

El Camino Real

Complete Streets Corridor Study

PROJECT SPONSOR

Town of Atherton

PROJECT PARTNERS

San Mateo County Transportation Authority (TA)

SamTrans

City of Menlo Park

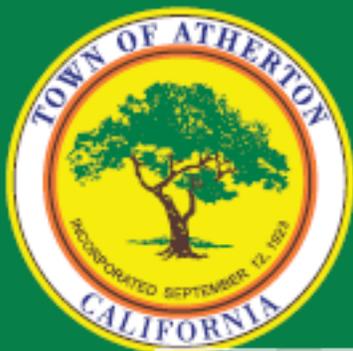




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1. Introduction

The El Camino Real Complete Streets Corridor Study is a collaborative effort between the Town of Atherton (Town) and the San Mateo County Transportation Authority (TA) to study and recommend improvements that enhance travel safety and quality of life along El Camino Real (ECR). The study is the first step in developing proposed projects informed with community engagement, to be advanced to design, construction, and implementation.

1.1 Background and Purpose

ECR, part of the historic trail connecting Spanish missions in California, is a roughly 26-mile-long designated State Route (SR), SR 82, in San Mateo County. It begins at the county line between San Francisco and San Mateo through the City of Menlo Park, ECR functions as a major north-south arterial and carries a significant proportion of local intra-and inter-city travel as it traverses eleven jurisdictions in San Mateo County. As a state route, the California Department of Transportation (Caltrans) owns and maintains ECR with jurisdictional authority over project planning, design, and implementation of all State Highways.¹

Unlike many segments of ECR elsewhere, the segment of ECR analyzed in this study (Study Limits) has limited intersection stop controls that can lead to speeding along the six-lane bi-directional arterial, which carries approximately 36,000 average vehicles daily through the Town in both directions. A December 2024 Caltrans speed survey found that 85 percent of vehicles travel under free flow conditions, averaging 38 miles per hour (mph), 3 mph over the posted 35 mph speed limit on the segment of ECR through the Town.

This segment of ECR lack continuous sidewalks within the Town, accessibility to bus stops, and bicycling infrastructure. Pedestrians and cyclists are required to use the partially paved shoulder to traverse the corridor through Atherton.

High speeds and lack of safe pedestrian and bicycle infrastructure contribute to safety concerns, demonstrating the need to develop and identify improvements to enhance safety for users on the corridor. At 31 mph, the average risk of severe injury for pedestrians in a motor vehicle crash is 50 percent and increases to 75 percent at 39 mph. Between 2011-2020, the pedestrian fatality rate in Atherton was over 4 deaths per 100,000 residents: amongst the highest in the Bay Area.² Contributing to higher incidences of collisions between vehicles and bicyclists and pedestrians is the inconsistent physical corridor.

As a result, the Town has long identified the need for comprehensive solutions to the corridor to balance the needs of motorists, pedestrians, and bicyclists to travel along this north-south artery. The effort to develop safety focused improvements was formalized with the 2012 Atherton Complete Streets Policy and the 2014 Atherton Bicycle and Pedestrian Master Plan. Both of these documents

¹ Caltrans has partnered with local jurisdictions to lead enforcement activities, such as parking enforcement.

² Source: National Highway Traffic Safety Administration.



outlined the need and desire for bicycle and pedestrian facilities along ECR and the role of this arterial as the backbone of an active transportation network.

The Town secured grant funding from the TA through its 2022 Pedestrian & Bicycle Program (Cycle 6) for technical assistance to develop and evaluate complete streets design options for the 1.5-mile segment of ECR from north of Selby Lane (Ln) to Valparaiso Avenue (Ave). Additional funding from SamTrans and the City of Menlo Park also contributed toward this study. This study is intended to help develop a consensus on a design solution that will be incorporated into the Caltrans project development process for Project Initiation Document (PID), and future Project Approval & Environmental Document (PA&ED) phases that can lead to develop and construct project improvements on ECR (Figure 1).³⁴

Figure 1: Caltrans Project Development Process



1.2 Project Goals

The goals of this study are as follows:

- Improved Safety and Quality of Life: Create a study that prioritizes and enhances safety for all road users, particularly more vulnerable modes (pedestrians, cyclists), while addressing seasonal flooding along the corridor.
- Improved Connectivity: Improve connections between key destinations along ECR and create a consistent experience for all modes (pedestrians, cyclists, drivers).
- Enhanced Equity and Access: Prioritize equity and access for different types of road users and for people of all ages and abilities.
- Expanded Travel Options: Optimize active transportation options (walking, cycling) and taking transit to make it easier or more convenient for people to travel without a car.

1.3 Policy Support

The plans and programs outlined below detail projects along ECR that are intended to improve the surrounding transportation network. This study builds upon those goals and objectives.

³Project initiation document (PID) – An engineering document or technical report that documents the scope, cost, and schedule of a project (Chapter 9).

⁴Project Approval & Environmental Document (PA&ED) – The intent of the PA&ED phase is to obtain public input to inform the selection of a project alternative, identify land use needs, further define costs, and develop the necessary environmental documents in accordance with the California Environmental Quality Act and National Environmental Policy Act (SR-67 Highway Improvements Project: Project Approval and Environmental Document (PA&ED) Phase - PublicInput).



- [2012 Town of Atherton Complete Streets Policy](#)
 - Included four principles (commitment to complete streets serving all users, context sensitivity, routinely address policy by all city departments, ensure safe travel for all project development phases)
 - Called for transportation projects to be consistent with complete streets policies, ensure the connected street network incorporates appropriate infrastructure, ensure the city evaluates progress)
- [The 2014 Town of Atherton Bike and Pedestrian Master Plan](#)
 - Recommended the following:
 - Converting the westernmost southbound lane on ECR to a Class I trail
 - Selby Ln to Fifth Ave: Class I trail, active transportation investments
 - Atherton Ave to Encinal Ave: Class I trail, crosswalk enhancements at Watkins Ave/Isabella Ave
 - Installing Class II bike lanes on Selby Ln between ECR and West Selby Ln
 - Funding a traffic study to determine the feasibility of removing one or both outside travel lanes for a dedicated pedestrian and bicycle facility
 - Reviewing with Caltrans optimal locations for new traffic signals, pedestrian hybrid signals, and other crossing improvements
- [The 2021 C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan](#)
 - Recommended a Class IIB buffered bicycle lane along ECR
- [Redwood City El Camino Real Corridor Plan](#)
 - Provided a comprehensive land use, transportation, and streetscape approach consistent with the City of Redwood City’s General Plan’s principles
 - In summer 2024, the City of Redwood City received an encroachment permit to install buffered bike lanes (northbound) between Maple Street (St) and Jefferson Ave
 - The city is also working with an engineering consultant company to design and apply for an encroachment permit for a buffered bike lane with delineators (southbound) between Brewster Ave and Vera Ave
- [Menlo Park El Camino Real Corridor Study](#)
 - Reviewed and recommended potential transportation and safety improvements to ECR, making it safer and more efficient to move along and across ECR for all modes of travel
 - Directed staff to advance the design of bicycle and pedestrian crossings on ECR



- Designs for Ravenswood Ave were completed in Spring 2025 and construction is tentatively scheduled from July to August 2025
- [San Mateo Countywide Transportation Plan](#)
 - Provided the county with a long-range, comprehensive transportation planning document to set forth a coordinated planning framework and establish a systematic transportation planning process for identifying and resolving transportation issues
 - Recommended the following:
 - Implement the Grand Boulevard Initiative (GBI) vision of transit-oriented development along ECR
 - Implement enhanced transit service on ECR
 - Implement a complete streets design for Mission St/ECR as part of the GBI
 - Implement supporting infrastructure and Automated Transit Signal Priority to support SamTrans express rapid bus service along ECR
- [Reimagine SamTrans](#)
 - Evaluated every element of the SamTrans system to identify improvements to local and regional travel connections, route design, how often the buses run, best practices for operations and public health, and more
 - Recommended Route ECR to operate every 15 minutes during daytime periods, seven days a week
- [Grand Boulevard Initiative](#)
 - Coordinated effort between SamTrans, the cities along ECR, and San Mateo County to better coordinate and quickly advance travel improvements on the corridor
 - The first phase includes the development of a PID for all of ECR in San Mateo County which will define the purpose and need for the changes along the corridor as well as potential design options
- [Metropolitan Transportation Commission \(MTC\) Active Transportation Network](#)
 - Developed to guide MTC's policy and investment framework needed to achieve Plan Bay Area 2050's goals before 2050
 - [Plan Bay Area 2025+](#): The Bay Area's regional long-range plan adopted by MTC and the Association of Bay Area Governments (ABAG). The plan was developed in collaboration with Bay Area residents, partner agencies, and nonprofit organizations.
 - Project on ECR includes a BRT Modernization on El Camino Real. This program includes funding to implement BRT improvements to existing bus service along El Camino Real from Daly City BART to Palo Alto Caltrain Station. Improvements



include frequency upgrades (15 minute peak headways), dedicated lanes (45 percent of route), transit priority infrastructure and transit signal priority

- ECR is part of the Active Transportation Network which emphasizes safe access and high comfort for vulnerable road users and creates a network for all ages and abilities
- [2024 State Highway Operation and Protection Program \(SHOPP\)](#)
 - Four-year program of projects that collectively improves the condition, operation, and sustainability of the State Highway System and associated transportation infrastructure in California
 - Projects on ECR include:
 - Replace technology components of Transportation Management System elements,
 - From 43rd Avenue to East Santa Inez Ave, rehabilitate pavement, install bike lanes, upgrade pedestrian facilities to Americans with Disability Act (ADA), and modify traffic signals
 - In Burlingame, Millbrae, San Bruno, and South San Francisco, from Murchison Drive (Dr) to Arroyo Dr, rehabilitate pavement and improve pedestrian infrastructure
 - In and near South San Francisco, Colma, and Daly City, from Arroyo Dr to Interstate 280, rehabilitate pavement, upgrade facilities to ADA standards, install bike lanes and separated bikeways, and upgrade guardrail
- [Caltrans District 4 Bike Plan](#)
 - Identified infrastructure improvements that can enhance bicycle safety and mobility through Caltrans’ District 4 and remove some of the barriers to bicycling in the region
 - Projects on ECR include:
 - Class IV separated bikeway between John Daly Boulevard (Blvd) and Collins Ave
 - Class IV separated bikeway between Baldwin Ave and 9th Ave
 - Class I bike path between Atherton Ave and Encinal Ave
 - Class IV separated bikeway between Cordilleras Creek and Berkshire Ave
 - Class IV separated bikeway between Selby Ln and Encinal Ave
 - Class IV separated bikeway between Encinal Ave and Middle Ave
 - Intersection improvement at Arlington Dr
 - Intersection improvement at Linden Ave
 - Intersection improvement at Middle Road (Rd)

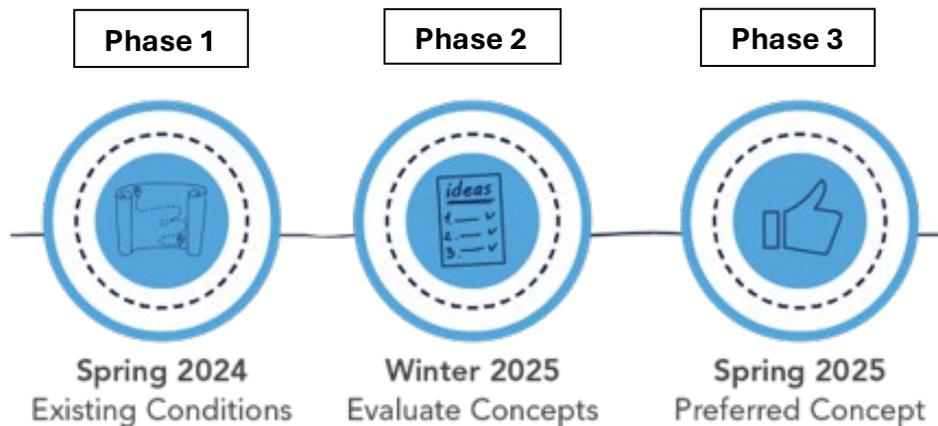


- Intersection improvement at Emmette Ave
- Interchange improvements at Manzanita St

1.4 Timeline

The study was conducted in three phases from Spring 2024 to Spring 2025 (Figure 2). The preferred alternatives recommended for additional study help inform the upcoming design process through the Caltrans PID process.

Figure 2: Study Timeline



1.5 Study Process

This document is organized into six sections. Following the Introduction, this study includes the following:

1. **Existing Conditions:** A review of the existing demographics, mobility network and traffic operation of the study area and study limits.
2. **Community Engagement:** A summary on the three phases of community engagement, including public awareness outreach, in-person meetings, virtual meetings, online polling, and outreach to jurisdictions across the study area.
3. **Preliminary Alternatives Development:** A summary of the initial screening of alternatives that represented the range of possible solutions and the screening process that resulted in the refined concepts.
4. **Concept Designs:** A summary on the development of the refined conceptual designs (Concepts) from the preliminary alternatives and their performance against the project evaluation criteria.
5. **Summary and Next Steps:** Through the technical analysis and community feedback gathered through this study, the Town identified two concepts for further review and analysis.



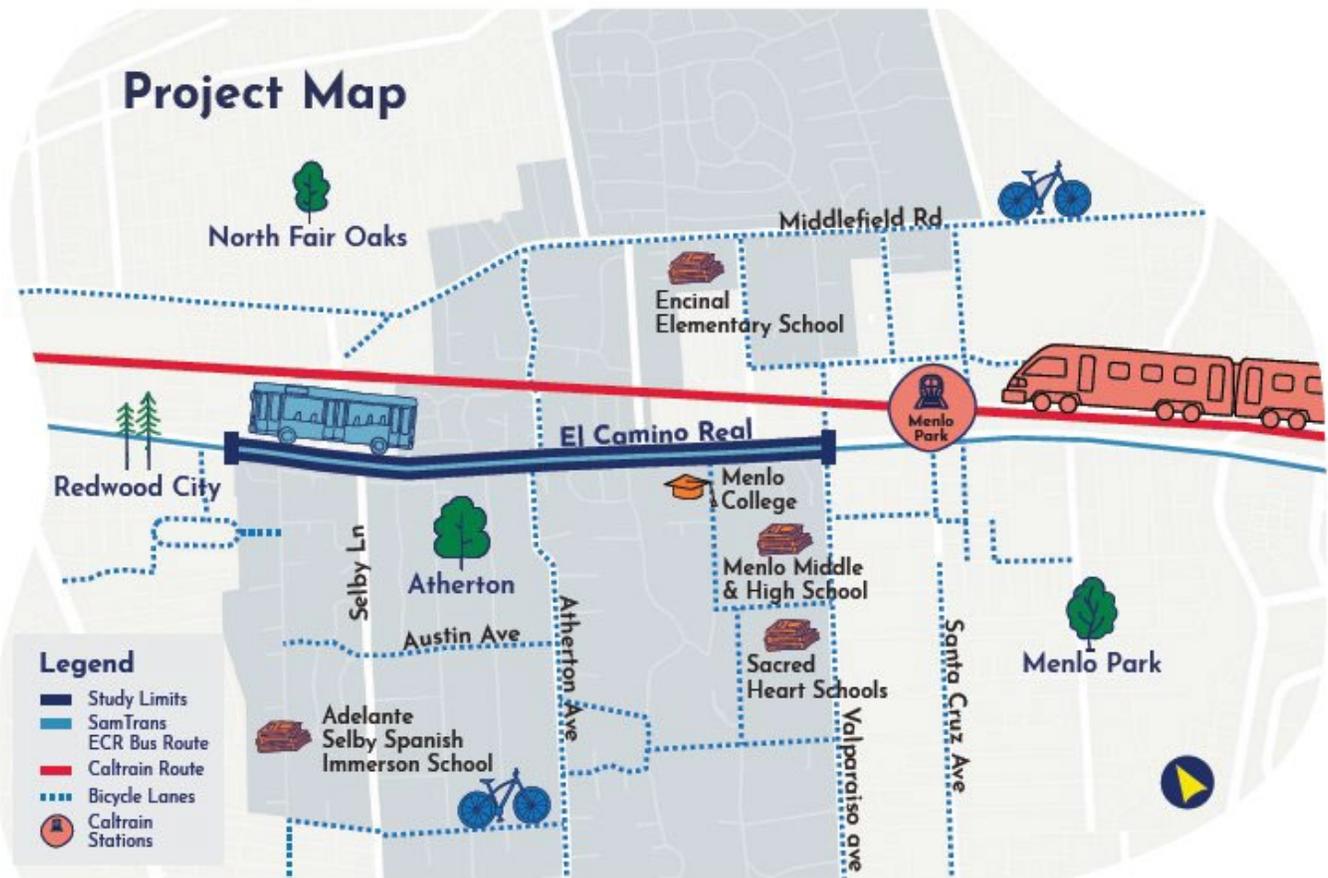
2. Existing Conditions

This section summarizes the study limits and study area’s existing demographics, mobility network, and traffic operations. For the complete analysis and data collection in this section, please see **Appendices 1 through 7**.

