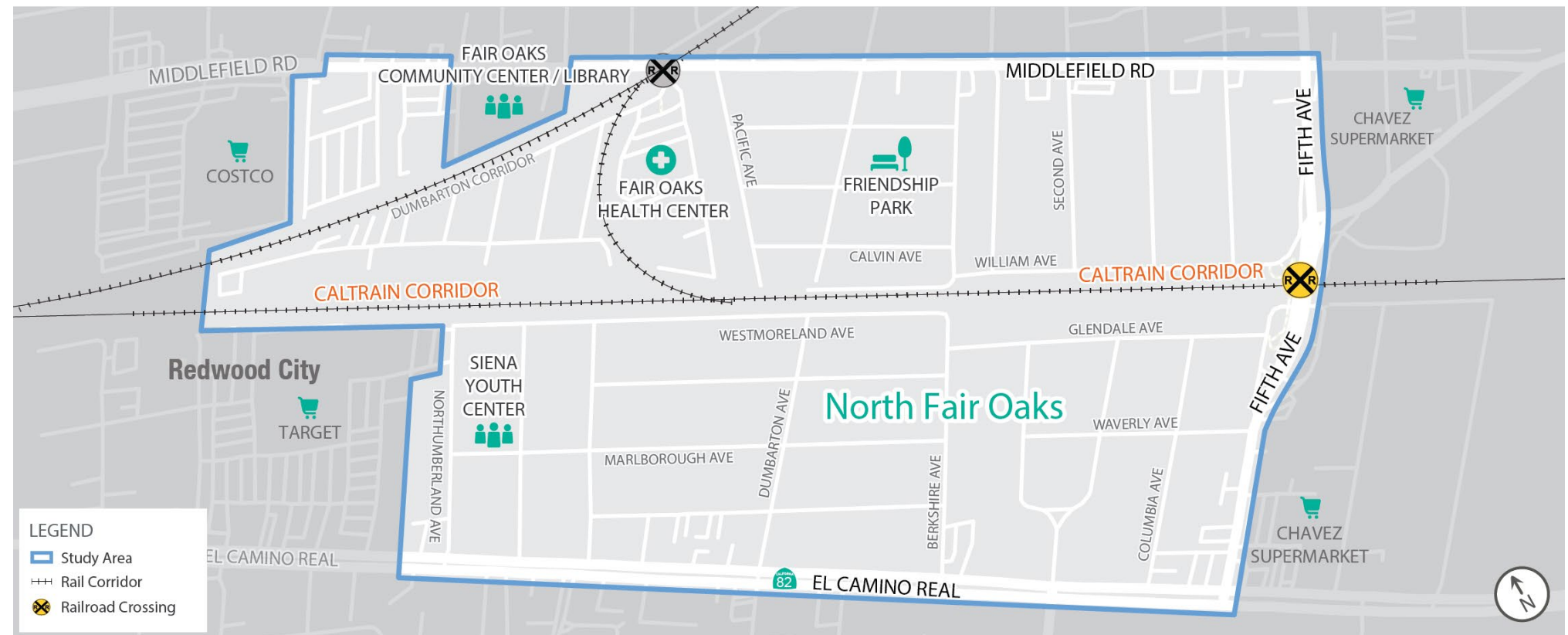
San Mateo County is committed to advancing equity, with the goal of just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. To achieve equity, the County must create conditions that allow all people to reach their full potential, and work to eliminate disparities by race, income, place, and other characteristics. As described above, this Study seeks to advance equity by eliminating mobility barriers. The Study approach was designed to understand impacts to different groups, reach those most likely to be affected by the project, and increase understanding while minimizing unintended adverse consequences.

To properly align the goals of the Study with the needs and desires of the North Fair Oaks community, the project team worked to obtain extensive input from community members, community groups, and other relevant stakeholders throughout the course of the project. Through separate rounds of community outreach, the project team engaged hundreds of individuals who could be affected by the project and collected their input. In addition to interfacing with community residents, the project team also engaged members of the Study's Community Advisory Committee (CAC) and Technical Advisory Committee (TAC). The CAC was comprised of representatives from public service agencies and community-based organizations that directly serve the community and who could share community sentiment and advise and assist with community engagement. The TAC was comprised of representatives from County departments and other public agencies to inform and provide input on technical considerations and requirements. These advisory committees provided valuable insight into the mobility needs of the community throughout each phase of the Study.

### Study Area

#### Figure 3: Study Area Map

The Study area encompasses the portion of the North Fair Oaks community that is bounded by Middlefield Road, El Camino Real, Fifth Avenue and the Redwood City border. Figure 3 below shows the North Fair Oaks community as well as the surrounding areas and the roadway network.



### Previous Planning Efforts

Several documents were reviewed to guide the initial phases of the Study, as noted in the Existing Conditions Memorandum contained in **Appendix A**. Some of these, such as the Middlefield Road Improvement Project, planning efforts undertaken for the Dumbarton Rail Corridor Project, and the Caltrans Safety Project Initiation Document (PID), are projects and focused planning efforts that can expand the reach of improvements proposed as part of this Study through linkages to the surrounding regional active transportation network. Among these documents, the 2011 *North Fair Oaks Community Plan* conducted the most detailed review of the North Fair Oaks community, ultimately identifying the lack of sufficient crossings of the Caltrain tracks as a key mobility barrier to the community. Policy 1B of the Community Plan aims to identify optimal multi-modal railroad crossings in order to improve overall neighborhood connectivity, and close gaps in the community's active transportation network. Subsequent planning studies, like the *Unincorporated San Mateo County Active Transportation Plan* and the 2021 *C/CAG Countywide Bicycle and Pedestrian Plan*, continued to identify these gaps in the circulation network as a major mobility barrier, ultimately spurring this North Fair Oaks Bicycle and Pedestrian Railroad Crossing and Community Connections Study.





## Project Goals

To guide the development and evaluation of the railroad crossing options and associated surface street improvements, the project team obtained extensive community input on overarching goals for the project. Based on the feedback received from the TAC, CAC, and community members, the project team developed a set of project goals to guide subsequent project efforts, including the options evaluation. More information regarding Round One of the outreach process and the project goals development are provided in **Appendix B** and **Appendix C**, respectively. The ultimate project goals and their definition include (in alphabetical order):



### Access

Provide widely accessible pedestrian and bicycle connections across the railroad corridor and to adjacent communities to create a more useful, inclusive, and safer transportation network.



### Community Integration

Confirm that newly constructed facilities enhance the sense of community and the aesthetics of North Fair Oaks through improved connections and by incorporating public art, public spaces, and attractive structures.



### Constructability

To the extent possible, limit adverse impacts to the surrounding community and infrastructure during construction, while striving to minimize construction and maintenance costs given limited funding.



### Equity

Prioritize equitable transportation implementation, especially for those without access to a car, while limiting community impacts to housing, and adhering to larger community and regional sustainability goals beyond the immediate Study goals and considering all stakeholder input.



### Safety

Design facilities guided by the prioritization for the most vulnerable populations, and create safe, well-lit spaces that are comfortable to access and utilize, with personal security in mind.

## Study Approach



### Coordination with Advisory Committees

Engaged with community stakeholders through a Community Advisory Committee (CAC) and received input from participating public agencies through a Technical Advisory Committee (TAC) at key points throughout the Study process.



### County Advisory Body Engagement

Engaged with the North Fair Oaks Community Council, the Planning Commission, and the Bicycle and Pedestrian Advisory Committee (BPAC) to inform and receive feedback.



### Goals and Priorities

Based on stakeholder and community input, established a set of comprehensive needs, goals, and objectives for the project, which were used to develop evaluation criteria.



### Existing Conditions

Assessed existing community needs and opportunities within the Study area.



### Community Outreach

Conducted multi-channel and in-language community engagement to establish project needs, guide project priorities, learn about community preferences, and receive input on potential options.



### Option Development and Refinement

Identified potential solutions for grade-separated railroad crossing facilities and community connections and assessed engineering feasibility.

Screened range of potential solutions to three that were selected for further development and community input.



### Evaluation

Further evaluated three project options, assessing implementation impacts, community integration, and high-level project costs.



### Implementation Planning

Coordinated with Caltrain on constructability and permitting. Assessed steps toward implementation and key areas for further investigation in future project phases.





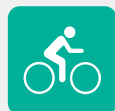
## BASELINE CONDITIONS

### Existing/Planned Transportation Network

Roads within the Study area, bounded by Middlefield Road, 5th Avenue and El Camino Real, are local neighborhood streets surrounded primarily by residential uses. These roadways are typically two-lane sections and nearly all contain heavily used on-street parking. Curb-to-curb widths for the residential facilities range from 34' to 40', while the overall public right-of-way width is typically 50'-60'. Dumbarton Avenue is an exception, as it features a right-of-way width closer to 70'. A more detailed depiction of the area's transportation network is shown in Figure 4 on the following page. Additional details on existing conditions can be found in the Existing Conditions Memorandum in **Appendix A**.



**Transit** - The community of North Fair Oaks is served by SamTrans bus and Redi-Wheels paratransit, provided by the San Mateo County Transit District. The Caltrain tracks run through the Study area; however, there is no station in North Fair Oaks. The closest operational stations are in Redwood City and Menlo Park. The number of continuous tracks along the railroad corridor is expanded within the Study area, increasing from two to four tracks for a little over a one-mile-long span. An overhead contact system (OCS) is under construction as part of the electrification of the corridor.



**Bike** - North Fair Oaks has limited existing bicycle facilities. There are bike lanes on 5th Avenue and bike lanes under construction on Middlefield Road. The *Unincorporated San Mateo County Active Transportation Plan* offers a long-term vision for bicycle travel in the area, recommending Class III bicycle boulevards on many local residential streets within the adjacent neighborhoods on both sides of the Caltrain tracks. The proposed bicycle network is shown in Figure 4 on the following page. Additional information on the transportation network, including bikeways that the Study area bicycle boulevards will connect with, is discussed in more detail in the section on the right side of this page.



**Pedestrian** - North Fair Oaks features sidewalks on most streets, which are generally continuous. Major streets, such as El Camino Real and Middlefield Road, typically have sidewalks on both sides measuring from four to 10 feet wide. Smaller residential streets have four- to five-foot-wide sidewalks on both sides, but many lack landscape buffers between the sidewalk and street and do not have street trees to provide shade canopy on hot days. Street-adjacent trees on private property are common throughout the Study area. Residents have expressed a desire for greater lighting at night. Planned and proposed pedestrian improvements within and along the Study area are shown in Figure 4 on the following page. Additional information on connections to the greater pedestrian network is discussed in more detail in the section on the right side of this page.

### Middlefield Junction Affordable Housing Project

Middlefield Junction is a three-acre site located behind the Fair Oaks Health Center and directly adjacent to the Caltrain tracks that will be developed into a 179-unit affordable housing apartment complex, with space for a childcare and community center. The Middlefield Junction project is currently moving into the first stages of construction.

### Utilities

The Bay Division Pipelines (Hetch Hetchy corridor) run diagonally through the Study area, crossing the Caltrain tracks near Pacific Avenue. The Palo Alto Pipeline runs along Westmoreland Avenue on the southwest side of the railroad corridor. Both of these critical water utilities are operated by the SFPUC. Other utilities, such as power lines, also cross the Caltrain tracks and beneath roadways in the Study area.