2.1 Study Limits

The study limit is defined as the 1.5-mile segment of ECR between Selby Ln and Valparaiso Ave. For the data collected for demographics and the mobility network, the study limits include the ECR corridor that runs through the Town, San Mateo County, North Fair Oaks community, and cities of Redwood City and Menlo Park. The concepts developed as part of this study will focus on improvements on the ECR corridor. Figure 3 below shows the study limits.

Figure 3: Study Limit

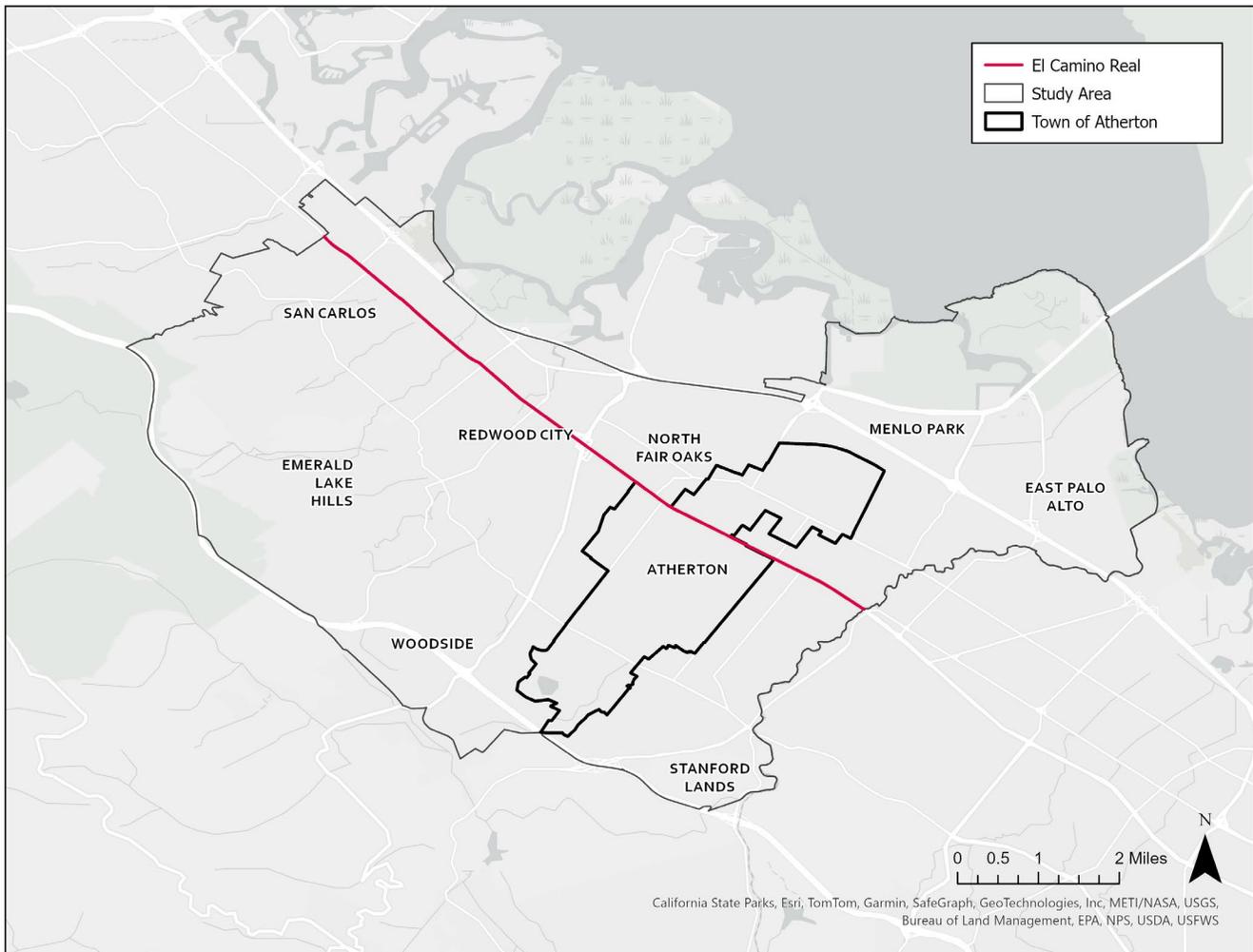




2.2 Study Area

To support the existing conditions analysis, a study area surrounding the study limits was created. The area extends from San Carlos in the north to the San Mateo County and Santa Clara County border in the south. The study area was determined through discussions with the project team and consists of 48 census tracts surrounding the project corridor to collect intra and inter-city travel to provide a broader understanding of how people are traveling through the area. Widening the analysis to a broader domain acknowledges that challenges and solutions in the Study Area should consider the context of communities that contribute to conditions along ECR. Figure 4 below shows the study area.

Figure 4: Study Area





2.3 Demographics

The study reviewed the Town’s (study limits) demographics in comparison to the study area to best understand the users of ECR (Table 1 and Table 2). The data in **Section 2.3** is sourced from the U.S. Census Bureau’s 2022 American Community Survey (ACS) five-year estimates.⁵

Table 1: Town of Atherton (Study Limit) Demographics

Town of Atherton	
Total Population (2022)	7,124
Total Population (2019)	7,168
Growth Rate (2019 to 2022)	-0.61%
Median Age	46.2
Percent Seniors (65+)	35.4%
Percent Youth (5-19)	24.3%
Percent Limited English-speaking Household	1.6%
Median Household Income	\$250,000

Table 2: Study Area Demographics

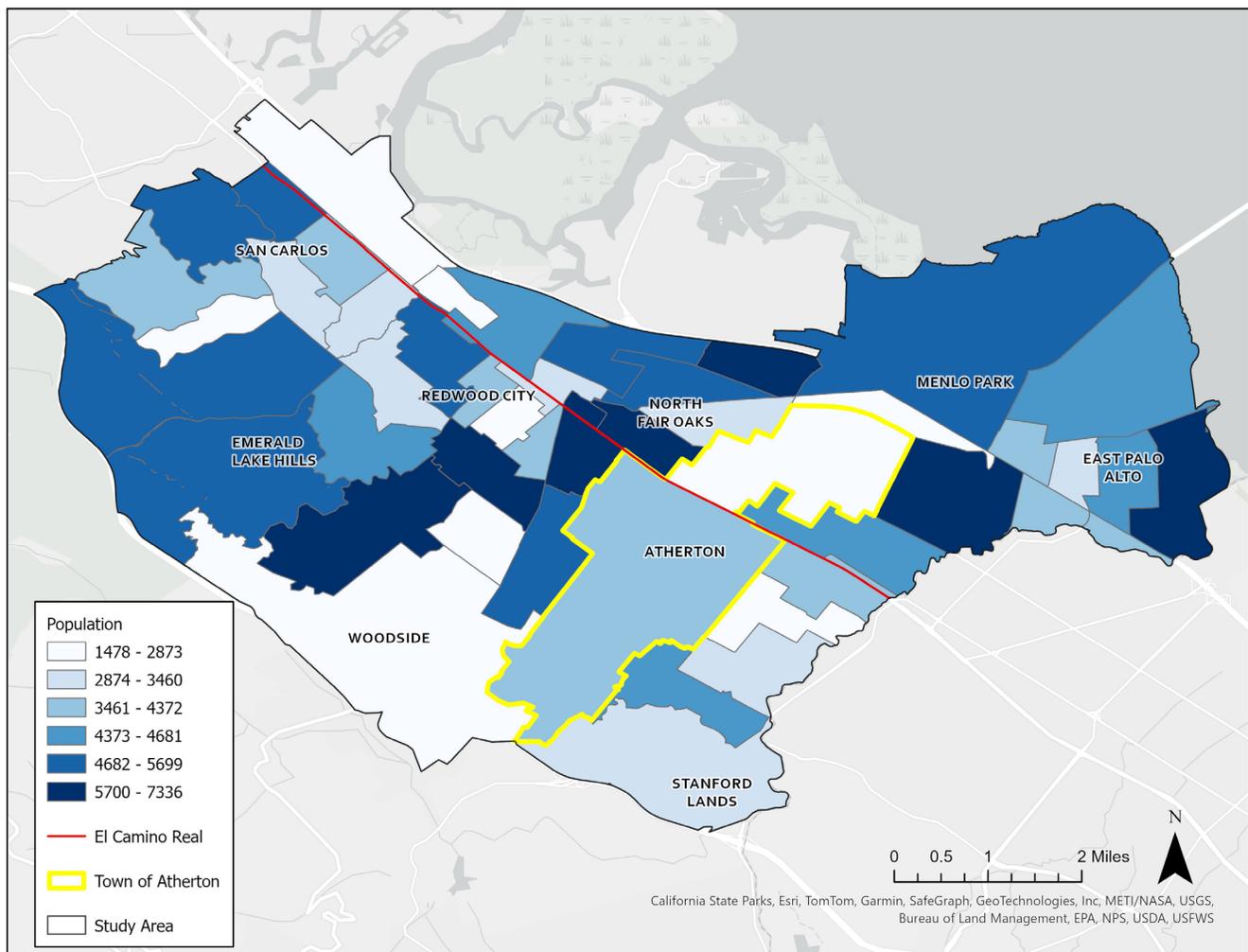
Study Area	
Total Population (2022)	232,677
Total Population (2019)	204,677
Growth Rate (2019 to 2022)	13.68%
Median Age	40
Percent Seniors (65+)	8%
Percent Youth (5-19)	10%
Percent Limited English-speaking Household	34%
Median Household Income	\$176,012

⁵ Source: “Explore Census Data”, U.S. Census Bureau, 2024, <https://data.census.gov/>.



As of 2022, most of the study area population lives in Redwood City, East Palo Alto, and Menlo Park, as shown in Figure 5. Most of the senior population lives west of ECR and the youth population varies by city with higher youth population in Atherton, East Palo Alto, Redwood City, and San Carlos. The percentage of residents with a disability varies across the study area with a high percentage of these residents along ECR and in the western neighborhoods of the study area of Menlo Park and East Palo Alto. Within the study area, 34 percent of households are limited English-speaking, with a higher percentage of these households along and east of ECR. The median household income of the study area is \$176,012, with higher income households in Atherton (\$250,000) and the western region of the study area. East Palo Alto and North Fair Oaks are the neighborhoods with the highest percentages of families living below poverty. These communities also have higher percentages of zero-vehicle (transit dependent) households, An extended demographics report can be found in **Appendix 7**.

Figure 5: Population of Study Area



Source: U.S. Census Bureau, 2024.



2.3.1 Equity

There are several guiding equity frameworks at the regional and county level. These frameworks and factors include:

- SamTrans utilizes three demographic factors and population density to determine their Equity Priority Areas. These factors are zero-vehicle households, lower-income households (earning less than \$75,000 per year), and non-white households.
- MTC identifies Equity Priority Communities based off the following eight demographic variables: People of Color, Low-Income, Limited English Proficiency, Seniors 75 Years and Over, Zero-Vehicle Households, Single Parent Families, People with a Disability, and Rent-Burdened Households. If a census tract exceeds both threshold values for Low-Income and People of Color or exceeds the threshold value for Low-Income and exceeds the threshold values for three or more variables, it is an Equity Priority Community.
- C/CAG developed an equity assessment framework to prioritize investment to communities to improve transportation, housing, and other community services. The framework looks at demographic factors such as race, income, limited English-speaking households, zero-vehicle households, seniors, people with disabilities, single parent families, and severely rent-burdened individuals.
- U.S. Department of Transportation defines Areas of Persistent Poverty by the as census tracts that has a poverty rate of at least 20 percent as measured by the 2014 to 2018 ACS five-year estimates.

The Town does not overlap with any of these equity areas. However, there are cities in the study area that fall within the equity frameworks, shown in Table 3.

Table 3: Cities with Guiding Equity Frameworks

Framework	East Palo Alto	North Fair Oaks	Redwood City	Menlo Park
SamTrans	X	X	X	
MTC	X	X	X	X
C/CAG	X	X	X	
Areas of Persistent Poverty		X	X	

2.4 Mobility Network

This section details the transportation modes along ECR, in and adjacent to the study’s limits, and within the study area. The mobility network includes SamTrans and Caltrain transit service, free commuter shuttles, bicycle and pedestrian facilities, and major roadways.



2.4.1 Transit Network

The study area is served by SamTrans buses, commuter shuttles, and Caltrain.

*SamTrans*⁶

Within the Town there are 24 SamTrans bus stops, and six of those stops are along ECR. There are ten bus routes that operate through Atherton. Currently, many of the transit stops within the Town are not ADA accessible. Almost all the stops have a standard bus stop pole and sign, with very few stops having a shelter, bench, or system map. None of the stops have a system schedule. On ECR within the study limits, along the southbound side, there are no sidewalks to safely access the bus stops, and on the northbound side, there is one stop that is not ADA accessible. As part of the Reimagine SamTrans project, Route ECR was upgraded to operate every 15 minutes during daytime periods, seven days a week. First/last-mile connections should be prioritized to the stops serving this route due to its prominence in SamTrans' network. Additionally, there are several local plans to improve transit access and performance in the study area including SamTrans' Bus Stop Improvement Plan and ECR Bus Speed and Reliability Study.

*Commuter Shuttles*⁷

There is one shuttle route which currently runs through the Town, primarily serving the larger study area. The M1 Crosstown Shuttle is a free community shuttle funded by C/CAG, the MTC Lifeline Program, and the City of Menlo Park. The shuttle serves as a first/last-mile shuttle which runs from Belle Haven to Sharon Heights in Menlo Park, stopping in downtown Menlo Park, downtown Palo Alto, Palo Alto Caltrain station (outside of study area), and the Stanford Shopping Center/Stanford Medical Center. Additionally, this shuttle serves Menlo School and Menlo-Atherton High School in Atherton.

*Caltrain*⁸

There are three Caltrain stations in the study area: Menlo Park, Redwood City, and San Carlos. The Atherton station was closed in 2020 due to low ridership and inadequate platform configurations. Caltrain Express trains only stop at the Redwood City station on weekdays, while there are some Limited trains that stop at one or more of the three stations in the study area throughout weekday service.

2.4.2 Pedestrian Network

Within the study limit, there are signalized intersections on ECR at Valparaiso Ave, Encinal Ave, Atherton Ave, and Fifth Ave, and each intersection has at least one marked crosswalk in the north and/or south direction. There are High Intensity Activated crossWalk (HAWK) beacons at Alejandra Ave, Isabella Ave, and Almendral Ave and these intersections only have a marked crosswalk on the east side of the intersection. The pedestrian network along the project corridor lacks sidewalks on the southbound section which does not make ECR a safe corridor for pedestrians.

⁶ Source: [Bus Stop Improvement Plan | SamTrans](#).

⁷ Source: [Commuter Shuttles in San Mateo County | Commute.org](#).

⁸ Source: [Stations & Zones | Caltrain](#).

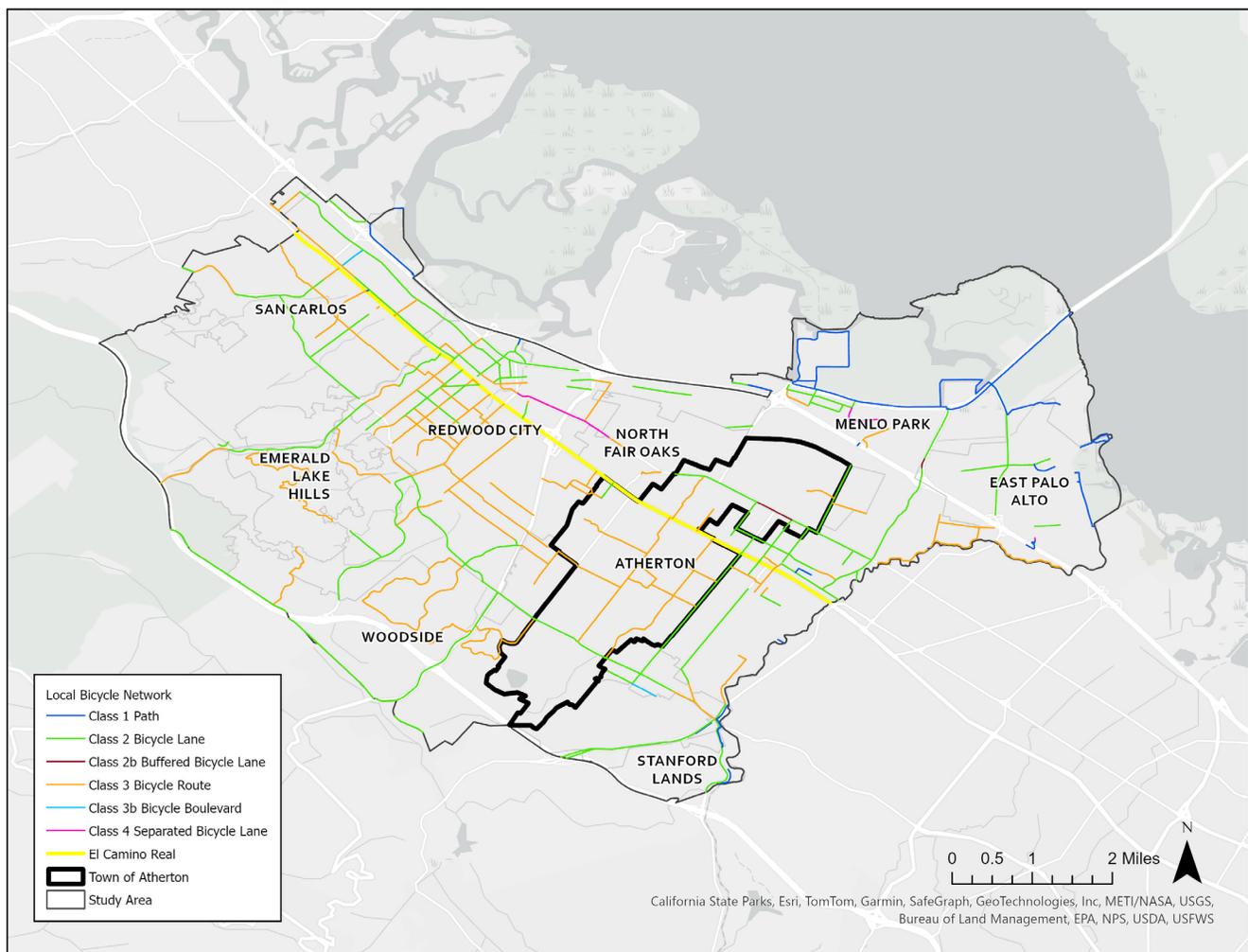


Within the study area, the 2021 C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) identifies areas of North Fair Oaks, San Carlos, Redwood City, and Menlo Park along ECR in the study area as Pedestrian Focus Areas, which are noted to have high walking activity and recommends prioritizing these areas for active transportation developments.

2.4.3 Bicycle Network

The study area has a variety of bicycle facility types (Figure 6). Within the study limits, the bicycle facilities are either Class II, Class IIB, or Class III bicycle lanes (Figure 6). Class II facilities include bike lanes and buffered bike lanes that allow for a separate travel lane to vehicles which are safer than Class III facilities, which are bicycle routes that are generally shared with vehicular traffic. The Study Limit does not currently have any dedicated bicycle facilities; however, the 2014 Town of Atherton Bicycle and Pedestrian Master Plan and CBPP, it is recommended that ECR is converted to a Class IIB buffered bicycle lane to improve conditions for cyclist.

Figure 6: Study Area Existing Bicycle Network





Source: C/CAG, 2021.

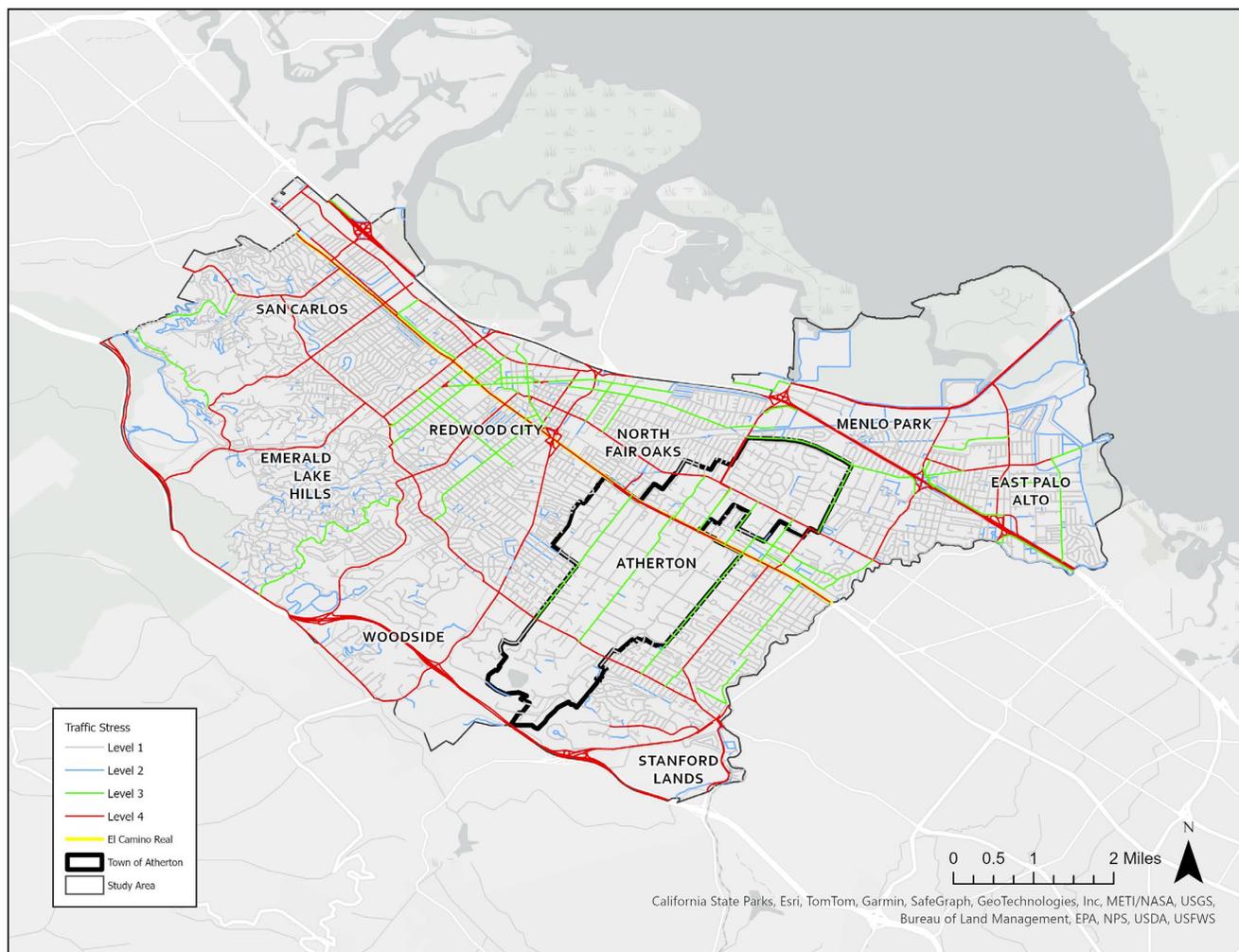
2.4.4 Level of Traffic Stress

The CBPP reviews existing bicycle facilities in the county to determine the level of traffic stress bicyclists experienced along major corridors. The CBPP does not include a review of pedestrian level of stress. While traffic stress levels outside the Study Area are not directly germane to issues within the Town, they provide context for the localized conditions within the Town. Traffic stress was measured on a scale from 1 (lowest stress) to 4 (highest stress). Stress levels are dependent on traffic speed, right-of-way separation characteristics, and path use type. This study notes that bicycle-involved collisions are likely to occur along corridors with higher traffic stress rating of 3 or 4. Figure 7 displays the levels of traffic stress within the study area. In the Study Limit, ECR has a stress level of 4. The cross streets Stockbridge Ave, Atherton Ave, Fair Oaks Ln, Watkins Ave, Encinal Ave, and Valparaiso Ave at ECR have a stress level of 3. All other intersections along ECR in the Study Limits are a stress level of 1.

Additionally, the C/CAG Countywide Local Roadway Safety Plan identifies the Motor Vehicle High Injury Network (HIN), Pedestrian HIN, and Bicycle HIN segments in Atherton. HIN includes roadways and intersections with the highest number of serious and fatal injuries over the most recent five years of available crash data. ECR is listed on the county's HIN for all modes, and safety improvements should be prioritized in the study limit.



Figure 7: Level of Traffic Stress



Source: C/CAG CBPP, 2021.

2.5 Traffic Operations

This section summarizes the traffic flow, safety, and multimodal accessibility along ECR within the Town. In preparations for a comprehensive analysis of ECR corridor, the following data were collected to capture traffic patterns accurately: turning movement counts (TMCs), 72-Hour Tube Counts, Signal Timing, and Crash Data.

2.5.1 Existing Corridor Conditions

The ECR segment within the study limits is classified as an arterial roadway.⁹ An arterial roadway is a street or highway serving major activity centers, carrying the highest traffic volumes, with running

⁹ Source: General Plan



speeds of 25 to 45 mph along sections of uninterrupted flow. This corridor varies between five to six lanes with a shoulder (paved and unpaved) on both sides, supporting high volumes of bidirectional traffic. It is critical in facilitating connectivity across local and regional transportation systems. The posted speed limit in both the northbound and southbound direction is 35 mph. Sidewalks are available intermittently and on the northbound side.

Limited on-street parking is available along the northbound side of ECR, with no street parking along the south side. There are some marked spaces between Encinal Ave and Valparaiso Ave. Unmarked on-street parking spaces are available from Encinal Ave to Alejandra Ave, Wilburn Ave to Stockbridge Ave, and Fifth Ave to Selby Ln.

The land uses along ECR consist of a mix of single- and multi-family residential areas, educational facilities, and commercial zones. Atherton, within the study area, is primarily characterized by low-density residential developments, contrasting with the mixed-use developments in other nearby cities. The corridor is also home to numerous landmarks, including parks, schools, and government facilities, which significantly influence local traffic patterns.

2.5.2 Corridor Traffic Analysis

The following sections summarize the data collected as part of the corridor traffic analysis in an effort to understand current traffic conditions, assess safety concerns, evaluate multimodal integration, and lay the groundwork for the development of alternatives and concept designs. Additional information can be found in **Appendix 1**.

Data Collection

A multifaceted data collection strategy was deployed to capture current traffic patterns accurately:

1. **Turning Movement Counts (TMCs):** Conducted on Tuesday, March 12, 2024, these counts included vehicles, motorcycles, transit buses, medium- and heavy duty vehicles, pedestrians, and bicycles at key locations depicted in Figure 8. This detailed data gathering aims to quantify the various movements within the study area, providing a clear picture of how different types of traffic interact.
2. **72-Hour Tube Counts:** From March 12 to March 14, 2024, Automatic Average Daily Traffic (ADT) counts were collected at four strategic locations, as detailed in Figure 8. This effort assisting in ascertaining the volume of traffic over a typical 72-hour period, offering insight into daily traffic fluctuations and patterns.
3. **Signal Timing:** Updated timing data for all eight signalized intersections within the study area, including five standard and three HAWK signalized intersections, were obtained from Caltrans on March 1, 2024. Understanding the current signal timing configurations is crucial for assessing how traffic flow is managed and identifying potential areas for optimization.
4. **Crash Data:** An analysis of the most recent annual crash records, spanning from January 1, 2018, to December 31, 2022, utilized data from the Statewide Integrated Traffic Records System (SWITRS) database. This analysis is essential for identifying high-risk areas within the corridor and determining the most effective measures to enhance safety.



Turning Movement Counts and 72-Hour Tube Counts (Average Daily Traffic)

Traffic volume data was collected to form the foundation of the traffic analysis. The methodology involved conducting TMCs at all 12 study intersections, during the peak periods of a Tuesday (7-9 AM and 4-6 PM). Additionally, this approach included gathering 72-hour tube counts at four strategically chosen locations to provide a comprehensive view of traffic volumes and patterns during typical weekday conditions. The TMC data were systematically collected on Wednesday, March 12, 2024, while the ADT data were collected from March 12 to March 14, 2024. This approach ensured a comprehensive capture of traffic dynamics across varied time frames and conditions. The compilation of both TMC and ADT data provides a detailed resource for further analysis and insights. Table 4 summarizes the ADT data summarized from all the counters. Figure 9 depicts ADT volumes on the ECR corridor over a 24-hour period.

The ECR bi-directional peak volumes reached 2,900 vehicles from 07:45 AM to 08:45 AM, and 2,980 vehicles from 04:30 PM to 05:30 PM. The bi-directional Average Daily Traffic (ADT) is 36,058 vehicles, emphasizing the corridor's essential role in local and regional mobility, underscoring the need for focused traffic management and planning during these critical periods.