### Transportation Network Improvements

The County and its partners are in the process of providing a series of bicycle and pedestrian facilities to improve access and safety within, adjacent to and in the immediate proximity of the Study area. Many of these facilities are shown in Figure 4 on the following page. Recently completed, soon to be installed, and planned bicycle and pedestrian improvements include the following:

- **5th Avenue Bikeway** - Includes a combination of Class II bike lanes and Class III bike route with sharrows, completed in 2021 as part of a County pavement maintenance project.
- **Middlefield Road Improvement Project** - This arterial roadway is being transformed into a more pedestrian and bicycle friendly facility with a reduction of four to two continuous vehicle travel lanes, the addition of Class II buffered bike lanes, widened sidewalks, curb bulb-outs, accessible curb ramps at intersections with high visibility crosswalks, new rectangular rapid flashing beacons and the undergrounding of overhead utilities. Additional streetscape amenities will include benches, street trees, landscaping, new street and pedestrian scale lighting, trash receptacles, street art and public WiFi. This project will be completed by the end of 2024.
- **Middlefield Junction Affordable Housing Project** - This project will include a series of grant-funded transportation amenities on local roadways, including high visibility crosswalks and Class III bicycle boulevards with bike route signage and sharrows on local streets, consistent with the County's Unincorporated Active Transportation Plan. A final determination of specific locations and the extent of improvements is currently under review with some locations within the Study area. Improvements are expected to be implemented by the end of 2025.
- **Caltrans State Route 82 Bike Safety Project** - Caltrans is planning to provide bicycle and pedestrian safety improvements on El Camino Real from Selby Lane (adjacent to North Fair Oaks) to Brewster Avenue in Redwood City. The proposal includes Class II bike lanes or Class IV separated bike lanes as well as accessible curb ramps and high visibility crosswalks at intersections. The target completion date for improvements is 2028.
- **Town of Atherton El Camino Real Complete Streets Gap Closure Project** - The Town of Atherton, in conjunction with the San Mateo County Transportation Authority, will be conducting a feasibility analysis and conceptual design of bicycle and pedestrian improvements along El Camino Real from the border with Redwood City and North Fair Oaks to Valparaiso Avenue in Menlo Park. This project will connect with the Caltrans State Route 82 Bike Safety Project.





Figure 4: Transportation Network Overview

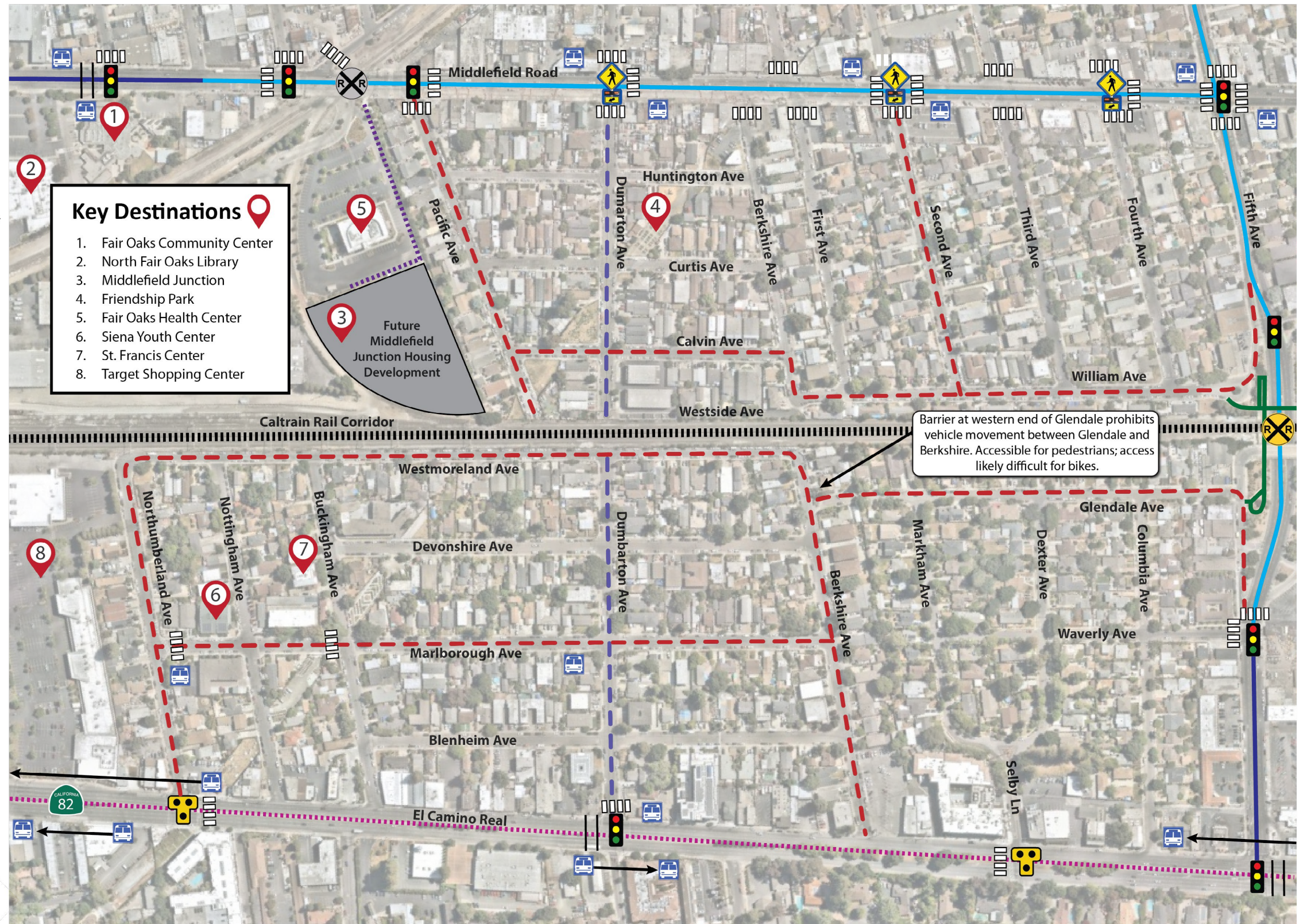
Legend

- Standard Crosswalk
- High-Visibility Crosswalk\*
- Traffic Signal
- Rapid Rectangular Flashing Beacon (RRFB)\*
- Pedestrian Hybrid Beacon (PHB)\*
- Bus Stop\*\*
- Grade-Separated Railroad Crossing
- At-Grade Railroad Crossing
- Class I Bikeway
- Class II Bikeway\*
- Bicycle Boulevard
- Planned Pedestrian Pathway
- Planned Bikeway (mix of Class II & IV)
- Recommended Bikeway – San Mateo County ATP
- Recommended Bikeway – North Fair Oaks Community Plan

\*Includes Under-Construction and Funded Improvement Projects

\*\*Some existing bus stops proposed to be moved or consolidated by the ECR Bus Speed & Reliability Study

0 150 300 600 Feet







## Community Outreach Round 1

The first phase of engagement introduced the project to the broader community and informed the team's understanding of community values, issues, and transportation needs. The outreach team was comprised of County staff, consultants (including Nuestra Casa), and other key community partners many of whom were represented on the Study CAC. The team sought input from a wide variety of stakeholders on specific barriers to walking and bicycling in the project area, key destinations in need of connection, opportunities to improve safety and enhance access, and community priorities to help inform the Study goals and evaluation criteria. The team hosted 10 pop-up events (locations of events shown in Figure 5), including one that was supplemented with a community bike ride, held two virtual presentations, distributed flyers, sent mailers to all property owners and occupants within the Study area and 300 feet beyond, and conducted an online and in-person survey (a total of 349 completed surveys were received). Updates on activities were provided on the Study website, through social media and via community partner listservs and newsletters. All materials were provided in Spanish and English. Some relevant takeaways from the first round of community outreach are listed below.

Of all survey respondents, 52% live within the Study area, and 70% live in North Fair Oaks

37%



About 37% of participants currently drive to destinations on the other side of the Caltrain tracks but would prefer to walk or bike if it were possible

30%



About 30% of respondents currently walk, bike, or take the bus to the other side of the Caltrain tracks but find it challenging because of the distance

22%



About 22% of respondents don't travel to places on the other side of the Caltrain tracks or do so less often because it is difficult to get there

High car speeds and poorly lit streets/sidewalks were the main factors that affect participants' sense of safety, while unsafe street crossings ranked as a close third



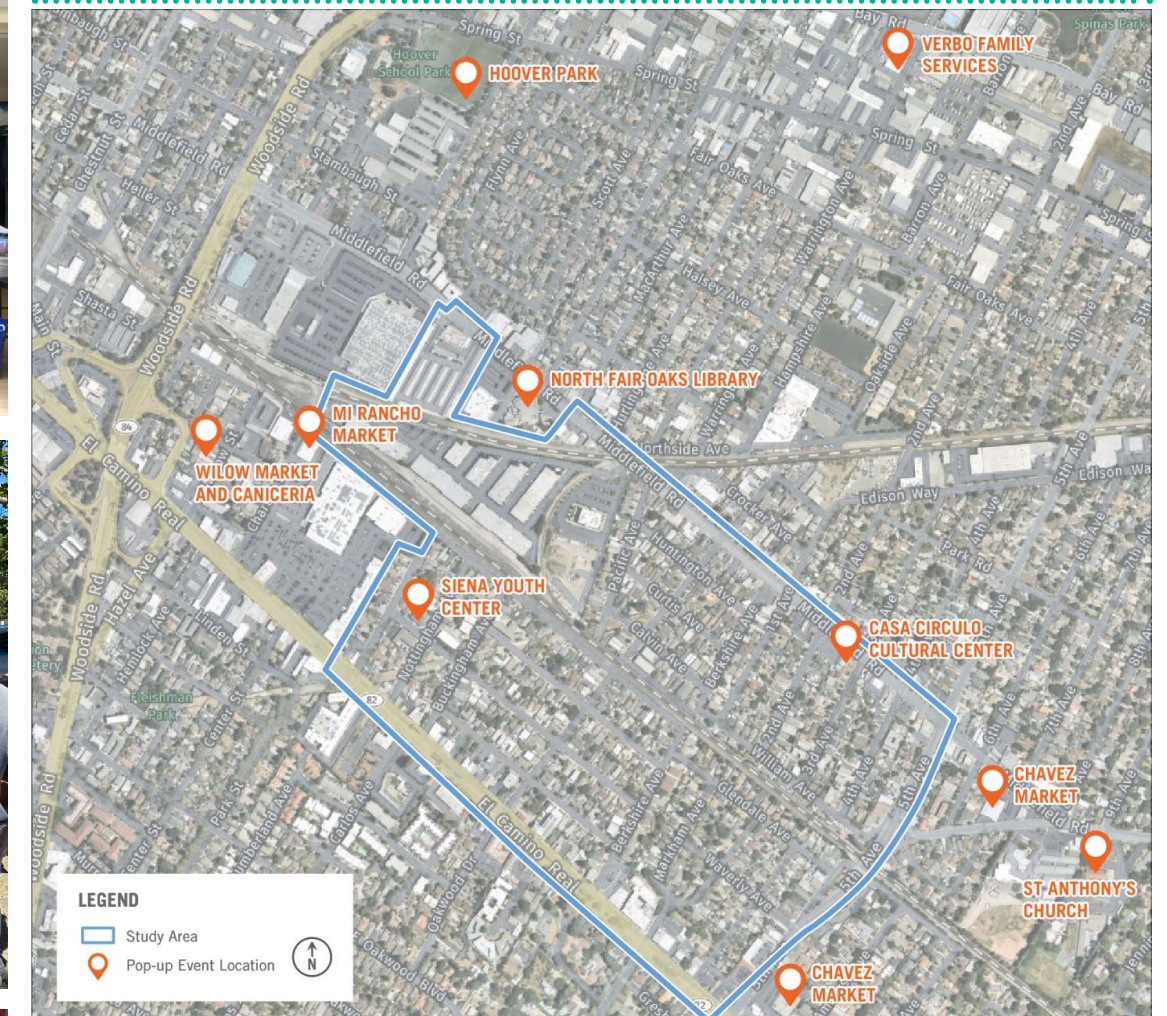
Personal convenience, security, and access were the three highest priorities identified for the Study



A summary of Community Outreach Round 1 can be found in **Appendix B**.



Figure 5: Pop-Up Event Map – Outreach Round 1



## Demographics



- 76% identify as Hispanic or Latinx/a/o
- 70% North Fair Oaks or Redwood City residents
- 60% took the survey in Spanish
- 24% over 60 years old

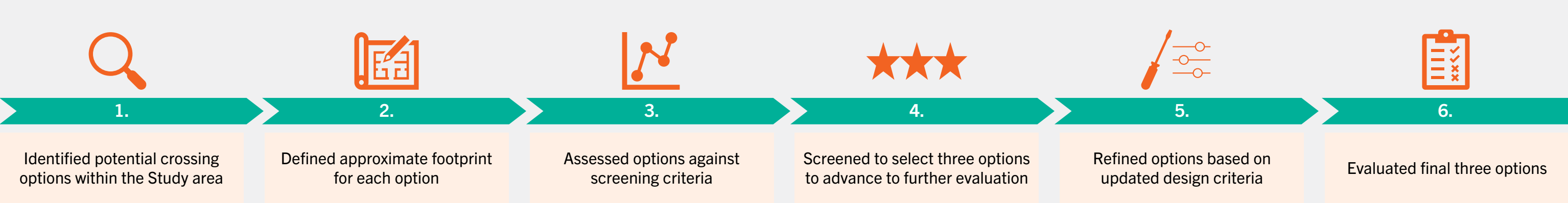




PROJECT PRIORITIES AND EVALUATION

Option Development and Evaluation

Initially, a wide array of potential Caltrain crossing options were developed to find the most optimal alignments. The process of designing these preliminary options is shown below. The locations of the three advanced options are displayed on Figure 6 and are further described on the following pages.



Evaluation Considerations

With a variety of different crossing options sketched, the team developed a set of considerations to guide the screening of the preliminary options and the ultimate selection of three options to move forward. These screening considerations are shown below.

**Parcel Impacts**

Does the footprint encroach into any privately-owned parcels?

**Design Approach:** Minimize parcel impacts where possible and completely avoid residential displacement

**Parking Impacts**

Do required roadway modifications limit the amount of parking options near the crossing?

**Design Approach:** Minimize parking loss wherever possible. At least some parking loss is expected for most options.

**Access Impacts**

Would access to any parcels be impacted?

**Design Approach:** Avoid ramps and configurations that preclude residential access. Minimize changes in circulation to residential access, although some changes are unavoidable.

**Fire/Emergency Access**

Will emergency vehicles be able to access the crossing and surrounding properties?

**Design Approach:** Identify roadway clear widths less than 20'. Confirm intersections are navigable for emergency vehicles.

**SFPUC Utilities**

Would construction conflict with the Hetch Hetchy Bay Division Pipelines?

**Design Approach:** Design ramps in a way that avoids conflict with Bay Division Pipelines.

**Caltrain Infrastructure**

Does facility adhere to Caltrain-specified standards?

**Design Approach:** Confirm facility meets all separation requirements from OCS poles as well as track clearance requirements.

Crossing options that resulted in the removal of homes were not moved forward to prevent residential displacement. After completion of the screening process, the range of potential options was reduced from 13 concepts to three options for further design and analysis.





Evaluation Criteria

Derived predominantly from the overarching project goals and extensive input from Community Outreach Round 1, specific, targeted evaluation criteria were selected to assess each option, inclusive of a railroad crossing alignment and the corresponding local street bicycle and pedestrian improvements. Each of the Study goals are linked to specific criteria, with measurable outcomes, that were used to evaluate the final three options. The development of the project goals and evaluation criteria is described in more detail in the Goals and Evaluation Criteria Memorandum in **Appendix C**.

Table 1: Options Evaluation Criteria Table

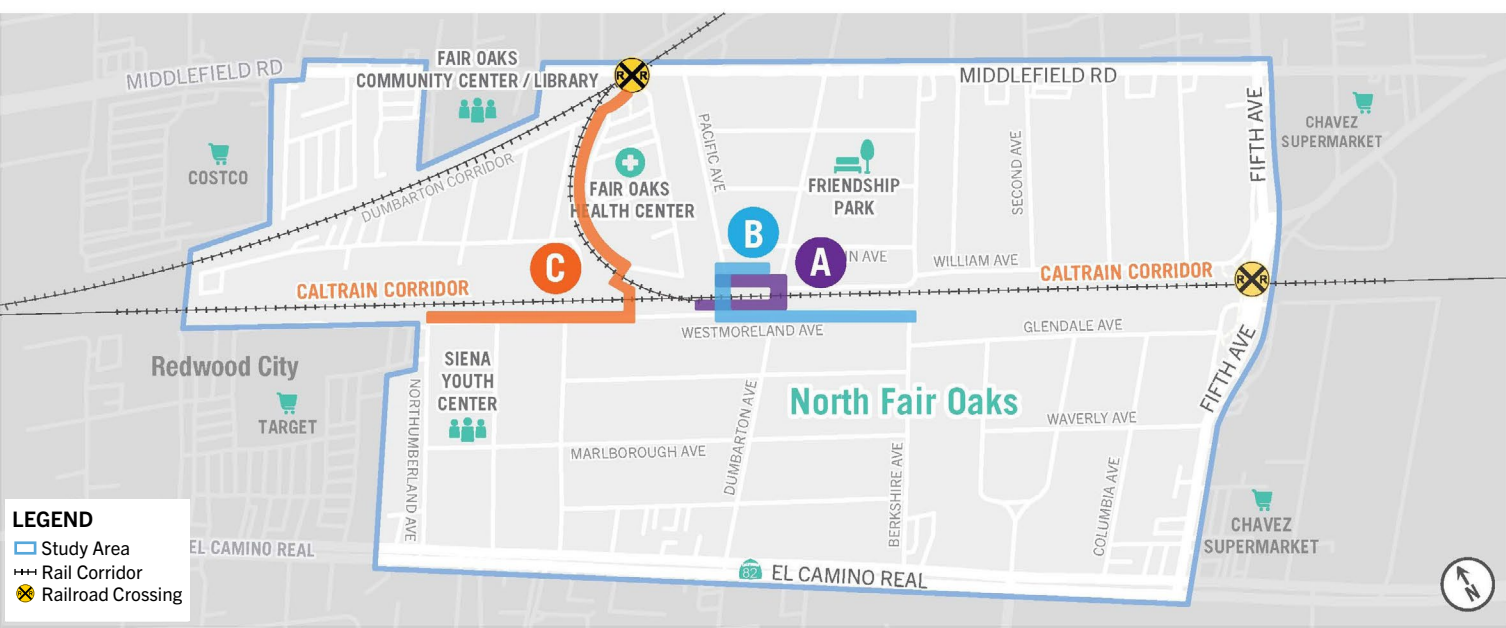
Evaluation Criteria	Measure	Access	Community Integration	Constructability	Equity	Safety
Service Population*	Existing population within ¼ mile walking distance from rail crossing access points.	×			×	
Motor Vehicle Circulation	Extent to which changes to the roadway network would be anticipated to cause diversion and congestion.	×				
Bicycle and Pedestrian Comfort	Ability of the improved bicycle and pedestrian network to meet the mobility needs of all ages and abilities.	×	×		×	×
Connectivity with Community-wide & Regional Transportation Network	Connectivity between proposed Study improvements and the greater transportation network on surrounding streets, including El Camino Real, Middlefield Road, and Fifth Avenue.	×	×		×	×
Parking Impacts	Number of net parking spaces lost.			×		
Public Space	Potential to create new public spaces.		×		×	
Green Infrastructure	Potential to implement green infrastructure, like solar panels or bio-retention facilities.		×		×	
Connections to Local Destinations	Directness of travel path to local destinations (e.g., schools, community center, medical facilities, etc.).	×	×		×	
Rail Crossing Length*	Total length of crossing facility.	×	×	×		
Visual Impact*	Level of disruption to views and privacy.		×		×	
Public Infrastructure Impact	Level of disruption to existing and planned utilities (e.g., SFPUC) and transportation service (e.g., Caltrain).			×		
Construction Cost	Rough order of magnitude (ROM) of project construction cost.			×		
Construction Impact	Magnitude of short-term adverse effects to residents and businesses during construction, including traffic diversion and access restrictions.	×		×	×	
Operations and Maintenance Cost	Magnitude of projected annual cost of operations and maintenance.			×		
Direct Parcel Impacts*	Number of parcels needed, all or in part, to construct railroad crossing.			×	×	
Emergency Access	Effects on emergency vehicle access (e.g., fire/police).					×
Personal Security	Alignment of facility configuration with Crime Prevention Through Environmental Design (CPTED) best practices.	×	×			×

\*These criteria are specific to the rail crossing options

Rail Crossing Options Selected for Evaluation

After screening the array of potential railroad crossing options, three crossing facilities were selected for further study and development: Option A - Dumbarton Avenue Tunnel; Option B - Dumbarton Avenue Bridge; Option C – Middlefield Junction Bridge. The locations of the final three crossing options are shown in the Option Map below and discussed in more detail on the following pages. Concept plans for the three final options can be found in **Appendix D**.