Figure 8: Traffic Demand Data Collection Location



Table 4: Summary of Average ADT Data

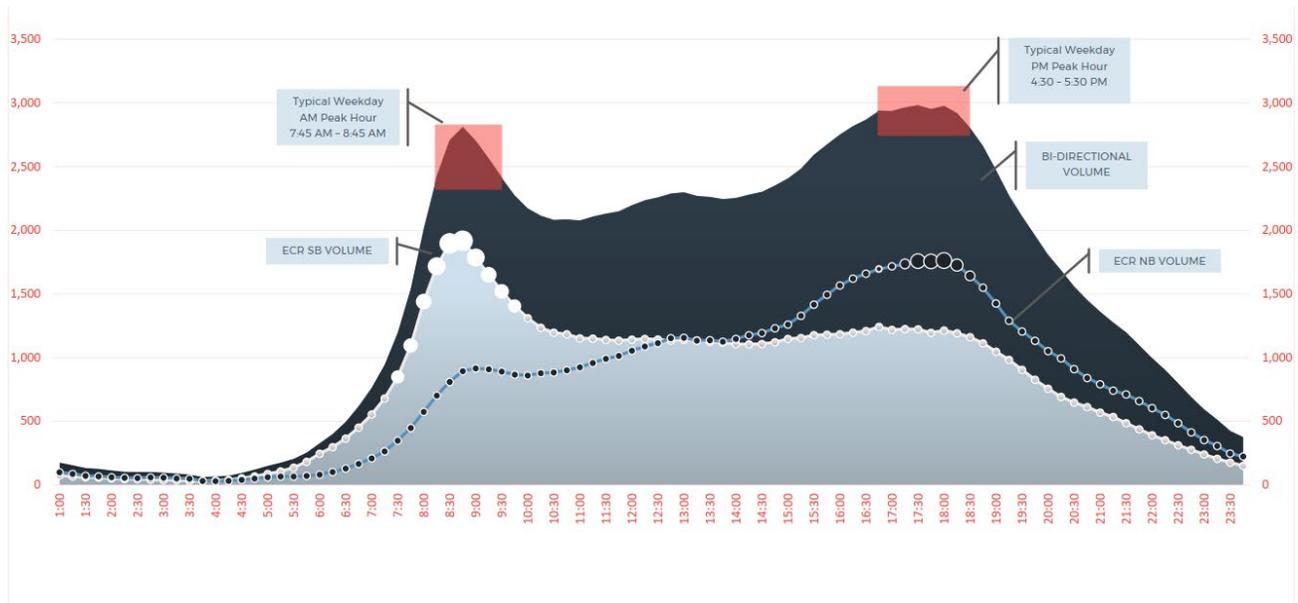
	AM Peak Hour	PM Peak Hour	Weekday Average
Time Period	7:45 AM – 8:45 AM	4:30 PM – 5:30 PM	Typical weekday
Traffic Volume¹⁰	2,812	2,980	36,058
K-Factor¹¹	7.8%	8.3%	N/A
Directional Distribution	68% SB / 32% NB	41% SB / 59% NB	50% SB/ 50% NB

¹⁰ vpd = volume per day, vph = volume per hour, based on ADT data (Mar 12-14, 2024), unadjusted. Traffic volumes entered are bi-directional.

¹¹ Percent of daily traffic that occurs during the peak hour.



Figure 9: ECR Corridor 24- Hour ADT Volumes



Bicycle and Pedestrian Demand

The TMCs also captured pedestrian and bicycle movements at the 12 intersections during the same peak periods (Table 5). Key findings include:

- Highest Pedestrian Demand (AM Peak): ECR & Fifth Ave (East leg: 13, South leg: 7)
- Highest Pedestrian Demand (PM Peak): ECR & Fifth Ave (East leg: 30, South leg: 10)
- Highest Bike Demand (AM Peak): ECR & Valparaiso Ave (Eastbound: 21, Westbound: 10)
- Highest Bike Demand (PM Peak): ECR & Atherton Ave/Fair Oaks Ln (Northbound: 38, Southbound: 17)

Table 5: Bicycle and Pedestrian Counts

Intersection	Control Type	AM Peak Ped Demand	PM Peak Ped Demand	AM Peak Bike Demand	PM Peak Bike Demand
Oakwood Drive	Signalized	E: 10, N: 14	E:18, N: 13	EB: 6, SB: 4	SB: 9, NB: 6
Selby Lane	Unsignalized	E: 8	E: 13	SB: 9	NB: 7, SB: 9
Fifth Avenue	Signalized	E: 13, S: 7	E: 30, S: 10	SB : 4	NB, SB: 4
Atherton Avenue	Signalized	W: 2	E, W: 2	WB: 2, SB: 2	SB: 17, NB: 38
Valparaiso Avenue	Signalized	E: 11, S: 3	E: 17, N: 5	EB: 21, WB: 10	EB : 5



Signal Timing

Updated timing data for all seven signalized intersections within the study area, including five standard signalized intersections and two High Intensity Activated Crosswalks (HAWK), were obtained from Caltrans on March 1, 2024. The current signal timing data was used to ensure a representation of traffic flow which is crucial for assessing how traffic flow is managed and identifying potential areas for optimization.

Crash Data

Understanding historical crash data is vital for identifying safety concerns and determining necessary improvements. Crash records were obtained from the SWITRS database accessed through the Transportation Injury Mapping System for the period January 1, 2018, to December 31, 2022. Additional crash data can be found in **Appendix 1 and 7**. The findings found:

- A total of 73 crashes have been recorded in the corridor along a critical 1.5-mile segment of ECR between Selby Ln and Valparaiso Ave
- 53 percent of the crashes occurred at intersections, while the remaining 47 percent took place along roadway segments
- The corridor experienced roughly 15-20 crashes annually
- Rear end collisions account for 40 percent of the crashes, followed by broadside or T-bone collisions accounts to 27 percent of crashes followed by sideswipe crash at 14 percent
- Crashes involving non-motorized vehicles accounted for 19 percent of the total incidents
- There were 2 fatal pedestrian crashes, attributed to midblock crossing near Watkins Ave and standing in the shoulder in Valparaiso Ave intersection

The analysis from 2018 to 2022 identified that there were a disproportionate number of crashes involving non-motorized users. Despite micromobility vehicles comprising less than 1 percent of traffic, they account for 20 percent of crashes, underscoring the urgent need for safety interventions to improve their safety.



Figure 10: Types of Collisions

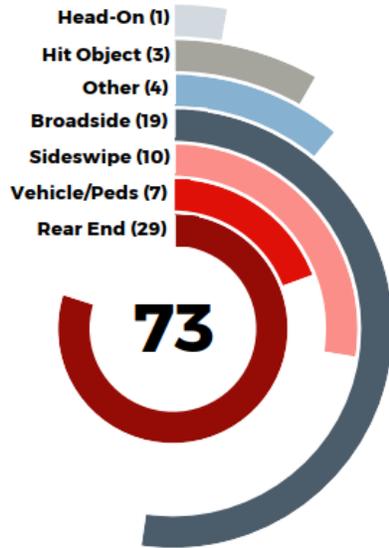
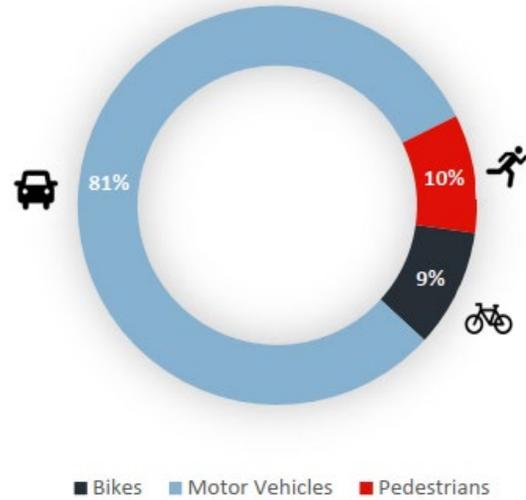


Figure 11: Crashes by Mode



2.5.3 Travel Characteristics

To understand travel patterns in the study area, data from StreetLight Data, Inc was utilized to analyze origin/destination patterns, travel times, and other travel patterns. The analysis focused on two components of StreetLight data: “local” and “through” vehicle trips. Local trips are defined as those that begin or end in the five census tracts surrounding the project corridor while through trips are defined as those that begin or end outside those five census tracts.

Commuter Trips

The ACS five-year estimate were reviewed to compare the mode splits between the Study Area and Town (Figure 12 and Figure 13). The results show 46.7 percent of the Town drive alone compared to 58.2 percent of the Study Area. The findings also show that 37.6 percent of the Town’s population work from home compared to 24 percent of the Study Area.



Figure 12: Study Area Commute Mode Split

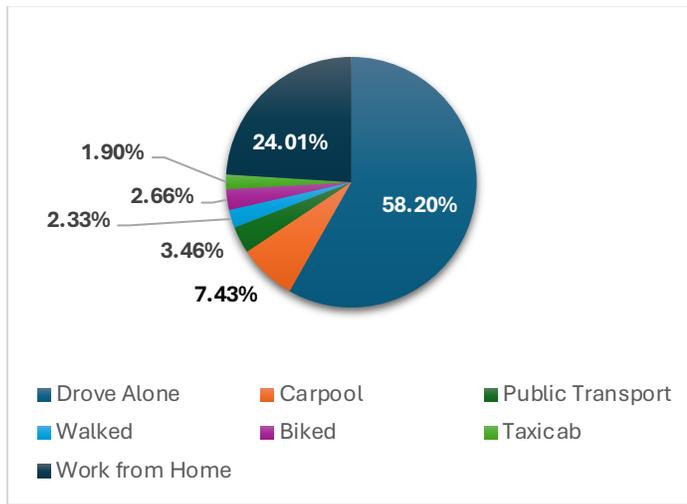
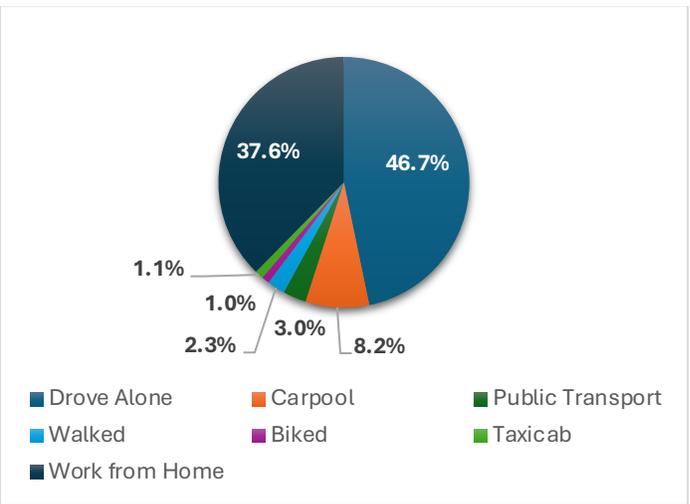


Figure 13: Town of Atherton Commute Mode Split



Source: U.S. Census Bureau, 2024.

Local and Through Vehicle Trips

Approximately 54 percent of trips on ECR are estimated to be through traffic that do not begin or end within the Study Area. Moreover, over 50 percent of the through traffic are trips are considered Local Trips (i.e., begin or end in the five census tracts surrounding the project corridor), suggesting an opportunity for a mode shift to bicycling or walking if bicycle and pedestrian facilities were consistent and available.

Figure 14: Percentages of Local and Through Vehicle Trip Origins

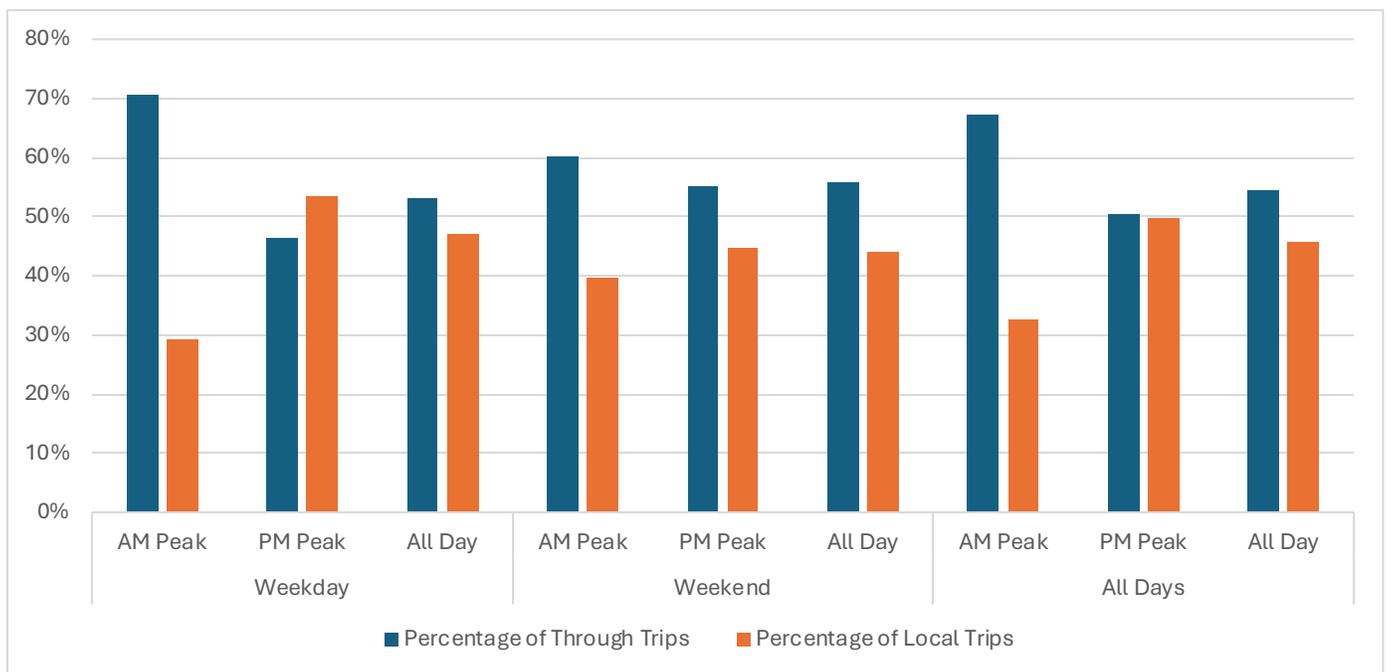
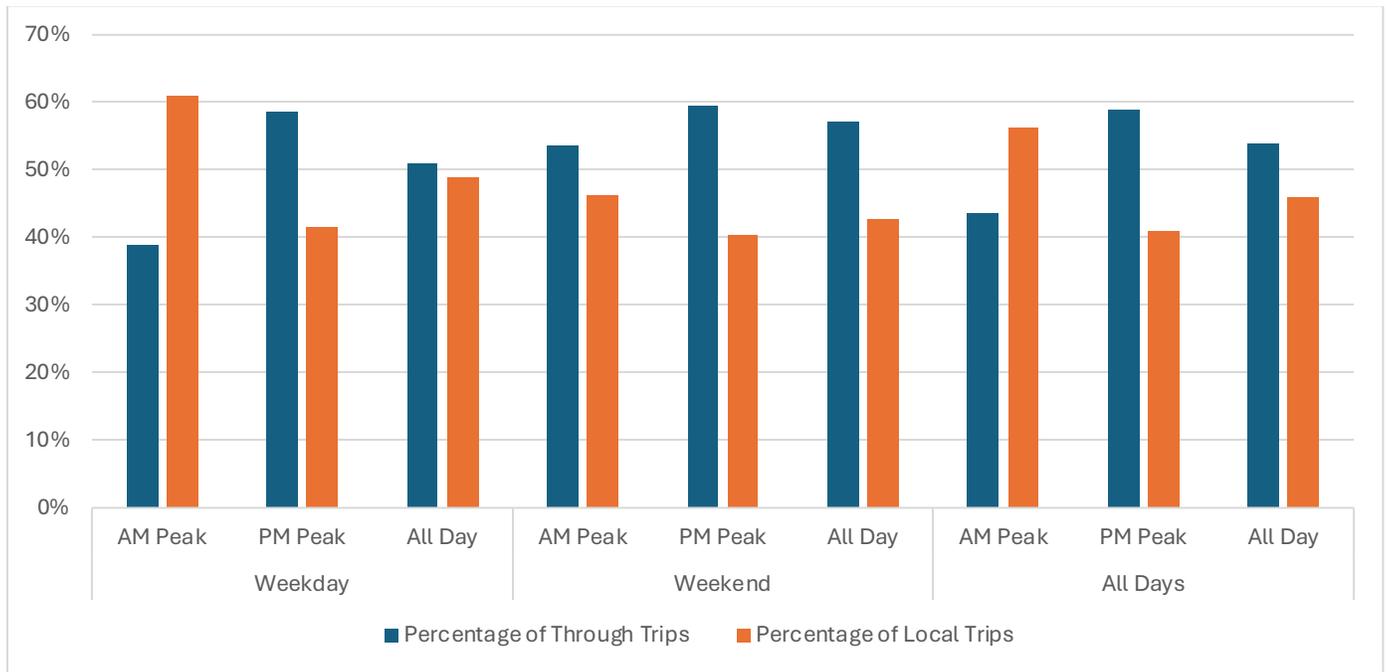