Figure 6: Option Location Map







## RAIL CROSSING OPTIONS

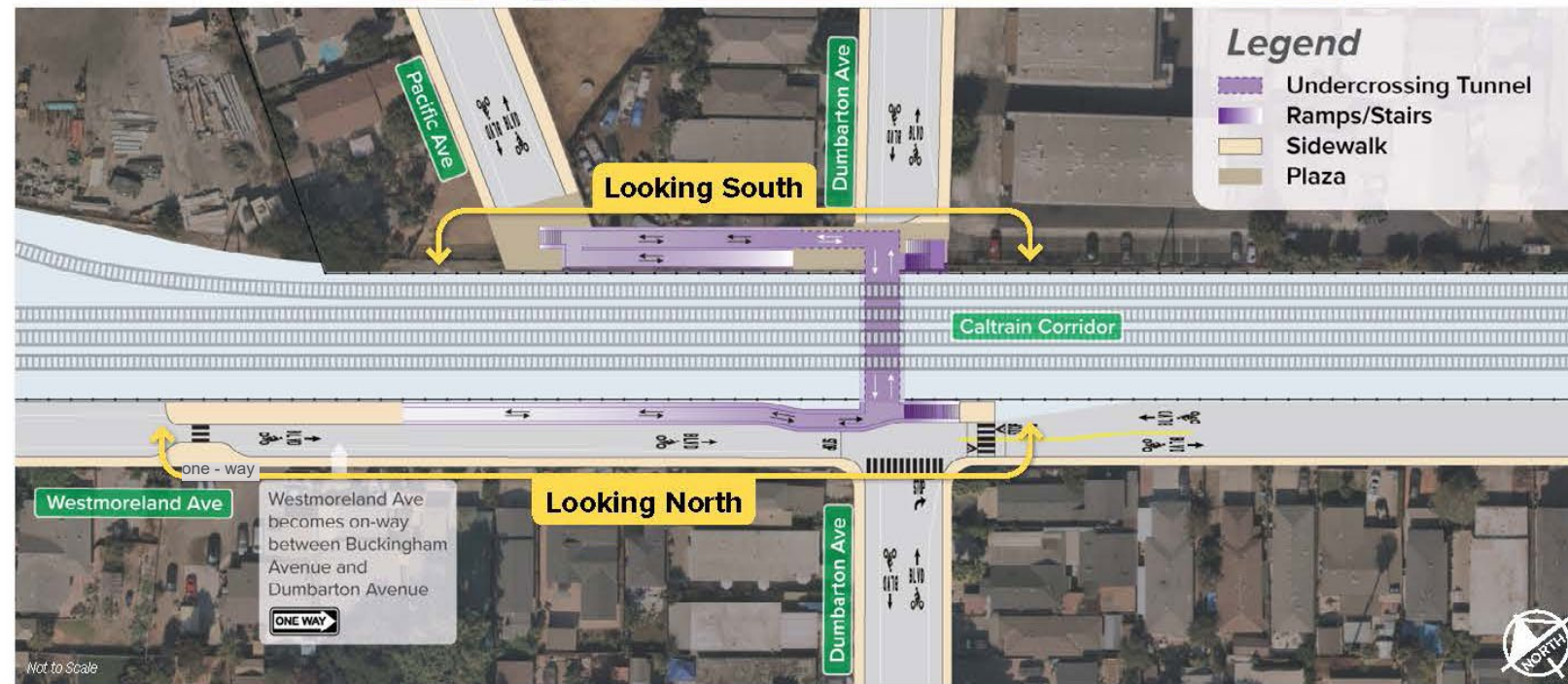
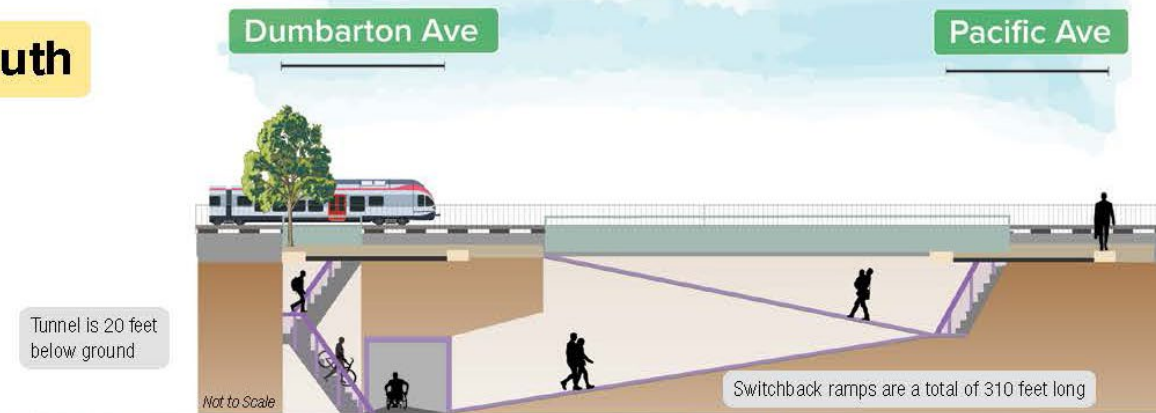
### Option A: Dumbarton Avenue Tunnel

Option A is a tunnel roughly aligned with Dumbarton Avenue. The north side of the Caltrain tracks has stair and ramp access on Pacific Avenue and stair access on Dumbarton Avenue, while the south side has ramp and stair access along Westmoreland Avenue.

#### Design Considerations

- The tunnel has the shortest crossing length and least elevation change among the three options
- The tunnel will provide direct access to Friendship Park, Siena Youth Center, and St. Francis Center
- Parts of Westmoreland Avenue would be converted to a one-way street
- Approximately 51 parking spaces will be removed on Westmoreland Avenue, and approximately 6 parking spaces will be removed on Pacific Avenue and Dumbarton Avenue north of the Caltrain tracks
- Provides opportunity to build small plazas and add new landscaping and public art
- The Dumbarton Avenue Tunnel is underground, minimizing impact on views from the street level
- During construction, travelers would have limited access on Westmoreland Avenue and at the end of Dumbarton Avenue north of the Caltrain tracks
- Less noise and vibration from tunnel construction compared to bridges
- No housing displacement; however, one to two empty lots would be acquired

#### Looking South



#### Looking North



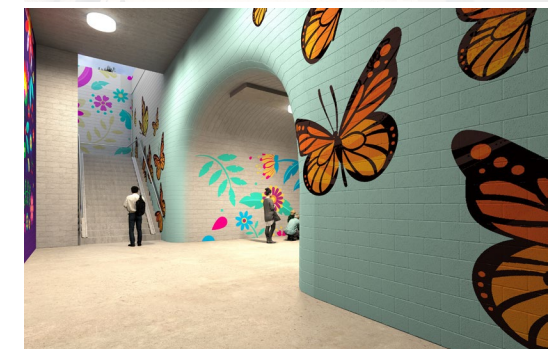
Plaza on Dumbarton Avenue north of the tracks



Westmoreland Avenue entrance to tunnel with art along ramp walls



Proposed plaza at Dumbarton Avenue stairs



Inside of the tunnel, with artwork on walls





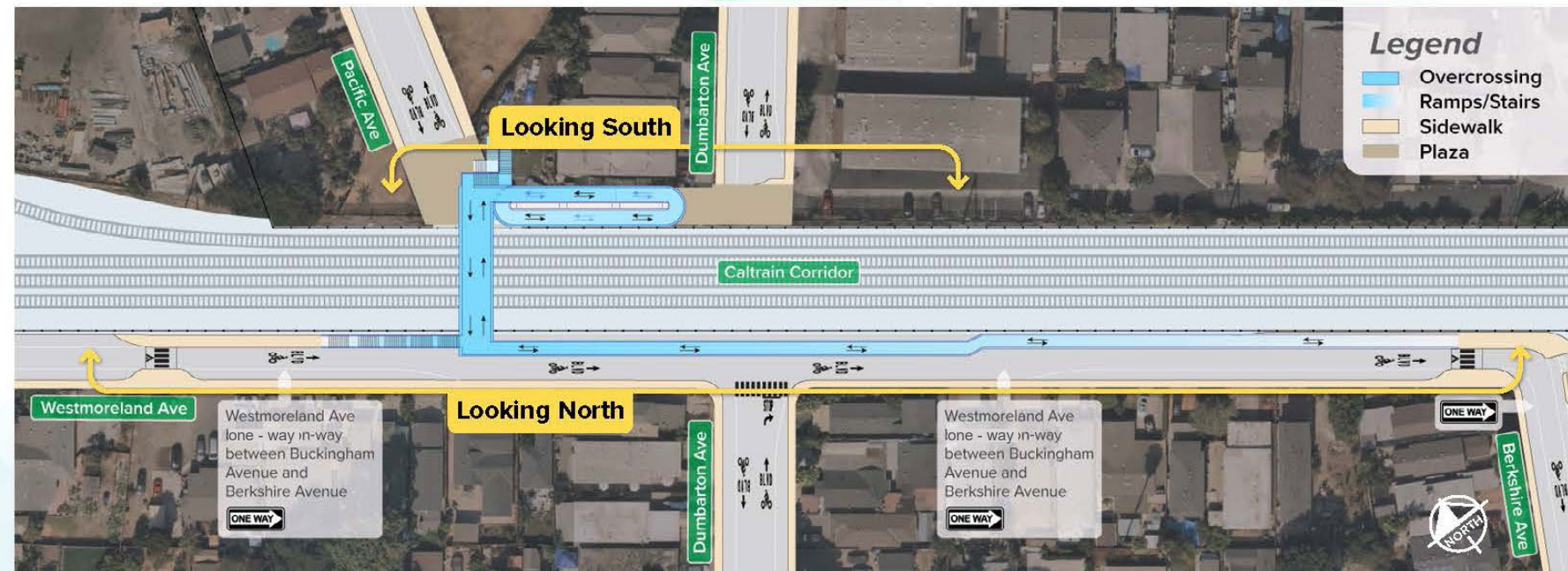
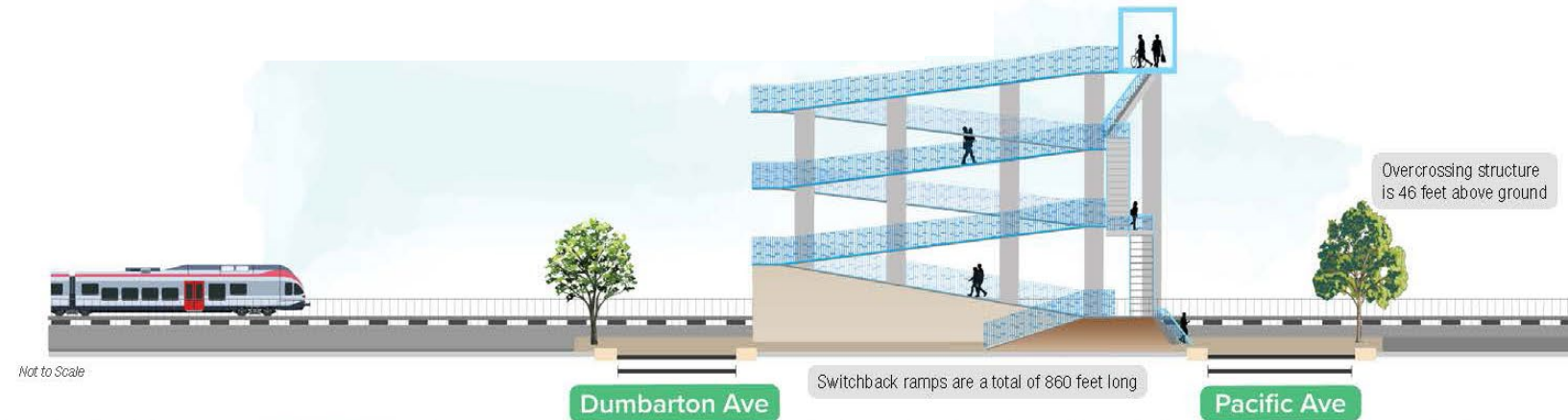
### Option B: Dumbarton Avenue Bridge

Option B is a bridge that crosses the Caltrain tracks around Dumbarton Avenue and Pacific Avenue. The north side of the Caltrain tracks features stair access at Pacific Avenue and ramp access at Dumbarton Avenue, while the south side has accesses on either side of Dumbarton Avenue, with the stairs to the west and the ramp to the east.

#### Design Considerations

- The bridge provides direct access to Friendship Park, Siena Youth Center, and St. Francis Center
- Parts of Westmoreland Avenue would be converted to a one-way street
- Approximately 55 parking spaces would be removed on Westmoreland Avenue, and approximately 5 parking spaces will be removed on Pacific Avenue and Dumbarton Avenue north of the Caltrain tracks
- The bridges require longer crossing distances and greater elevation changes compared to the tunnel option
- Travelers remain above ground, although the height of the bridge may make it difficult to see travelers from the street level
- Provides opportunity to build small plazas and add new landscaping and public art
- The Dumbarton Avenue Bridge will be adjacent to residential areas and will be taller than nearby buildings
- During construction, travelers would have limited access along Westmoreland Avenue
- More noise and vibration would result from bridge construction compared to the construction of a tunnel
- No housing displacement; however, two empty lots will be acquired for the bridge

#### Looking South



#### Looking North



Aerial view of bridge facing west



Entrance to ramp on Westmoreland Avenue



View of plaza, ramp, and bridge on Dumbarton Avenue north of tracks



Dumbarton Avenue pedestrian plaza, facing west

Note: Options B and C could be subject to further change given the conflicts and requirements with the Caltrain OCS electrification infrastructure. These items could include, but are not limited to, decreasing the height of the bridge, adding enclosed fencing to open air areas, and reducing the width of the bridge.



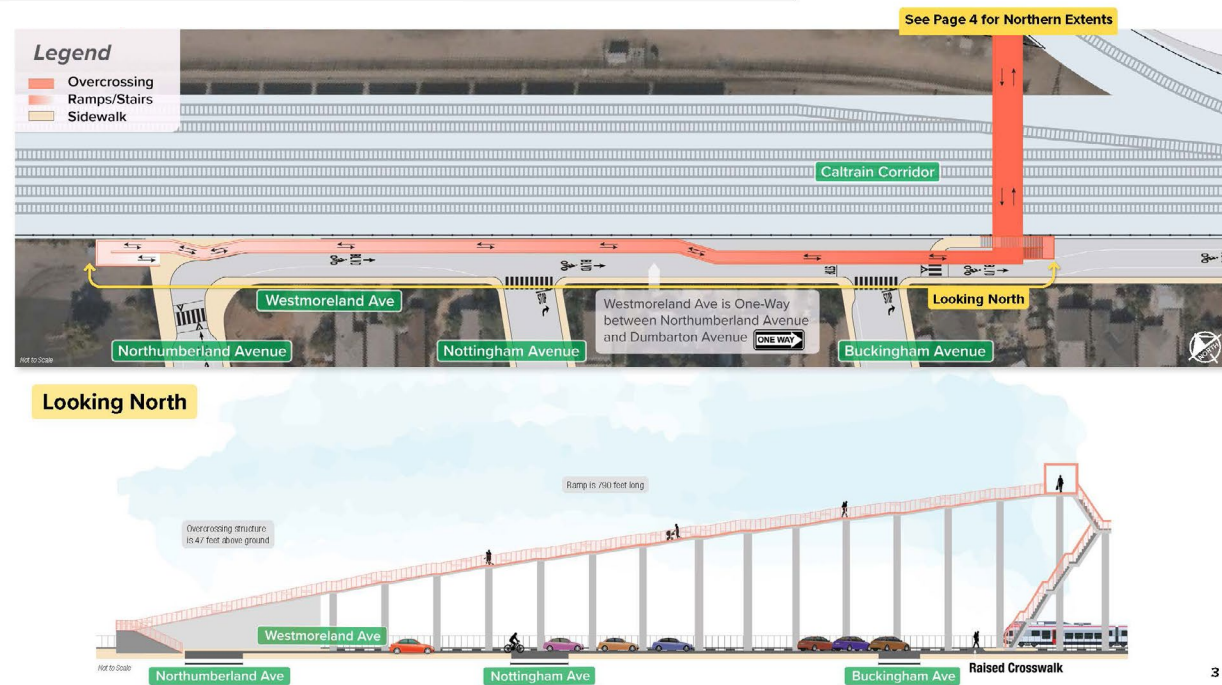


### Option C: Middlefield Junction Bridge

Option C is a bridge that crosses the Caltrain tracks around Buckingham Avenue and connects with the Middlefield Junction site to the north. Ramps can be accessed from the front of the Health Center and stairs can be accessed between the Health Center and Middlefield Junction housing development north of the Caltrain tracks, while users south of the Caltrain tracks can use the stairs east of Buckingham Avenue or the ramp along Northumberland Avenue.

#### North Fair Oaks Bicycle and Pedestrian Railroad Crossing Alternative C: Middlefield Junction Overcrossing (Southern Extents)

Kimley»Horn

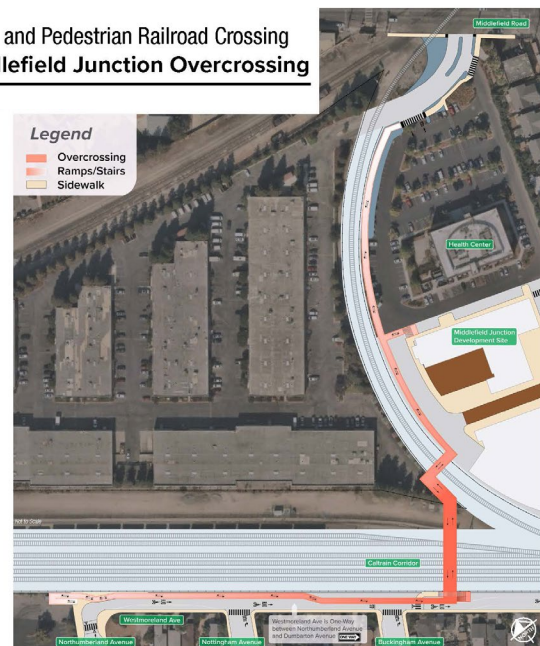


#### North Fair Oaks Bicycle and Pedestrian Railroad Crossing Alternative C: Middlefield Junction Overcrossing (Northern Extents)

Kimley»Horn



#### North Fair Oaks Bicycle and Pedestrian Railroad Crossing Alternative C: Middlefield Junction Overcrossing



View of the bridge from Westmoreland Avenue



Northwest-facing view of the proposed Middlefield Junction Bridge.

#### Design Considerations

- Provides most direct access to Middlefield Junction affordable housing complex, the childcare center, Fair Oaks Community Center, the North Fair Oaks Library, and the County Health clinic to the north. Provides access to St. Francis Center, Siena Youth Center, and the Target shopping center to the south.
- Parts of Westmoreland Avenue would be converted to a one-way street
- Approximately 46 parking spaces would be removed on Westmoreland Avenue and approximately 20 parking spaces would be removed from the Fair Oaks Health Center
- The bridges require longer crossing distances and greater elevation changes compared to the tunnel option
- Travelers remain above ground, although the height of the bridge may make it difficult to see travelers from the street level
- Long ramp length between access points
- The construction of the bridge would remove several trees from the Health Center parking lot
- No opportunity to build plazas and add new landscaping
- The Middlefield Junction Bridge will be taller than nearby buildings and close to the Middlefield Junction multifamily housing buildings

Note: Options B and C could be subject to further change given the conflicts and requirements with the Caltrain OCS electrification infrastructure. These items could include, but are not limited to, decreasing the height of the bridge, adding enclosed fencing to open air areas, and reducing the width of the bridge.





## COMMUNITY CONNECTIONS

### Recommendation Development

While identifying a preferred railroad crossing option was a primary aim of this Study, an additional purpose was to recommend surface street improvements throughout the Study area that make walking, biking, and living in the community easier and safer. Local facilities were evaluated based on available right-of-way, adjacent land uses, and circulation considerations, among other factors. Routing for new bicycle and pedestrian infrastructure relied on previously developed Plan recommendations, though specific alignments and improvements are directly linked to the layout of each crossing option. Generally, recommendations made for the community connections will create a more pedestrian and cyclist-friendly environment by reducing vehicle speeds, improving lighting conditions, establishing clear bicycle routes, and enhancing the accessibility of community facilities.

- Bike/Pedestrian Railroad Crossing
- Railroad Crossing Facility Access and Plaza (if feasible)
- Bike Boulevard, including Signage, Markings, and Traffic Calming
- Improve Street Lighting
- Contra-Flow Bikeway
- One-Way Conversion
- Curb Bulb-outs and ADA Ramps
- Two-Stage Turn Queue Box (Bikes)
- Traffic Circle with ADA Ramps
- High-Visibility Crosswalk and ADA Ramps
- Raised, High-Visibility Crosswalk and ADA Ramps
- Pedestrian Pathway
- Stop Sign

#### Existing Infrastructure

Shown with Semi-Transparency

- Traffic Signal
- Class I Bikeway
- Existing Crosswalk\*
- Class II Bikeway\*
- Bus Stop
- Bicycle Boulevard
- At-Grade Railroad Crossing
- Grade-Separated Railroad Crossing
- Pedestrian Hybrid Beacon (PHB)\*
- Rapid Rectangular Flashing Beacon (RRFB)\*
- Planned Bikeway (mix of Class II & IV)
- Planned Pedestrian Pathway

\*Includes Under-Construction and Funded Improvement Projects

0 150 300 600 Feet



Figure 7: Proposed Community Connections Improvements – Option A



All traffic circles, stop signs, and other traffic calming elements will need to be evaluated and approved by the Department of Public Works before implementation