Figure 15: Percentages of Local and Through Vehicle Trip Destinations



Bicycle and Vehicle Trip Patterns

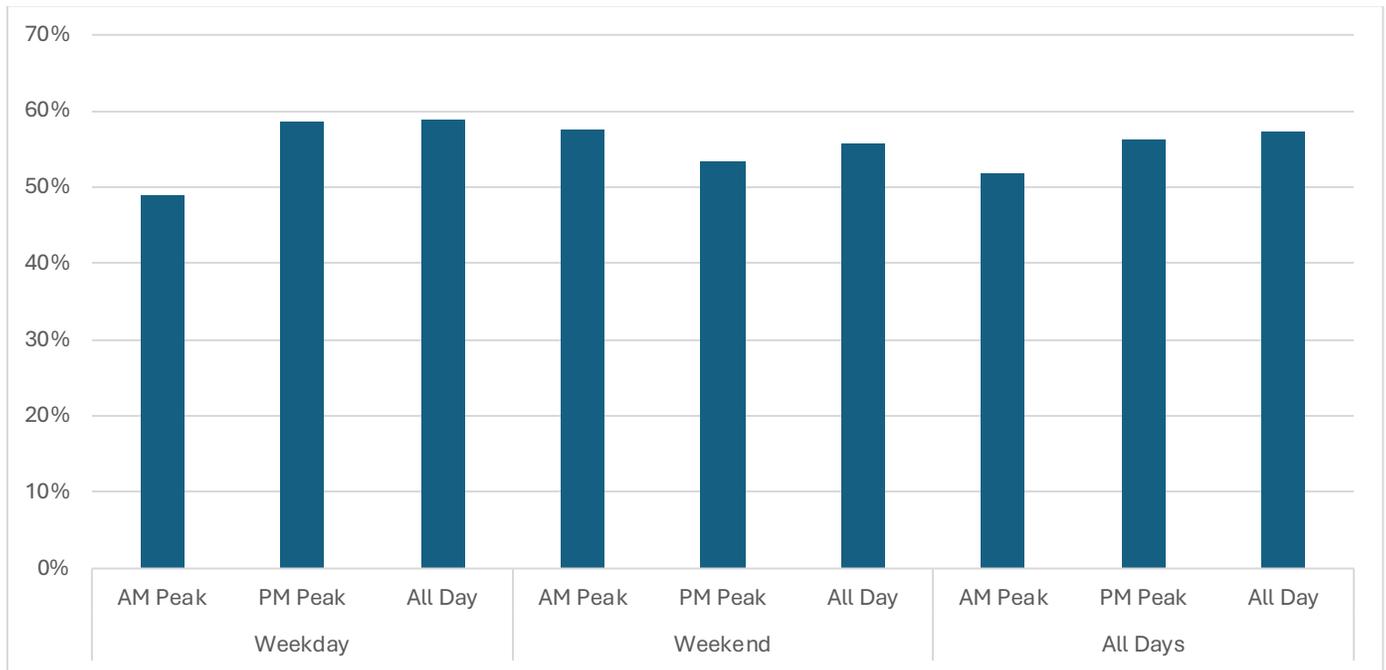
The second set of data analyzed was bicycle and vehicle trip patterns. Bicyclists are forced to share two travel lanes and a parking lane in each direction with vehicles that are often moving faster than the posted speed limit of 35 mph. According to StreetLight data, only 101 bicyclists within the study area use the project corridor compared to nearly 3,400 bicycle trips that are taken elsewhere within the study area. This can be due to several factors, with the most likely the lack of safe bicycle infrastructure along the corridor. Streetlight data also reveals that approximately five percent of commuters walked or biked to work for census tracts surrounding the study segment. For the twelve intersections analyzed in the study, the highest pedestrian volumes were at Fifth Avenue, where 20 and 40 pedestrians used the intersection in the morning and evening peak periods, respectively. The highest bicyclist volumes were at Valparaiso Ave during the morning peak period (31 bicyclists); and at Atherton Ave/Fair Oaks Ln during the evening peak period (55 bicyclists).

Despite the low number of bicyclists currently using the project corridor, there is a possibility that it could change with improved infrastructure. According to the National Association of City Transportation Officials, a typical urban bicycle trip is anywhere between two and five miles.¹² Figure 16 shows that over 50 percent of trips throughout the day using the project corridor are under five miles. This indicates that there’s potential for some of those trips to be completed via bicycle (particularly with an electric bicycle which increases the possible distance traveled).

¹² Source: “Route Planning”, National Association of City Transportation Officials, 2023, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/route-planning/>.



Figure 16: Percentage of Vehicle Trips Under Five Miles



The analysis of local and through vehicle trips indicates that for an average day and time, the project corridor is facilitating more trips accessing areas outside those adjacent to the corridor. This reflects ECR’s role as a major north-south arterial facilitator. There are variances based on time of day, particularly during weekday AM peak periods where more local trips originate from the study limits and reverse during the PM peak. The average distance for through trips is just over eight miles, while the average distance for local trips is just under three miles.

Additionally, the large percentage of local trips under five miles indicates the potential for mode shift to bicycles for completing those trips if safe infrastructure is added to the corridor. Currently, the corridor is not conducive to bicycles which is shown by the low number of counts for bicycle trips using the project corridor.

This analysis reveals distinct travel patterns among bicyclists, pedestrians, transit users, and vehicle drivers. The analysis of local and through vehicle trips indicates that the corridor facilitates more through trips, reflecting its role as a major north-south artery. These patterns vary by time of day, with more local trips in the AM peak and more through trips in the PM peak. Additionally, a significant percentage of vehicle trips are under five miles, suggesting potential for a shift to bicycles if safer infrastructure is added.

2.5.4 Existing Traffic Flow Conditions

Lastly, traffic impacts were evaluated to determine operational performance of traffic under current conditions and assess how the corridor performs with its current geometric layout.

To accurately represent existing traffic conditions, the project team processed collected AM and PM peak hour vehicle, pedestrian, bicycle, heavy vehicle, and bus volumes. Current signal timing data



was used to ensure a representation of traffic flow. Synchro 12 or Highway Capacity Software was used for the analysis, incorporating peak hour volumes, including peak hour factor, heavy vehicle percentage, pedestrian volume, bicycle volume, and vehicle volume. The analysis adhered to the Highway Capacity Manual (HCM) guidelines, with results exported using the HCM 7th Edition where applicable, or HCM 2000 results if necessary. Key performance indicators (KPIs) such as Level of Service (LOS), movement delay, 95th percentile queue, total travel time, and average speed were evaluated to assess the operational efficiency of intersections and roadway segments.

Level of Service (LOS) and Movement Delay

An analysis of the level of service was conducted using the current lane configurations and the AM and PM peak hour turning movement volumes. The results of this analysis for signalized intersections and HAWK beacons under existing conditions are summarized in Table 6.

Table 6: Existing Conditions Signalized Intersection Delay (Average Seconds per Vehicle)

Intersection	AM Delay	AM LOS	PM Delay	PM LOS
El Camino Real @ Oakwood Dr	28	C	29	C
El Camino Real @ Fifth Ave	40	D	39	D
El Camino Real @ Almendral Ave	1	A	1	A
El Camino Real @ Atherton Ave / Fair Oaks Lane	18	B	108	F
El Camino Real @ Isabella Ave	1	A	1	A
El Camino Real @ Alejandra Ave	1	A	1	A
El Camino Real @ Encinal Ave	13	B	10	A
El Camino Real @ Valparaiso Ave	38	D	37	D

The 2024 analysis of signalized intersections along the ECR corridor shows that, except for the intersection at Atherton Ave / Fair Oaks Ln, which operates at LOS F during the PM peak hour, all other intersections maintain LOS D or better during both AM and PM peak hours. The significant PM delay at the intersection of Atherton Ave / Fair Oaks Ln, which operates at LOS F, is due to two main factors: 1) Higher traffic volumes across all movements compared to other intersections, with an overall V/C ratio of 1.35 and 2) High northbound and southbound through volumes causing delays for conflicting left-turn movements.

It should be noted that the minor approaches at Oakwood Dr (WB), Atherton Ave / Fair Oaks Ln (EB and WB), Encinal Ave (WB), and Valparaiso Ave (both approaches) operate at LOS E or higher. Despite some approaches experiencing higher delays, overall, most intersections along ECR operate with moderate delays, ensuring a generally acceptable level of service.



Unsignalized Intersections LOS

The analysis results for the worst movements across all unsignalized intersections under existing conditions are summarized in Table 7. With the exception of two minor street approaches, all other approaches operate at LOS E or higher, indicating significant delays. These results highlight the high delays faced by vehicles entering from minor streets and attempting to cross the three or more lanes of ECR.

Table 7: Existing Conditions Unsignalized Intersections Level of Service

Intersection	Intersecting Minor Street	AM LOS	PM LOS
El Camino Real @ Selby Ln	Selby Ln (EB)	F	F
	Selby Ln (WB)	C	F
El Camino Real @ Stockbridge Ave	Stockbridge Ave (EB)	F	F
	Stockbridge Ave (WB)	F	E
El Camino Real @ Tuscaloosa Ave	Tuscaloosa Ave (EB)	F	D
El Camino Real @ Watkins Ave	Watkins Ave (WB)	F	F

Arterial Speed and Travel Time

Travel time and speed are key metrics for assessing arterial traffic flow. Travel speed, accounting for intersection delays, determines the arterial level of service (LOS) based on HCM 2000 guidelines. This LOS varies by arterial class and is influenced by intersection spacing and control delays. For our corridor, with a speed of 35 mph, it falls under Urban Street Class III. Class III arterials typically have a free-flow speed (FFS) of 35 mph and the LOS is determined by the average travel speed within the following ranges mentioned in Table 8.

Table 8: Urban Street Class III Speeds HCM Level of Service Metric

LOS	Class III – Average Travel Speed (MPH)
A	>= 30
B	24 – 30
C	18 – 24
D	14 – 18
E	10 – 14
F	<= 10



The analysis of arterial level of service (LOS) for ECR during AM and PM periods reveals varying traffic conditions for the northbound (NB) and southbound (SB) directions.

AM Peak Period:

1. NB El Camino Real: The overall arterial speed is 20.1 mph, resulting in a LOS of C. Notably, Valparaiso Ave and Fair Oaks Ln experience significant delays, with LOS E and D, respectively. The total travel time is 349.6 seconds compared to a free flow travel time of 235.8 seconds, indicating substantial delays.
2. SB El Camino Real: The overall arterial speed is 18 mph, resulting in a LOS of D. Major delays are observed at Oakwood Dr, Atherton Ave and Valparaiso Ave with LOS E.
3. The total travel time is 380.7 seconds versus a free flow travel time of 231.2 seconds, reflecting significant congestion.

PM Peak Period:

4. NB El Camino Real: The overall arterial speed is 19.5 mph, resulting in a LOS of C. Significant delays occur at Valparaiso Ave and Fair Oaks Ln, both with LOS E. The total travel time is 359.9 seconds compared to a free flow travel time of 235.8 seconds, showing notable delays.
5. SB El Camino Real: The overall arterial speed is 20.6 mph, resulting in a LOS of C. Delays are primarily at Oakwood Dr and Atherton Ave, with LOS D and E, respectively.
6. The total travel time is 333 seconds versus a free flow travel time of 231.2 seconds, indicating moderate delays.

Overall, the corridor shows moderate congestion with critical intersections causing delays, particularly during peak periods. Strategies to improve traffic flow should focus on intersections with the lowest LOS ratings. The comparison of travel times against free flow travel times highlights areas with the most significant delays, pinpointing where improvements are most needed.

95th Percentile Queue

The queue analysis for the ECR corridor highlights significant queue lengths at several intersections during AM and PM peak hours. Key observations from the results indicate that certain turn movements experience queue lengths that exceed storage lengths, potentially causing blockages and affecting through traffic. This issue is particularly prominent at intersections such as Oakwood Dr, Atherton Ave / Fair Oaks Ln, Encinal Ave, and Valparaiso Ave. These findings underscore the need for targeted interventions to manage queues and prevent spillback into through lanes, thereby improving overall traffic flow and operational efficiency along the corridor.

Queue results for unsignalized intersections were obtained from the Highway Capacity Manual (HCM) 7th Edition, while results for signalized intersections were derived from Synchro analysis. The detailed results are summarized in Table 9.



Table 9: Queue Analysis Summary

Intersection	Turn Movement	Storage Length (Feet – FT)	95th AM Queue Length (FT)	95th PM Queue Length (FT)
El Camino Real @ Oakwood Dr	NBL	205	165	181
	SBT	-	516	293
El Camino Real & Atherton Ave / Fair Oaks Ln	EB	-	475	531
	WB	-	637	298
	NBL	200	147	385
El Camino Real @ Encinal Ave El Camino Real @ Valparaiso Ave	WBL	65	222	171
	SBL	150	238	185
	NBL	180	186	202

Key Findings

The existing traffic flow conditions offer insights into the operational performance of the ECR corridor. Although some intersections experience significant delays, the overall arterial LOS does not exceed D during peak hours, which is well within acceptable limits for urban corridors. The corridor experiences moderate congestion, with total travel times higher than free-flow times and average speeds indicating reduced operational efficiency. Despite this, the corridor operates at an acceptable level, reflecting typical urban traffic conditions. The queuing analysis identifies intersections where queue lengths exceed storage capacities, indicating the need for targeted interventions to improve traffic flow and efficiency. By focusing on sustainable multimodal improvements, this project aims to enhance infrastructure to support a diverse range of transport modes, establishing a safer, more accessible, and efficiently navigable corridor that addresses both present and future community needs.



3. Community Engagement

Three phases of public outreach and consultation were conducted with key stakeholders to inform the development, screening, and evaluation of three design concepts proposed for ECR. Various engagement activities were organized; a technical working group, an online survey, interactive map, community pop-ups, listening sessions, focus groups with Community-Based Organizations, letters to businesses, information noticing at bus shelters, and virtual community meetings. These activities were designed to engage Atherton residents, people who travel along ECR (cyclists and drivers), transit users, advocacy groups, and school administrators, with a focus on reaching equity priority communities, including Spanish speakers and North Fair Oaks residents. The online survey was included in the Town-wide newsletter “The Athertonian” to ensure all residents had the opportunity to provide feedback.

Throughout both phases, over 500 touchpoints with individuals occurred and over 800 survey responses collected. Outreach with the public was conducted in English, Spanish, and Chinese. Additional information on the study’s outreach activities can be found in **Appendix 8** and **Appendix 9**.