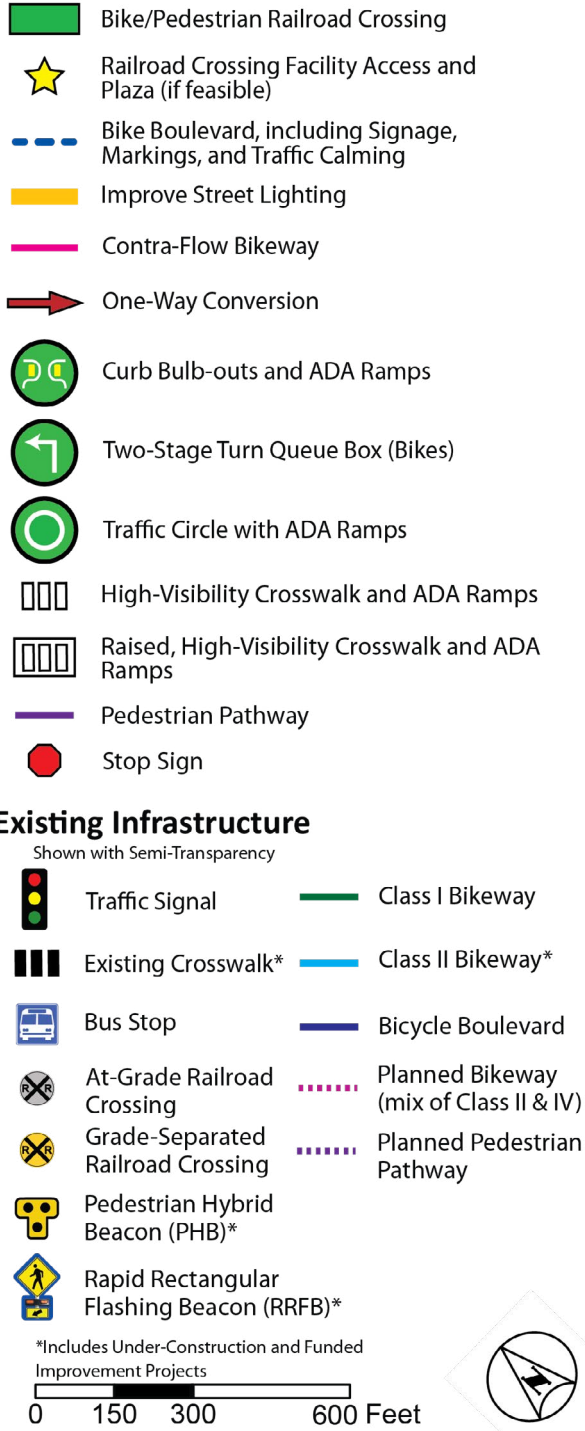


Figure 8: Proposed Community Connections Improvements – Option B

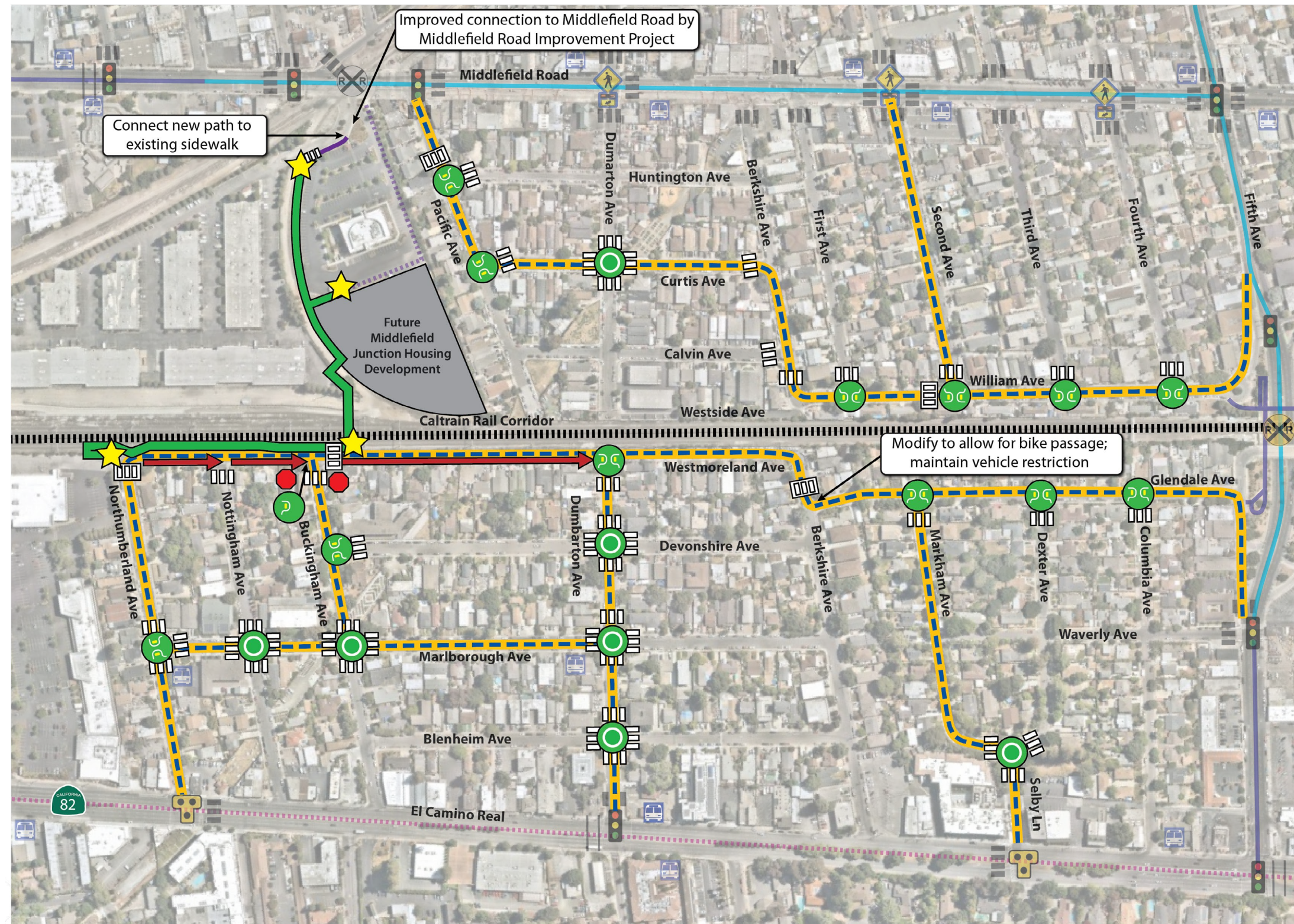


All traffic circles, stop signs, and other traffic calming elements will need to be evaluated and approved by the Department of Public Works before implementation





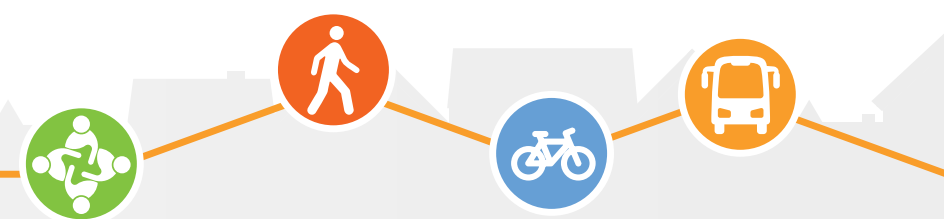
Figure 9: Proposed Community Connections Improvements – Option C



- Bike/Pedestrian Railroad Crossing
  - Railroad Crossing Facility Access and Plaza (if feasible)
  - Bike Boulevard, including Signage, Markings, and Traffic Calming
  - Improve Street Lighting
  - Contra-Flow Bikeway
  - One-Way Conversion
  - Curb Bulb-outs and ADA Ramps
  - Two-Stage Turn Queue Box (Bikes)
  - Traffic Circle with ADA Ramps
  - High-Visibility Crosswalk and ADA Ramps
  - Raised, High-Visibility Crosswalk and ADA Ramps
  - Pedestrian Pathway
  - Stop Sign
- Existing Infrastructure**  
Shown with Semi-Transparency
- Traffic Signal
  - Existing Crosswalk\*
  - Bus Stop
  - At-Grade Railroad Crossing
  - Grade-Separated Railroad Crossing
  - Pedestrian Hybrid Beacon (PHB)\*
  - Rapid Rectangular Flashing Beacon (RRFB)\*
  - Class I Bikeway
  - Class II Bikeway\*
  - Bicycle Boulevard
  - Planned Bikeway (mix of Class II & IV)
  - Planned Pedestrian Pathway
- \*Includes Under-Construction and Funded Improvement Projects
- 0 150 300 600 Feet

All traffic circles, stop signs, and other traffic calming elements will need to be evaluated and approved by the Department of Public Works before implementation





## Community Connections Improvements

The images below represent the street improvements that garnered the most support in Community Outreach Round 2.



Sidewalk and Crosswalk Lighting



High-Visibility Crosswalk



ADA Curb Ramp



### Sidewalk and Crosswalk Lighting

Pedestrian-scale lighting along key corridors can provide a better sense of security and more attractive facilities for users.



### High-Visibility Crosswalk

Crosswalks striped with patterns designed to enhance pedestrian visibility.



### ADA Curb Ramp

Graded curb ramps designed for users in compliance with the Americans with Disabilities Act.



### Speed Humps

Raised deflection in the roadway to reduce vehicle speeds. Includes pass through for emergency vehicles.



### Raised Crosswalk

Crosswalk constructed at or near sidewalk level to increase pedestrian visibility while also slowing vehicle speeds.



### Traffic Circle

Raised circle placed in the middle of an intersection to reduce vehicle speeds and conflicts.



### Curb Bulb-outs

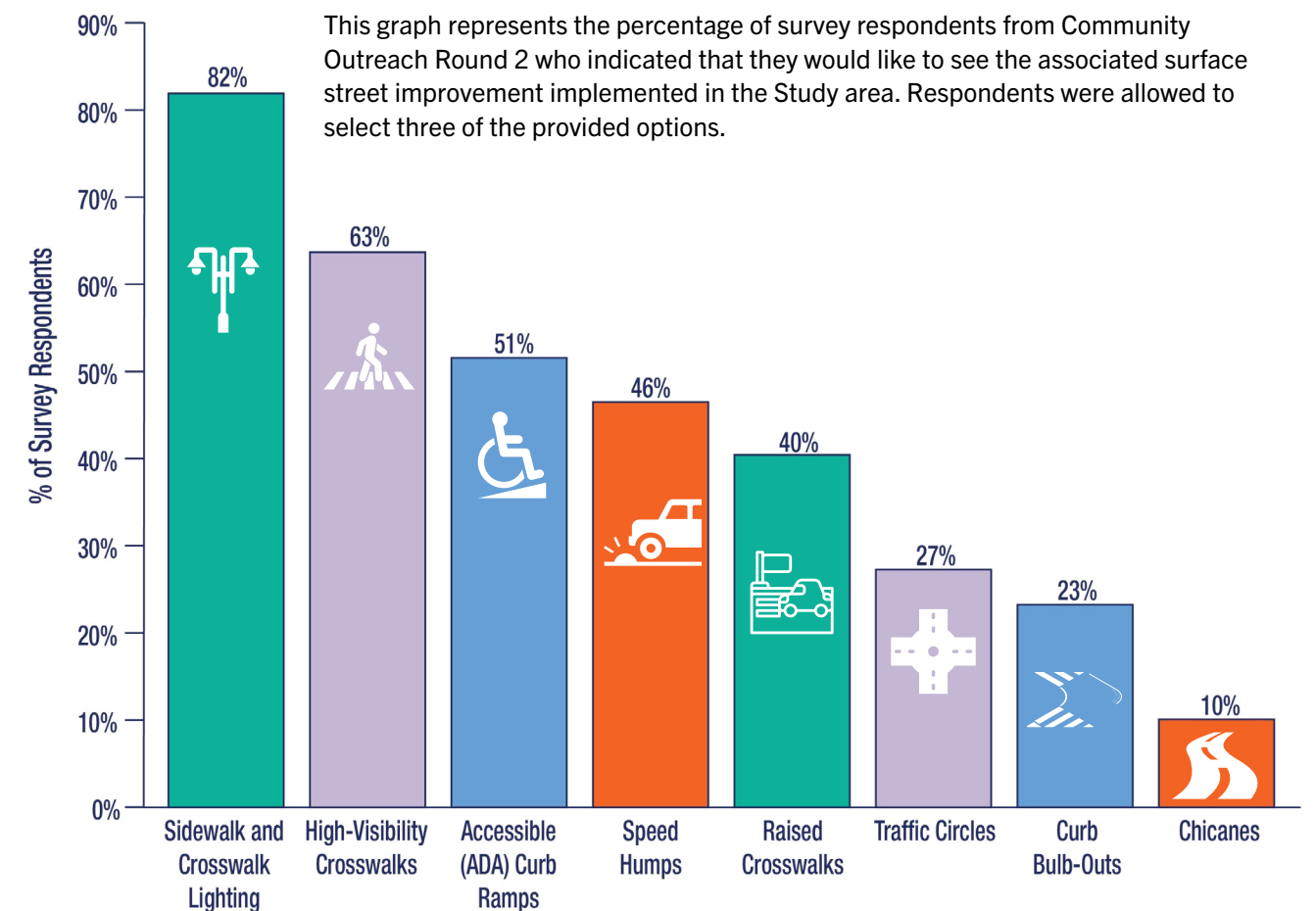
Extension of the curb at a crosswalk designed to decrease pedestrian crossing distance, improve pedestrian visibility, and reduce vehicle speeds.