3.1 Phase 1

In Phase 1, the goal for public outreach was to establish a shared understanding of the project and collect insights on existing conditions, opportunities, and challenges. While the format of each event dictated the methods in which feedback was collected from community members, discussions and interactive activities focused on the following questions:

- What challenges do you face while traveling on El Camino Real?
- What would make it easier for you to get around El Camino Real?
- What qualities of the street do you enjoy and want to maintain?
- Are there specific areas of the corridor that you would like to see improved?

The study and events were promoted via social media and newsletter through the TA and Town. Multilingual links to the online survey were posted at bus shelters and flyers were distributed along the corridor to promote participation of the online survey and map as well as attendance for the virtual community meeting.

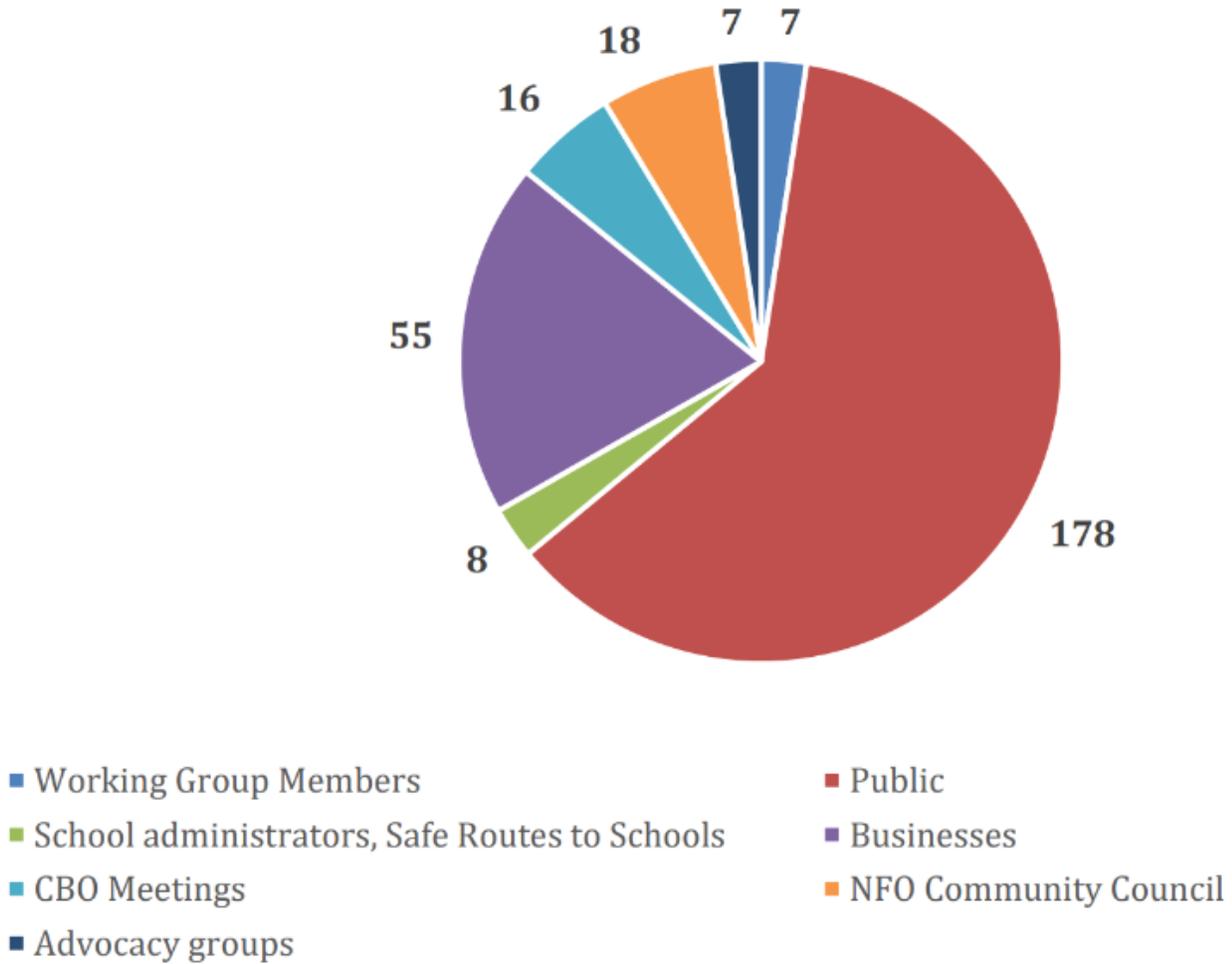
3.1.1 Phase 1 Key Findings Summary

The Town deployed a variety of tactics to gather feedback from a broad range of people who travel along ECR within the study area. The online survey yielded 55 percent response from Atherton residents with 80 percent of the attendees at the virtual community meeting Atherton residents. The survey garnered a wide range of different groups, including local businesses and advocacy groups (Figure 17).



Figure 17: Range of Survey Respondents

Number of Touchpoints with Different Groups



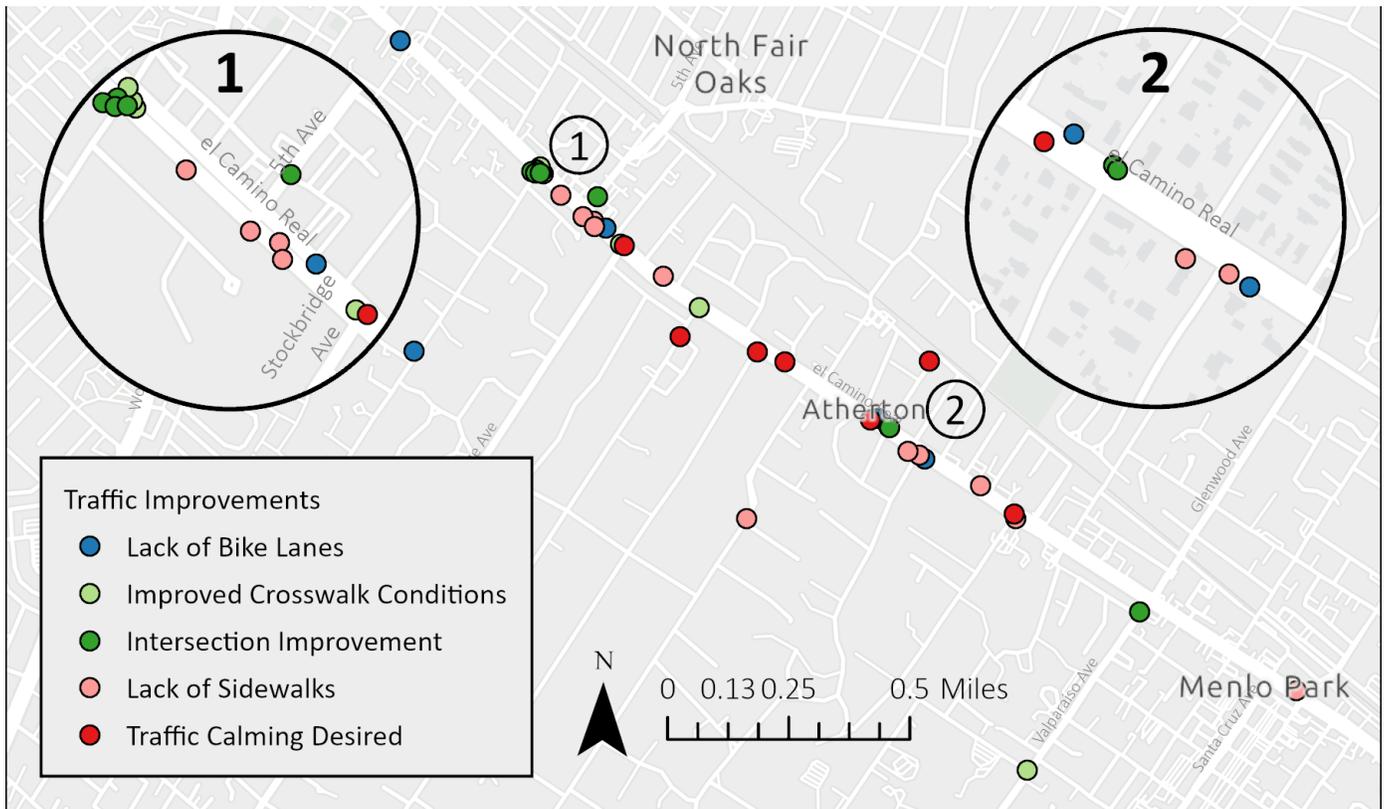
The survey collected information on a range of topics related to travel, mode and safety, including:

- Pedestrian and safety infrastructure
- Bicycle lanes and safety
- Public transportation and bus stops
- Traffic and the driver experience
- Flooding on ECR

More description and detail on survey responses can be found in **Appendix 8**. Highlights of the survey responses on locations of desired traffic improvements are shown in Figure 18 below.



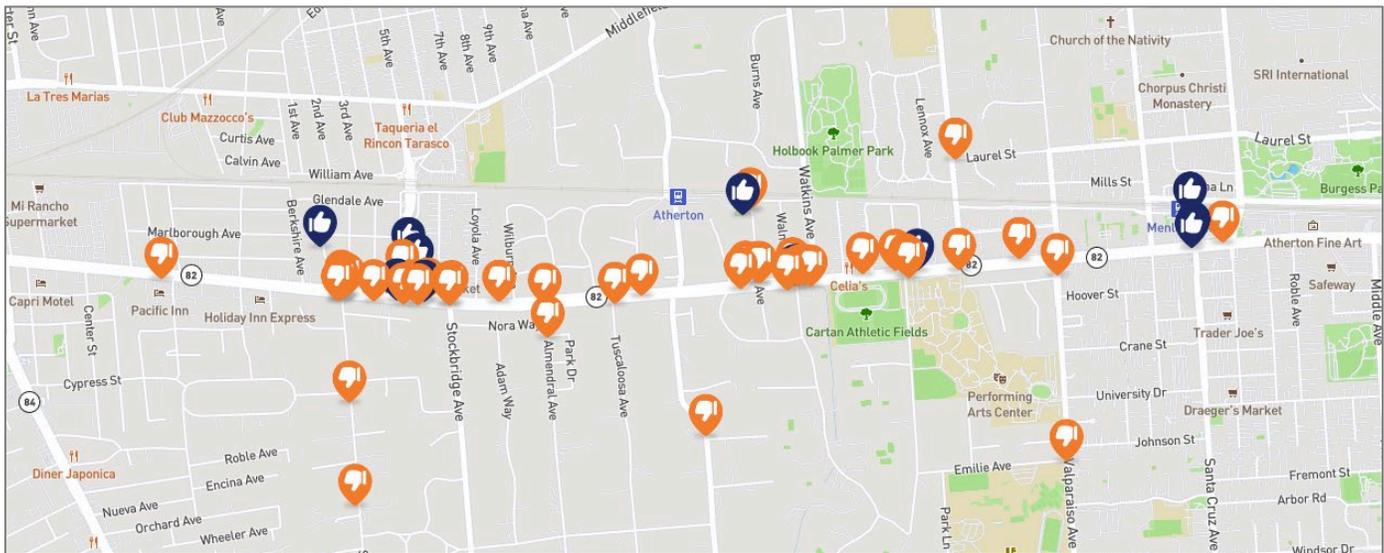
Figure 18: Locations of Desired Traffic Improvements



A second engagement tactic asked the public to respond to an online activity map highlighting challenging locations for pedestrian or bicycle activity within the study limits. Respondents offered meaningful insights describing personal or observed experiences where there were negative interactions between vehicles, cyclists or pedestrians. These locations were captured on the activity map shown in Figure 19 below.



Figure 19: ECR Activity Map



3.2 Phase 2

In Phase 2 the goal for public outreach was to gather input from various stakeholders on the opportunities and challenges of the top three design concepts that were identified following the Preliminary Alternatives Analysis process (**Section 4**). The three concepts discussed in this section are further described in **Section 5**. While the format of the online survey and each event dictated the methods in which feedback was collected from community members, discussions and interactive activities focused on three main questions listed below:

- How well does each design concept meet your needs?
- What do you like or dislike about each concept?
- Do you have any other feedback on the designs?

3.2.1 Phase 2 Key Findings Summary

Approximately 216 people participated in in-person or virtual events, and over 490 people responding to the online survey. Responses collected from the events cited a widespread concern about the lack of sidewalks or narrow sidewalks, with many indicating that proper sidewalks must be implemented to create safe conditions along ECR. Participants repeatedly emphasized the necessity of a clear and consistent design throughout the corridor to enhance user experience and safety. While there was support for better pedestrian and cyclist facilities, there was also hesitation around trade-offs that might negatively impact traffic flow and vehicle mobility. Traffic congestion is also another major concern, with many participants indicating concern that concepts 2 and 3 will make traffic worse by removing vehicle lanes and introduce new conflicts between pedestrians, cyclists, and drivers. Participants supported bike lane separation from traffic, but others would only use bike lanes if fully protected. Table 10 shows the results of the survey ranking the three concepts.



Table 10: Public Survey Ranking (Percent)

	All Respondents (493)			Atherton Respondents (265)		
	Average Score	Does Not Meet Needs (Score: 1)	Does Meet Needs (Score: 5)	Average Score	Does Not Meet Needs (Score: 1)	Does Meet Needs (Score: 5)
Concept 1	2.99	27%	29%	3.47	21%	42%
Concept 2	3.01	32%	30%	2.19	51%	13%
Concept 3	2.54	31%	9%	2.08	28%	19%

Most survey respondents who identified as residents of Atherton currently consider ECR to be a highway where bikes and pedestrians should not be encouraged for fear of increasing the number of collisions. While there was general support to improve safety, most residents do not observe many cyclists along this segment and felt that there is no demand for bike lanes on the street. Several respondents would prefer that bicycles are routed along local streets instead. They also expressed broad concern about the removal of traffic lanes increasing travel time. Residents felt that ECR was already congested, especially during peak commute hours and a reduction of traffic lanes will make it worse. Some observed that the number of lanes currently invites vehicles to speed above the posted speed limits.

Collectively across the survey and other outreach activities, no single concept rose prominently as a preferred alternative.

1. Concept 1 is the preferred alternative for those who are concerned that reducing lanes would create longer wait times, increase congestion during peak hours, and create unsafe driving conditions due to narrower lanes.
2. Concept 2 is favored due to its enhanced safety measures for both cyclists and pedestrians, despite some concerns over its impact on traffic flow. This concept is considered essential for encouraging higher bike ridership among community members, especially families and inexperienced cyclists.
3. Concept 3 was seen as a compromise between competing values, but the design may be confusing for pedestrians and cyclists, and there is strong support for protected bike lanes. Respondents found that switching from two-lane and three-lane sections in Concept 3 could be confusing for drivers.

There is a desire to improve infrastructure to address flooding and lack of drainage. This will also create safer conditions for people walking accessing transit shelters. Overall, there were many calls for improved lighting, protected crosswalks, and improved signage. There were not many comments or concerns explicitly about the removal of street parking. Several respondents noted that their support depended on additional data (e.g., traffic flow studies, pedestrian usage numbers).



3.3 Phase 3

The third phase of community engagement focused on selecting the preferred concept design and developing the implementation plan. The project team met with the Technical Working Group including the Town, TA, Caltrans, SamTrans, and other stakeholder agencies' staff to review and finalize the preferred concept design. The project team presented the key findings from the Phase 2 public outreach, sharing that both Concept 1 and Concept 2 received strong support from the public, indicating a desire from the community to provide protected bike lanes along ECR but not at the cost of increased travel time and congestion for drivers. These findings led staff to recommend advancing both concepts for further analysis. The Technical Working Group also provided feedback on the Caltrans PID process, and whether advancing two concepts would strengthen future applications.

The project team also met with the Atherton Bicycle and Pedestrian Committee and Transportation Committee (BPAC) to present the key findings from the Phase 2 public outreach and provide justification for advancing both Concept 1 and 2.

Finally, on April 16, 2024, the Town of Atherton Public Works Director presented to Council the findings from the study, community feedback from Phase 2, and recommendations on which concept to advance.

3.3.1 Phase 3 Key Findings Summary

Overall, the Technical Working Group members, BPAC members, and Councilmembers were all supportive of advancing both Concept 1 and Concept 2 for further analysis. The project team shared the community's concerns regarding the potential for increased vehicle congestion and travel times along ECR if vehicle lanes were to be converted. Staff presented the technical analysis on the impacts on travel times and arterial speed for discussion at the council meeting. Comments from the Councilmembers included:

- Noting impacts on traffic flow through individual intersections with new additional traffic lights would reduce the Level of Service (LOS) at Fifth Avenue from a Level C to E, and at Watkins Avenue from Level A to D.
- Suggestions for immediate improvements at Selby Lane to address flooding and add a signalized intersection.
- Considerations for advancing one design concept or both.

Ten members of the public offered comments in support of Concept 2 that prioritizes the safety of pedestrians and cyclists. Many cited examples of friends or neighbors who have been injured or killed while trying to cross ECR in this area, or who have young children and felt that only Option 2 goes far enough to create safe conditions for pedestrians and cyclists, which outweighs the minor inconvenience for drivers.

Staff recommended selecting both Concept 1 (Added Sidewalks and Striped Bike Lanes) and Concept 2 (Wider Sidewalks & Buffered/Protected Bike Lanes) as preferred concepts for further



evaluation in the next phase of the Caltrans PID process. Staff sought feedback from Council on next steps for project development and potential grant opportunities.

3.4 Other Engagement Activities

Outreach activities also included a “road show” or series of presentations with committees and community councils representing the study area in Phase 1 and 2. These were intended to reach representatives of the broader community or users within the study area. The road show presentations details are summarized below.

- Town of Atherton Transportation, Bicycle, Pedestrian Safety Committee
- City of Menlo Park Complete Streets Commission
- North Fair Oaks Community Council
- County of San Mateo Bicycle & Pedestrian Advisory Committee
- City of Redwood City Transportation Advisory Committee
- San Mateo Area Chamber of Commerce – Transportation & Housing Committee

Feedback from these activities yielded similar sentiment to the public engagement events; however key issues for specific communities varied. For representatives of areas surrounding the northern portion of the study area, committee members expressed concern about connectivity and ensuring effective transitions with adjacent facilities. There were also concerns about the loss of parking with Concepts 1 and 3. Representatives of areas surrounding the southern portion of the study area, committee members echoed concerns about pedestrian safety crossing ECR and expressed support for prioritizing safety enhancements over removal of on- street parking.



4. Preliminary Alternatives Development

In response to existing conditions, mobility challenges, and input from Phase 1 of the public engagement, a range of potential solutions were identified and evaluated through a screening process that reflected the project's goals. The project team utilized the preliminary alternative development and initial screening to develop three concept designs in **Section 5** that warranted further analysis. Detailed summary of the alternative development can be found in **Appendix 10**.

4.1 Preliminary Alternatives Development

The development of the preliminary alternatives considered the following factors for walking, bicycle, transit, and driving facilities, accounting for the corridor conditions found in the existing conditions assessment:

- Collision records, including severe injury and fatal collisions, and designation as a High Injury Corridor
- Physical conditions include the lack of dedicated sidewalk, bicycling, and transit facilities
- Planning documents for ECR prepared by the Town of Atherton, adjacent jurisdictions (City of Menlo Park and San Mateo County), and State and regional agencies (Caltrans and MTCC)
- Travel behaviors that include non-drive travel mode share (8.5 percent), average daily traffic volumes (36,000 vehicle trips), and estimated vehicle delay at select study intersections
- Results from community survey on top priorities for travel along ECR

In response to these factors, the preliminary alternatives contained these options:

- Pedestrian facilities: all alternatives included adding new sidewalks on both sides of the street where they do not currently exist
- Bicycle facilities: all alternatives considered four types of solutions:
 - No dedicated bikeways
 - On-street bicycle lanes (Class II bikeways) on each side of the street.
 - One-way buffered bicycle lanes (Class II bikeways) or separated bikeways (Class IV bikeways), either roadway or elevated grade
 - Two-way separate bikeways (Class IV bikeways) on one side of the street, typically the west side of ECR)
- Transit facilities: all alternatives considered:
 - Shared lanes with vehicles
 - Bus only lanes
 - Bus stop improvements



- Driving facilities: all alternatives considered:
 - Retaining the existing vehicular travel lanes, predominantly three vehicle lanes in each direction with two northbound through lanes in Menlo Park
 - Providing two through vehicle lanes in each direction along the full length of the study area
 - Providing three vehicle lanes in one direction and two vehicle lanes in the other direction, for either the full extent or alternating sides
 - Retaining or removing on-street parking depending on the vehicle lane and bikeway configuration

Seven preliminary alternatives were developed that met the factors described above. These are presented in the table below.

Table 11: Preliminary Concepts

#	Preliminary Concept	Pedestrian Facility	Bike Facility	Transit Facility	Drive Facility
0	No Build	None	None	Shared with vehicles (3 lanes) Signed bus stops	3 lanes (where currently present)
1	Sidewalk & Landscape Only	Sidewalk both sides	None/shared lane + bike route signage + green paint (optional)	Shared with vehicles (3 lanes) Widened bus stops	3 lanes (where currently present)
2	Sidewalk & On-Street Bike Lane	Sidewalk both sides	On-street bike lane both sides	Shared with vehicles (3 lanes) Narrow bus stops	3 lanes (where currently present)
3	Sidewalk, Landscape & Bus-Only Lane	Sidewalk both sides	None	Bus only lane Widened bus stops	2 lanes with right turn lanes at intersections
4	Sidewalk, Landscape & One-way Separated Bikeways / Buffered Bike Lanes	Sidewalk both sides	Two one-way separated bikeways w/ sections of buffered bike lanes both sides	Shared with vehicles (2 lanes) Widened bus stops	2 lanes



#	Preliminary Concept	Pedestrian Facility	Bike Facility	Transit Facility	Drive Facility
5	One-way Separated Bikeways (Sidewalk Grade)	Medium sidewalk both sides	Two one-way separated bikeways	Shared with vehicles (2 lanes) Widened bus stops	2 lanes
6	Two-way Separated Bikeway & Bike Lane	Medium sidewalk one side, wide sidewalk on other side	One two-way separated bikeway	Shared with vehicles (2 lanes) Widened bus stops	2 lanes
7	Asymmetrical Vehicle Lanes & Two-way separated bikeway	Sidewalk both sides	One two-way separated bikeway	Shared with vehicles (2/3 lanes) Widened bus stops	3 lanes in one direction & 2 lanes in the other direction

4.2 Preliminary Alternatives Initial Screening

An evaluation matrix and scoring system was developed to screen and score the seven preliminary alternatives. The screening methodology used four overarching goals:

- Quality of life – Retention of on-street parking, provision of an attractive environment for active transportation, protection of adjacent neighborhoods from traffic diversion, and change in vehicle travel time and speeds.
- Safety – Reduction in conflicts and increase in modal separation, improvement to roadway crossing and roadside visibility, and potential to improve flooding (stormwater) conditions.
- Multimodal equity and access – Gap closures in walk, bike, and transit networks; creation of multimodal travel opportunities; and improvement in access for disadvantaged communities and community at large.
- Construction – Cost and complexity.

The seven preliminary alternatives were screened to determine which ones advanced. Table 12 describes the results of the preliminary concepts screening. Additional information on the initial screening can be found in **Appendix 10**.

- Preliminary Alternative 1, sidewalk and landscape only and three vehicle lanes: This alternative scored high in maintaining drive capacity and scored low in safety and multimodal access. Alternative 1 scored worse than Alternative 2, another alternative that maintains three drive lanes on ECR and was therefore not advanced into the next project phase.



- Preliminary Alternative 2, narrow sidewalks, on-street bike lanes and three vehicle lanes: This alternative closes the bikeway and sidewalk gaps at a minimum comfort and safety standard while retaining the existing lane configuration of ECR. This alternative scored high in maintaining drive capacity and scored low or medium for safety and multimodal access. Alternative 2 was advanced into the next project phase as the better-scoring concept that retains three drive lanes on ECR as **Concept #1 Added Sidewalks and Striped Bike Lanes**.
- Preliminary Alternative 3, sidewalk, landscape, two vehicle lanes, and bus-only lane: This alternative scored medium in maintaining drive capacity, scored low or medium in safety, and scored low or medium in multimodal access. Alternative 3 scored comparably to the alternatives with bikeways (Alternatives 4 through 7); its lack of bike lanes is inconsistent with the planning documents for ECR and was therefore not advanced into the next project phase.
- Preliminary Alternative 4, wide sidewalks, buffered bike lanes, and two vehicle lanes: This alternative closes the bikeway and sidewalk gaps at a preferred comfort and safety standard, with the key tradeoff being the reduction to two through vehicle lanes in each direction. This alternative scored low or medium in maintaining drive capacity, scored medium or high in safety, and scored high in multimodal access. This alternative was renamed **Concept #2 Wider Sidewalks and Buffered/Protected Bike Lanes** in the next project phase. Concept 2 includes the possibility of separated bikeways and elevated (sidewalk grade) separated bikeways that were considered as part of Preliminary Alternative 5 and 6.
- Preliminary Alternative 5, wide sidewalks, separated bike lanes (roadway of sidewalk grade), and two vehicle lanes. This alternative scored low or medium in maintaining drive capacity, scored medium or high in safety, and scored high in multimodal access. This alternative has the same effective number of vehicle lanes on ECR (two in each direction) as Alternative 4 and was therefore incorporated into Concept #2 as a design variant, as noted above.
- Preliminary Alternative 6, wide sidewalks, two-way separated bike lanes, and two vehicle lanes. This alternative scored low or medium in maintaining drive capacity, scored medium or high in safety, and scored high in multimodal access. Alternative 6 scored comparably to the alternatives with one-way bikeways (Alternatives 4 and 5); its two-way bikeway on one side of the road is inconsistent with the plans for ECR by other jurisdictions and was therefore not advanced into the next project phase.
- Preliminary Alternative 7, medium sidewalks, two-way separated bikeway on one side, and alternating two or three vehicle lanes: This alternative scored low or medium in maintaining drive capacity, scored medium in safety, and scored medium or high in multimodal access. This alternative closes the bikeway and sidewalk gaps while alternating the potential sections of vehicle lane reduction and parking reduction on ECR. Alternative 7 was advanced into the next project phase and renamed **Concept #3 Wider Sidewalks and Partial Buffered/Protected Bike Lanes** in the next project phase; Concept 3 further modified to provide one-way separated bikeways instead of a two-way bikeway, as shown in the conceptual design work described in the next section.

Based on the results of the preliminary alternative initial screening, three concepts emerged as best meeting the Project's goals and warranting further analysis:



- Concept #1: Added Sidewalks and Striped Bike Lanes
- Concept #2: Wider Sidewalks and Buffered/Protected Bike Lanes
- Concept #3: Wider Sidewalks and Partial Buffered/Protected Bike Lanes



Table 12: Preliminary Alternatives Initial Screening Results

	Objective	0 No Build	1 Sidewalk (S/W) + Landscaping	2 SW + Bike Lane	3 S/W + Bus Only Lane	4 1-way Separated (Sep)/ Buffer Bike Lane	5 1-way Sep Bike (Raised)	6 2-way Sep Bike (Raised)	7 3 Lane / 2 Lane 2-way Sep Bike
Quality of Life	Addresses stakeholder concerns (on-street parking and frontage access)	None	High	High	High	Medium	Medium	Medium	High
	Attractive environment for active transportation	None	Low	Low	Low	High	High	High	High
	Maintains automobile travel time and speeds on ECR	None	High	High	Medium	Medium	Medium	Medium	Medium
Safety	Reduces conflicts/modal separation	None	Low	Low	Low	High	High	High	High
	Improves crossing movements and roadside visibility (e.g., lighting)	None	Low	Low	Low	Medium	High	High	Medium
	Addresses flooding impacts	None	Medium	Low	Medium	Medium	Medium	Medium	Medium
Multimodal Options,	Fills gap in biking, walking, and transit network	None	Low	Medium	Medium	High	High	High	High



	Objective	0 No Build	1 Sidewalk (S/W) + Landscaping	2 SW + Bike Lane	3 S/W + Bus Only Lane	4 1-way Separated (Sep)/ Buffer Bike Lane	5 1-way Sep Bike (Raised)	6 2-way Sep Bike (Raised)	7 3 Lane / 2 Lane 2-way Sep Bike
Equity & Access	Creates more opportunities for multimodal travel	None	Low	Low	Low	High	High	High	High
	Improves access for disadvantaged communities	None	Low	Low	Medium	High	High	High	High
Construction	Cost & complexity	None	Medium	Low	Medium	Medium	High	High	High



5. Concept Designs

The following section summarizes the development of the refined conceptual designs (Concepts) from the preliminary alternatives and their performance against the project evaluation criteria, generally scored as Low, Medium, or High.

5.1 Concepts

Building on information gained during the preliminary alternative development stage, common design elements were identified for all concepts:

- Two alternatives for traffic control at Selby Ln: a new traffic signal or installation of a HAWK beacon with elimination of through left-turn movements for vehicles at each approach to ECR
- New proposed raised median features to shield people walking in crosswalks (“refuges”)
- Multiple proposals for bikeway infrastructure and pavement markings to facilitate bicycle movements along and across ECR
- Proposals for some bus stops to relocate to the far side of the intersection with required accessibility improvements
- Proposals for new crosswalks with new corner curb ramps and island refuge areas
- Retention of the existing turn pockets and as many raised medians as possible along ECR
- New traffic signal at Watkins Ave (mitigation measure in environmental documentation for Caltrain Electrification Project)
- New HAWK beacons at Tuscaloosa Ave and Stockbridge Ave to facilitate pedestrian mobility
- Curb and gutter improvements with drain inlets along the project length to manage stormwater runoff
- New lighting and signage improvements in the Town to promote safety for active transportation

5.1.1 Concept 1

The refined **Concept 1 (Added Sidewalks and Striped Bike Lanes)** proposes to retain the existing vehicular travel lanes in each direction of ECR.

- Northern end, in North Fair Oaks from north of Selby Ln to Wilburn Ave, the proposal is a northbound Class II bike lane to the right of the number 3 lane, removal of existing curbside parking, and no change to the existing sidewalk, curb and gutter.
- In the southbound direction from north of Selby Ln to Menlo College Dr/Encinal Ave and in the northbound direction in Atherton between Watkins Ave to Wilburn Ave, the proposal is on-street bike lanes (Class II bikeways) to the right of the number 3 lane, narrow uniform sidewalks, and new curb and gutter.



- Southern end, in Menlo Park from Watkins Ave to Glenwood Ave/Valparaiso Ave, the proposal is a northbound Class II bike lane between the number 2 lane and on-street parking; no change to the existing sidewalk, curb and gutter; and retention of the existing vehicle through and right turn lanes, addition of sidewalk, and transition of the bike lane as it approaches Valparaiso Ave.

Figure 20: Concept 1



5.1.2 Concept 2

The refined **Concept 2 (Wider Sidewalks and Buffered/Protected Bike Lanes)** proposes to reduce ECR to two vehicle lanes in each direction.