### Chicanes

Narrowing of a road at select points, which can occur through the use of curbs or striping, to reduce vehicle speed.

Figure 10: Community Connections Preferences Among Survey Respondents







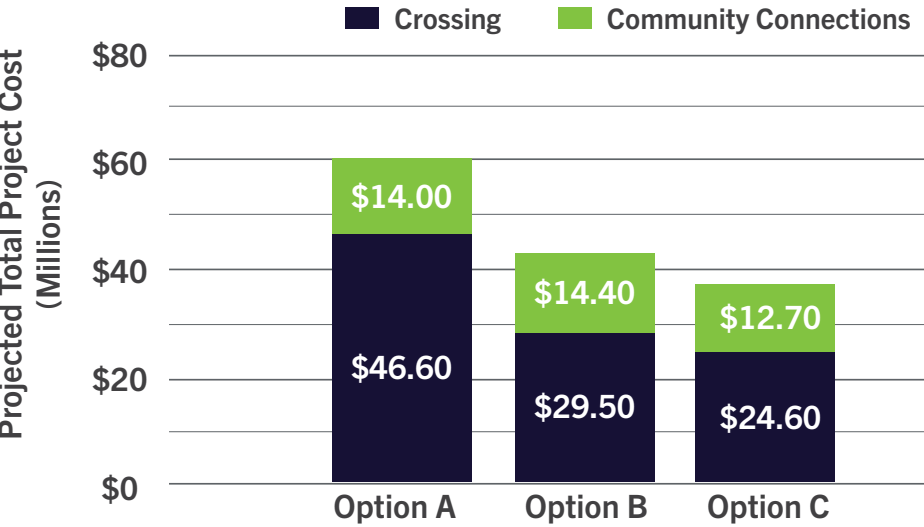
OPTION EVALUATION

Options Evaluation Summary

Table 2: Options Evaluation Summary Table

	Low (least desirable)			High (most desirable)		
	A	B	C			
Service Population						
Rail Crossing Length						
Regional Transportation Network Connectivity						
Local Destination Connectivity						
Motor Vehicle Circulation						
Bicycle and Pedestrian Comfort						
Public Space						
Visual Impact						
Green Infrastructure						
Emergency Access						
Personal Security						
Public Infrastructure Impact						
Construction Impact						
Direct Parcel Impact						
Parking Impacts						
Operation and Maintenance Cost						
Construction Cost						

Figure 11: Projected Cost of Options



Evaluation Summary

The project team completed a technical evaluation of the options, considering both the railroad crossing options and the corresponding community connections improvements. The results of this evaluation are shown in the evaluation table on the left side of this page. Each crossing and community connections option was evaluated on a five-point scale for each criteria using measures developed in the previous project phase. Note that the results of these evaluations are based primarily on engineering expertise and are one of several considerations in the process of seeking a locally preferred option. The findings were shared with the community for feedback and reaction in Community Outreach Round 2.

**Connectivity**  
All three options will connect to planned bike/pedestrian facilities on both sides of the Caltrain tracks.

**Service Population**  
Options A and B have twice the population (1,280 people) within 1/8 mile of crossing access in comparison to Option C (690 people).

**Railroad Crossing Length**  
Option A has the shortest stairs-to-stairs length (220 feet) and ramp landing-to-ramp landing (675 feet) out of the three options.

**Local Destinations**  
Option C does not provide convenient access to existing residents on the northern side of the Caltrain tracks.  
All three options will connect to planned bike/pedestrian facilities on both sides of the Caltrain tracks.

**Motor Vehicle Circulation**  
While all three options require conversion of a portion of Westmoreland Avenue into a one-way street, Option A has the shortest impact (850 ft).

**Bike/Pedestrian Comfort**  
Option A has the smallest total grade change (40 feet), roughly half of the elevation of the other two options.

**Public Space**  
Options A and B provide space to construct pedestrian plazas.

**Visual Impact**  
Options B and C would be prominent relative to the height of nearby buildings and thus very visible throughout the community.

**Green Infrastructure**  
Options A and B provide more opportunities for landscaping, benches, and bio-retention in the plaza areas.

**Emergency Access**  
All three options are designed to maintain sufficient emergency vehicle access.

**Personal Security**  
All three options have reduced visibility of users from street level, with the undercrossing below ground and the overcrossings significantly above ground with long distances between access points.

**Construction Impact**

- Option A requires tunneling during construction, which will impact access to adjacent residential parcels during construction.
- Options A and B likely require the relocation of the Palo Alto Pipeline along Westmoreland Avenue.
- Option C likely requires the relocation of the planned PG&E transformer on the Middlefield Junction site.
- Options B and C pose several conflicts with overhead Caltrain infrastructure and were deemed by Caltrain as riskier from a construction standpoint.

**Direct Parcel Impact**  
Option B requires the greatest number of parcels to be acquired, while Option C does not require any parcel acquisition. However, none of the three options displace existing residential units.

**Parking Impacts**  
Option C removes a net total of approximately 76 parking stalls, compared to an estimated 57 parking stalls for Option A and 60 for Option B.

**O&M Costs**  
All three options are likely to have similar maintenance costs.

**Construction Costs**  
Option A is currently estimated to be the most expensive to build, with current projections estimating it to be roughly 38% more expensive than Option B and roughly 62% more expensive than Option C. However, further study is needed to determine additional cost associated with the construction risks presented by each Option.





## Community Outreach Round 2

The second phase of engagement (Outreach Round 2) was conducted during March and April 2023 and was intended to introduce the three advanced options to the community and solicit feedback on the options and the associated community connections improvements.

To reach and engage with the community during Outreach Round 2, a variety of community engagement activities were utilized: 10 pop-up events (locations of events shown in Figure 12); an open house event; door-to-door canvassing of homes closest to the proposed railroad crossing locations; presentations at in-person and virtual meetings (a total of three community presentations); distributed flyers, and sent mailers to all property owners and occupants within the Study area and 300 feet beyond; and conducted an online and in-person paper survey (a total of 770 completed surveys were received). A short video was also produced to inform the public of the proposed railroad crossing options and encourage participation in Outreach Round 2. Updates on activities were provided on the Study website, through social media and via community partner listservs and newsletters. All materials were provided in Spanish and English.

### Key Takeaways



The Dumbarton Avenue Bridge (Option B) was the most common first preference among survey respondents, followed closely by the Middlefield Junction Bridge (Option C), which was the most common second choice among survey respondents. Option A ranked least popular with respondents but was still significantly more popular than the option to not build a crossing.



78% of survey respondents indicated that they would use the crossing frequently.



The majority of respondents preferred a railroad crossing over no crossing, with 127 respondents ranking “do not build a rail crossing” as their last choice.



A majority of respondents would use an active mode of transportation to access the railroad crossing – 80% reported that they would walk or use a mobility device, 24% would bike, and 18% of respondents would take transit as part of their trip using the crossing.



Sidewalk and crosswalk lighting, high-visibility crosswalks, and accessible (ADA) curb ramps were the three most popular infrastructure improvements survey respondents would like to see incorporated on neighborhood streets.



Many residents who preferred the bridge options were concerned about with personal security issues associated with a sub-terranean crossing.



A summary of Community Outreach Round 2 can be found in **Appendix E**.

Figure 12: Pop-Up Event Map – Outreach Round 2

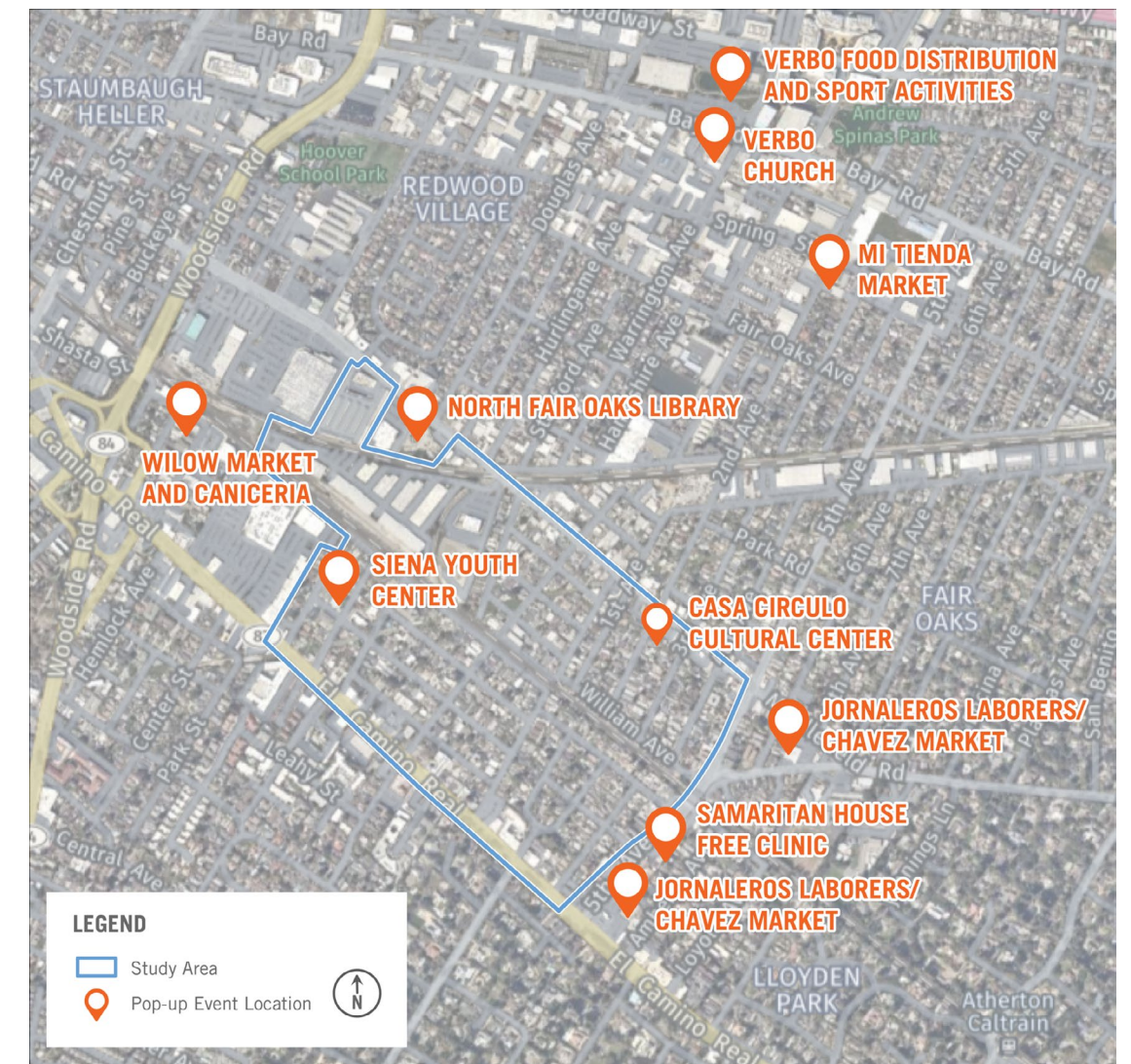


Figure 13: Crossing Preference of Study Area Residents

Responses from the 68% of survey participants that live in the Study area (between Middlefield Road and El Camino Real)

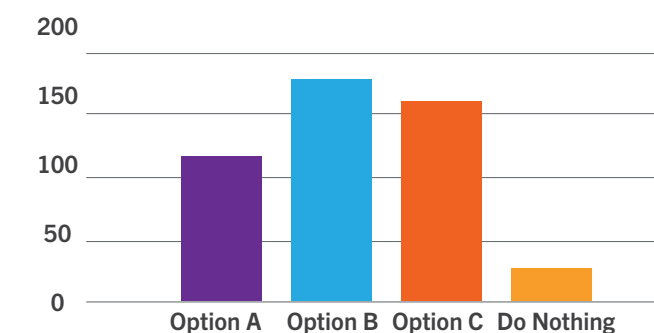


Figure 14: Survey Respondent Demographics



- 91% identify as Hispanic or Latinx/a/o
- 84% North Fair Oaks or Redwood City residents
- 60% took the survey in Spanish
- 13% over 60 years old





## IMPLEMENTATION CONSIDERATIONS

### Bridge Constructability Review

Caltrain commissioned a *Bridge Constructability Review* for Options B and C to determine the feasibility and magnitude of impacts of constructing an overhead crossing above the soon-to-be electrified Caltrain corridor. This review is included as part of **Appendix F**. The Constructability Review found that the construction of an overhead crossing was feasible under certain conditions. However, it also identified areas of risk and recommended potential modifications to the concepts' bridge width and construction technique.

Upon completion of the initial constructability review, Caltrain performed its own review to offer more detailed guidance for the project team. Based on their internal analysis of the *Bridge Constructability Review*, Caltrain staff prepared a memorandum and determined that the impacts from the overcrossing options could be acceptable with careful planning and conditions that minimize impacts to revenue service. The memorandum provided by Caltrain is also included in **Appendix F**. While the initial review of the overcrossing options deemed both feasible from an engineering standpoint, further investigation would be required to address the construction and maintenance of a bridge structure over an active railroad, refine construction methodology, and assess impacts to adjacent residents during construction. The memorandum made it clear that the tunnel option posed the least risk to Caltrain infrastructure and operations, however the tunnel was identified as the least preferred option by the community during outreach efforts.



### Community Outreach Round 3

The third and final phase of community engagement sought to update the community on the project's process, the challenges encountered in the previous months since the last round of engagement, and the next steps for the community after the Study is finalized. The Study team collected feedback through in-person and virtual community conversations held with community leaders and hosted an open house for the general public. These formats were selected to provide opportunities for more in-depth discussions compared to the broad distribution of surveys and feedback about preferred designs that were the focus in previous rounds of engagement. Several key takeaways from this final round of outreach are shown below. A summary of the Community Outreach Round 3 can be found in **Appendix G**.

#### Key Takeaways

- Multiple individuals expressed gratitude for the continued engagement of the community throughout the course of the project.
- Community members were supportive and enthusiastic at the prospect of implementing community connections improvements on a shorter timeline separate from the rail crossing.
- Community members expressed disappointment at the fate of the crossing project but were optimistic about shorter-term improvements. Community members were largely still supportive of the rail crossing effort despite the associated challenges.
- Several individuals expressed concerns about personal safety and security associated with the railroad crossing, particularly for the tunnel option (Option A).
- Some local residents expressed concerns regarding the magnitude of potential parking loss.







Study Considerations

A key goal of this Study was to identify a preferred new railroad crossing of the Caltrain tracks. Throughout the Study, the community expressed support for a new bicycle and pedestrian crossing of the Caltrain tracks. Thirteen different potential preliminary crossing options were explored and after a screening review they were reduced to three. Each of the remaining three rail crossing concepts were further assessed with extensive community input and feasibility considerations, including compatibility with other infrastructure facilities and projects. Given these complexities, a single preferred option is not being identified. This report provides a summary of the preferred locations and conceptual designs, a technical evaluation and associated community feedback, should agencies revisit this project. For a more detailed summary of the Study process, see the presentation included as **Appendix H**.

Should conditions change at a future point in time, some key considerations that would need to be further addressed include, but are not limited to the following:

- Coordination with the **San Francisco Public Utilities Commission (SFPUC)** to further assess and resolve impacts with the potential relocation of a major water line
- Coordination with **Caltrain** to study the feasibility of lowering electrification infrastructure (overhead contact system) to allow for a lower bridge crossing to reduce elevation change, ramp and stair length and visual impacts
- Coordination with **SamTrans** and the **Union Pacific Railroad (UPRR)**, to address future plans for transit and freight along the Dumbarton Corridor where one of the bridge crossings is proposed

Concepts may need to be refined and re-designed where necessary, with more significant changes contingent upon feasibility findings considering construction concerns and methodology. The continued inclusion of community input is essential prior to the selection of a recommended railroad crossing option. Before a preferred railroad crossing option can proceed into the environmental review, design and construction phases of development, approval from Caltrain will be required to confirm that a new crossing is compatible with the existing and planned future use and operation of the Caltrain corridor (additional information regarding the Caltrain’s Rail Corridor Use Policy can be found at the following link: <https://www.caltrain.com/media/2078>). Additional considerations specific to each potential rail crossing option developed for this Study are outlined in the section below.

Complexities Associated with a Potential Rail Crossing

Each of the rail crossing options developed for this Study face a number of potential challenges and complexities associated with the individual designs. Across each of the three options, the community would likely face access and circulation impacts due to construction, including the one-way conversion of part of Westmoreland Avenue and the removal of on-street parking along several roadways. Other considerations specific to each crossing option are provided below:

Option A: Dumbarton Avenue Tunnel

- Coordination with the SFPUC to resolve/avoid impacts to the Palo Alto water pipeline on Westmoreland Avenue
- Need to revisit community sentiment regarding personal security of a tunnel
- Potential to explore alternative tunnel alignments with fewer adverse impacts
- Impacts to underground utilities during tunneling
- Property acquisition of two vacant parcels on north side of railroad corridor

Option B: Dumbarton Avenue Bridge

- Coordination with the SFPUC to resolve/avoid impacts to the Palo Alto Pipeline on Westmoreland Avenue
- Potential to lower the OCS feeder wires to reduce elevation change, ramp length and visual impacts
- Potential temporary relocation of some residents on the north side of the proposed bridge crossing during specific stages of construction
- Investigation of crane staging to limit impacts to SFPUC Bay Division water pipelines
- Risks/impacts to Caltrain revenue service from small construction work windows
- Risk impacts from damage to Caltrain OCS during construction & maintenance
- Property acquisition of three vacant parcels on the north side of the corridor
- Reduction of bridge width based on the outcome of the Caltrain Bridge Constructability Review

Option C: Middlefield Junction Bridge

- Coordination with the SamTrans and the UPRR for future use of the Dumbarton Corridor and encroachments during construction/ need for easements
- Potential to lower the OCS feeder wires to reduce elevation change, ramp length and visual impacts
- Coordination with the Fair Oaks Health Center to address parking loss from bridge ramp
- Coordination with the County Department of Housing to relocate a PG&E transformer on the Middlefield Junction housing site
- Risks/impacts to Caltrain revenue service from small construction work windows
- Risk impacts from damage to Caltrain OCS during construction & maintenance
- Reduction of bridge width based on the outcome of the Caltrain Bridge Constructability Review





## Considerations for Community Connections Improvements

Some of the community connections elements (as noted on pages 11-14) could be implemented separate from a rail crossing, providing improved community access and mobility to local destinations within the neighborhoods on both sides of the tracks. The County relies on grant funding for the implementation of many bicycle and pedestrian infrastructure improvements (see list of potential funding sources in **Appendix I**). The following considerations present additional implementation opportunities:

- **North Fair Oaks Community Plan Review** - The Review will evaluate the progress of the Plan's implementation, seek community input to help prioritize remaining programs and policies to address existing needs, and develop performance measures to track implementation. The results of the Review will help allocate County resources to address a broad array of quality-of-life concerns, which could help elevate the priority for many of the Study Community Connections improvements. The Review will be complete by mid-2024.
- **Exploration to improve lighting along sidewalks and crosswalks** - The most popular community connections infrastructure component to improve safety and comfort was improved lighting. The Study area is located within the Menlo Park Highway Lighting District. Opportunities to install new lighting to improve bicycle and pedestrian safety can be further pursued through (1) a petition of two members of the County Board of Supervisors to the full Board or (2) a petition of at least 20 or more property owners in the Lighting District. A potential next step could include an assessment of lighting needs. Property owners pay for lighting costs through a portion of their ad-valorem property taxes.
- **Incorporation of bicycle and pedestrian improvements as part of other Public Works projects** - Per Complete Streets Resolution #072326, "The County is committed to Complete Streets and desires that its streets form a comprehensive and integrated transportation network promoting safe, equitable, and convenient travel for all users while preserving flexibility, recognizing community context and using the latest and best design guidelines and standards." To maximize economies of scale, consideration will be given to coordinate the timing of bicycle and pedestrian infrastructure improvements with planned road and utility improvement projects, when feasible. Next steps could include the following:
  - » **Road pavement preservation program and road reconstruction** - Pavement preservation includes resurfacing and paving projects. Road reconstruction addresses a greater depth of roadway than pavement preservation, often fixing more significant structural or pavement issues. Bicycle, pedestrian and other striping improvements such as high visibility crosswalks (the second most popular Community Connections infrastructure component), sharrows and bike lanes, are evaluated and could be included as part of road maintenance projects. State and federal regulations require public agencies to provide accessible (ADA) curb ramps, which were the third most popular Community Connections treatment, with road reconstruction projects and certain types of resurfacing treatments. County Active Transportation staff coordinate with Public Works staff on the County's annual road preservation program to recommend improvements that are consistent with the Unincorporated San Mateo County Active Transportation Plan.
  - » **North Fair Oaks Sewer Infrastructure Plan** - The County is in the process of preparing a sewer infrastructure plan as part of the Fair Oaks Sewer Maintenance District (District) Master Plan Update to meet current and future sewer capacity needs, which includes the community of North Fair Oaks. The Plan Update is projected to be complete in 2024. Opportunities to install bicycle and pedestrian enhancements on affected roads within the Study area with planned sewer upgrades can be considered. These improvements cannot be funded through District funds though and will need to be funded through other sources.
- **Incorporation of bicycle and pedestrian improvements as part of new development** - The County's Planning and Building Department issues permits for development within the unincorporated County. Various regulations dictate the type and level of improvements required for new development. Large developments are typically required to implement improvements such as high visibility crosswalks, accessible (ADA) curb ramps, sidewalk improvements and street trees. The C/CAG Transportation Demand Management Policy requires new development that generates over 100 average daily trips (ADT) to implement alternative transportation infrastructure and programs, which can include bicycle and pedestrian facilities.
- **Implementation of a micromobility pilot program** - In December 2022, C/CAG adopted the San Mateo County Shared Micromobility Study and Implementation Plan with a focus on serving equity priority communities with limited access to vehicles and a high reliance on transit. County staff are coordinating with C/CAG and its partners for a bike-share/scooter-share pilot program that will serve North Fair Oaks and Redwood City with a projected launch in late 2024/early 2025. This pilot can help meet the Study goals of improving access and equitable transportation.





# NORTH FAIR OAKS

## BICYCLE AND PEDESTRIAN RAILROAD CROSSING AND COMMUNITY CONNECTIONS STUDY