- In the southbound direction from north of Selby Ln to Encinal Ave and in the northbound direction from Watkins Ave to Wilburn Ave, the proposal is buffered bike lanes (Class II bikeways) or separated bikeways (Class IV bikeways) to the right of the number 2 lane, wide sidewalks, and removal of the third vehicle lane.
- In the southbound direction from Encinal Ave to Valparaiso Ave, the proposal is buffered bike lanes (Class II bikeways) or separated bikeways (Class IV bikeways) to the right of the number 3 lane/right turn pocket at Valparaiso Ave.
- In the northbound direction in Menlo Park, from Glenwood Ave/Valparaiso Ave to Watkins Ave, the proposal is buffered bike lanes (Class II bikeways) or separated bikeways (Class IV bikeways) to the right of the number 2 lane, removal of existing curbside parking, and no change to the existing sidewalk, curb and gutter.
- In the northbound direction in North Fair Oaks, from Wilburn Ave to Selby Ln, the proposal is buffered bike lanes (Class II bikeways) between the number 2 lane and on-street parking, removal of the third vehicle lane, and no change to the existing sidewalk, curb and gutter.
- Separated bikeways at an elevated (sidewalk) grade are noted as potential design options for Concept 2 rather than as a separate concept due to its minor effect on the facility layout and roadway operations.



Figure 21: Concept 2



5.1.3 Concept 3

The refined **Concept 3 (Wider Sidewalks and Partial Buffered/Protected Bike Lanes)** proposes to alternate two and three vehicle lanes on ECR in each direction with painted bike lanes next to the three-lane sections and separated bikeways next to the two-lane sections.

- Concept 3 changed considerably from the preliminary alternatives’ development stage, which proposed a two-way bikeway. This proposal had significant tradeoffs, including incompatibility with the one-way bikeways proposed on ECR in adjacent jurisdictions, greater complexity in intersection traffic control, and requiring bicyclists passing through Atherton to cross the street.
- Concept 3 was amended to retain the asymmetrical vehicle lane arrangement on ECR with one-way bikeways on each side of the street. The transition from two to three vehicle lanes on southbound ECR was placed at Fair Oaks Ln. The transition from two to three vehicles lanes on northbound ECR was placed at Atherton Ave. This was intended to maximize roadway lanes where traffic conditions warranted more capacity.

Figure 22: Concept 3



5.2 Conceptual Design Evaluation

Six metrics were developed to evaluate the Concepts:

- Bicyclist safety, based on the type of proposed bikeway and degree of separation from vehicular traffic.



- Pedestrian safety, based on the proposed sidewalk width, potential conflicts with existing utilities and above-ground features, and degree of separation from vehicular traffic.
- Ability to address flood (stormwater) issues, based on the opportunity to add landscaping and stormwater catchment and conveyance features.
- Ability to maintain existing vehicle travel speeds, based on vehicle demand and roadway capacity.
- Ability to minimize traffic diversion to and queuing on local streets, based on vehicle demand and roadway capacity.
- Ability to maintain on-street parking.

The following table illustrates how each conceptual design were initially rated against the six evaluation criteria. The ratings highlight the trade-offs between reducing roadway capacity and improving safety for bicyclists and pedestrians, as well as for motorists that navigate the corridor.

Table 13: Conceptual Design Evaluation Scores

Metric	Concept 1	Concept 2	Concept 3
Bicyclist Safety	Low	High Medium in North Fair Oaks	Medium
Pedestrian Safety	Low	High	Medium
Addresses Flood Impacts	Medium	Medium	Medium
Retains Travel Speed	High	Medium	Medium-High
Minimize Traffic Diversion to Local Streets	High	Medium	Medium-High
Maintains Street Parking	Medium Low in North Fair Oaks High in Menlo Park	Medium High in North Fair Oaks Low in Menlo Park	Low Low in North Fair Oaks Low in Menlo Park

5.2.1 Concept Traffic Analysis

The study conducted a detailed traffic analysis because of the project’s identified purpose to address safety concerns for all modes. The traffic analysis evaluated the potential roadway configurations concept’s impact of reducing vehicle roadway capacity on traffic conditions along this stretch of ECR, as measured by LOS and travel speeds. The analysis used the County travel demand model to derive traffic volume inputs and analyzed traffic operations using the Highway Capacity Manual in the Synchro 12 model. The model included additional traffic and safety features in all scenarios including:



- Traffic signal at Selby Ln (desired for pedestrian safety and to better accommodate neighborhood traffic)
- Traffic signal at Watkins Ave (Peninsula Corridor Electrification Project mitigation measure)
- HAWK beacon at Stockbridge Ave to facilitate pedestrian crossings
- Pedestrian refuge islands in medians to provide a protected area for pedestrians crossing ECR

The travel time analysis indicated that the LOS and traffic delays do not substantially change from “No Build” scenario, as there is no change in the six-lane geometry of the street. However, under Concepts 2 and 3, roadway conditions would be affected, though the corridor would still operate within acceptable limits (i.e. LOS E or better).

Intersection Level of Service

The modeling indicated that though there are some impacts to LOS in the AM peak associated with the proposed lane reductions in Concepts 2 and 3, that they are limited to Selby Ln, Fair Oaks Ln/Atherton Ave and Valparaiso Ave as follows:

- Selby Ln Intersection LOS AM: From LOS B (Concept 1) to LOS C (Concepts 2 and 3)
- Fair Oaks Ln/Atherton Ave Intersection LOS AM: From LOS B (Concept 1) to LOS C (Concepts 2 and 3)
- Valparaiso Ave Intersection LOS AM: From LOS C (Concepts 1 and 3) to LOS D (Concept 2)

In the PM Peak, the most significant changes are at Oakwood Dr, Fifth Ave, Fair Oaks Ln/ Atherton Ave, Watkins Ave and Valparaiso Ave as follows:

- Oakwood Ave Intersection LOS PM: From LOS A (Concepts 1 and 3) to LOS C (Concept 2)
- Fifth Ave Intersection LOS PM: From LOS C (Concepts 1 and 3) to LOS E (Concept 2)
- Fair Oaks Ln/Atherton Ave Intersection LOS PM: From LOS B (Concept 1) to LOS C (Concepts 2 and 3)
- Watkins Ave Intersection LOS PM: From LOS A (Concept 1) to LOS D (Concept 2) and LOS B (Concept 3).
- Valparaiso Ave Intersection LOS AM: From LOS C (Concepts 1 and 3) to LOS D (Concept 2)

Travel Time (Delay)

The overall northbound AM peak could experience a 5 percent increase in travel time, rising from approximately 5.8 minutes to 6.1 minutes (18 seconds). The southbound AM peak (commute direction) could see the most significant increase in travel time, with an approximate increase of 90 seconds (27 percent), reaching 7.0 minutes from 5.5 minutes. During the northbound PM peak (commute direction), travel time increases by 14 percent, rising from 5.5 minutes to 6.3 minutes (48 seconds), while the southbound PM peak remains unchanged at 5.2 minutes. The intersections with the greatest changes in delay include the following:



- Selby Ln Intersection Delay AM: From 19 Seconds (Concept 1) to 35 Seconds (Concept 2)
- Fair Oaks Ln/Atherton Ave Intersection Delay AM: From 17 Seconds (Concept 1) to 29 Seconds (Concept 2)
- Watkins Ave Intersection Delay AM: From 11 Seconds (Concept 1) to 27 Seconds (Concept 3)
- Encinal Ave Intersection Delay AM: From 23 Seconds (Concept 1) to 33 Seconds (Concept 2)
- Valparaiso Ave Intersection Delay AM: From 27 Seconds (Concept 1) to 51 Seconds (Concept 2)
- Oakwood Dr Intersection Delay PM: From 10 Seconds (Concept 1) to 23 Seconds (Concept 2)
- Fifth Ave Intersection Delay PM: From 35 Seconds (Concept 1) to 62 Seconds (Concept 2)
- Fair Oaks Ln/Atherton Ave Intersection Delay PM: From 18 Seconds (Concept 1) to 31 Seconds (Concept 2)
- Watkins Ave Intersection Delay PM: From 6 Seconds (Concept 1) to 50 Seconds (Concept 3)
- Encinal Ave Intersection Delay PM: From 15 Seconds (Concept 1) to 27 Seconds (Concept 2)
- Valparaiso Ave Intersection Delay PM: From 24 Seconds (Concept 1) to 52 Seconds (Concept 2)

Arterial Speed

Consistent with the LOS analysis and forecasted delays, there is an associated reduction in average speed (measured end to end) along the corridor. The northbound AM peak speed sees a nominal decrease of 5 percent dropping from 20.3 mph to 19.2 mph. The southbound AM peak (commute direction) speed sees a 21 percent decline, from 20.7 mph to 16.3 mph. In the northbound PM peak (commute direction), speed decreases by approximately 12 percent from 21.2 mph to 18.6 mph, while the southbound PM peak speed increases slightly by one percent, reaching 22.1 mph.



Table 14: AM Peak Hour Delay and LOS by Concept (Delay in Seconds)

Intersection with ECR	No Build Delay	Concept 1 6-Lane Delay	Concept 2 4-Lane Delay	Concept 3 5-Lane Delay	No Build LOS	Concept 1 6-Lane LOS	Concept 2 4-Lane LOS	Concept 3 5-Lane LOS
Oakwood Dr	26	26	28	28	C	C	C	C
Selby Ln	19	19	35	22	B	B	C	C
Fifth Ave	26	26	28	25	C	C	C	C
Stockbridge Ave	1	1	1	1	A	A	A	A
Almendral Ave	1	1	1	1	A	A	A	A
Fair Oaks Ave	17	17	29	29	B	B	C	C
Isabella Ave	1	1	1	1	A	A	A	A
Watkins Ave	11	11	15	27	B	B	B	C
Alejandra Ave	1	1	1	1	A	A	A	A
Encinal Ave	23	23	33	23	C	C	C	C
Valparaiso Ave	27	27	51	27	C	C	D	C



Table 15: PM Peak Hour Delay and LOS by Concept (Delay in Seconds)

Intersection with ECR	No Build Delay	Concept 1 6-Lane Delay	Concept 2 4-Lane Delay	Concept 3 5-Lane Delay	No Build LOS	Concept 1 6-Lane LOS	Concept 2 4-Lane LOS	Concept 3 5-Lane LOS
Oakwood Dr	10	10	23	10	A	A	C	A
Selby Ln	14	14	16	19	B	B	B	B
Fifth Ave	35	35	62	34	C	C	E	C
Stockbridge Ave	1	1	1	1	A	A	A	A
Almendral Ave	1	1	1	1	A	A	A	A
Fair Oaks Ave	18	18	31	26	B	B	C	C
Isabella Ave	1	1	1	1	A	A	A	A
Watkins Ave	6	6	50	14	A	A	D	B
Alejandra Ave	1	1	1	1	A	A	A	A
Encinal Ave	15	15	27	15	B	B	C	B
Valparaiso Ave	24	24	52	33	C	C	D	C

Key Findings

The analysis underscores the trade-off between vehicle multimodal accessibility and vehicle speed and delay.

1. Concept 1 maintains efficient traffic flow with no increase in congestion, making it most effective in minimizing travel time and maintaining speed.
2. Concept 2 performs well in terms of intersection delay but experiences higher travel times, particularly in SB AM and NB PM, indicating increased congestion in those periods.
3. Concept 3 serves as a middle ground, balancing traffic efficiency and multimodal considerations, with moderate travel time increases and manageable impacts on arterial speed.

5.3 Concept Evaluation Findings

The Complete Streets Study provided insight into the community’s views on areas of concern and how to improve the ECR corridor. When considering each design concept’s ability to meet the goals of the study, Concept 2 generally performed the highest among the three alternatives, though Concepts 1 was close behind. The public found that Concepts 1 and 2 best met their needs, though when considering Atherton residents, there was a clear preference towards Concept 1.



When considering the trade-offs associated with each concept, the Atherton City Council advanced Concept 1 (Added Sidewalks and Striped Bike Lanes) and Concept 2 (Wider Sidewalks and Buffered/Protected Bike Lanes) as preferred alternatives that would continue to be evaluated for further design in the next phase of the Caltrans PID process. Staff further recommended that the Town continue its engagement with SamTrans, TA, and Caltrans regarding their collective efforts in advancing improvements to ECR and seek funding for the improvement of the Selby Ln/ECR intersection. Any improvements to this unsignalized intersection would be focused on safety concerns while optimizing overall LOS and could include a fully signalized intersection or enhanced crossings for bicyclists and pedestrians.

5.4 Planning-Level Cost Estimate

This section presents the methodology for generating a project feasibility cost estimate in accordance with the Caltrans Project Development Procedures Manual (PDPM) for both Concepts.⁴ The primary approach for generating the cost estimate is canvassing the cost data of comparable projects and generating a cost per linear foot of road basis. Using the El Camino Real Roadway Renewal Project's estimated cost of \$40 million per mile and applying it to the Project extents (1.5 miles) yields a rough order of magnitude cost of \$60 million (2025 dollars). Consistent between the two ECR projects, the major cost items are expected to be roadway rehabilitation, new sidewalks, new curb and gutter, safety improvements (e.g., traffic control devices), stormwater infrastructure, and new curb ramps. With the additional potential cost of \$5 million for stormwater infrastructure, the estimated project cost is elevated to be \$60-65 million. The cost difference between the three Concepts for the bikeway options and varying sidewalk widths is expected to be minor. Consistent with State guidelines, the initial probable contingency as a percentage of construction cost is estimated at 10-15 percent. The resulting construction cost range with contingency is \$70-80 million.

Potential high-cost items that could increase the project cost include:

- Mitigating hazardous waste.
- Mitigating environmental impacts is associated with existing mature trees and natural waterways.
- Utility relocation to mitigate conflicts with above-ground utility poles.
- Noise barriers and retaining walls.
- Major stormwater infrastructure (e.g., pump stations, water mains) in Atherton.
- Transportation management plan and traffic handling during construction.

The planned outcome at the conclusion of this study is the selection of one or more preferred Concepts that will advance into the Caltrans PID stage, during which the project scope will be further developed, technical studies undertaken, and the cost estimate developed with greater detail.



6. Summary and Next Steps

The conclusion of this study is the first step in developing the preferred outline of improvements along the corridor, and selection of concepts will allow the Town to provide input regarding preferences to both SamTrans and Caltrans for incorporation into their studies. On April 16, 2025, the Town of Atherton Public Works Director presented to the Council the study and final community feedback on each design concept. The Council approved the recommendation to select both Concept 1 (Added Sidewalks and Striped Bike Lanes) and Concept 2 (Wider Sidewalks and Buffered/Protected Bike Lanes) as preferred concepts for further evaluation in the next phase of the Caltrans PID process and directed city staff to advance both Concepts 1 and 2 to the Caltrans PID process.

The next step would be to better study the preferred concepts (Concept 1 and 2), develop more detailed concept drawings, further studying potential traffic impacts and other issues related to project development and implementation, through the Caltrans PID and Project Approval and PA&ED phases. The PID process will further evaluate two or more design concepts, including additional public input. SamTrans has initiated the PID process through the GBI, a multi-jurisdictional coalition designed to improve the quality of life along ECR through coordinated land use and transportation policies. Town staff would continue to work with SamTrans to incorporate the approved concepts into the GBI vision and PID.

The result of the Concept evaluation study provided insight into the community's views on areas of concern and how to improve the ECR corridor. When considering each design concept's ability to meet the goals of the study, Concept 2 generally performed the highest among the three concepts, though Concept 1 was close behind. The public found that Concepts 1 and 2 best met their needs, though when considering Atherton residents, there was a clear preference for Concept 1.



Figure 23: Preferred Design Concept 1



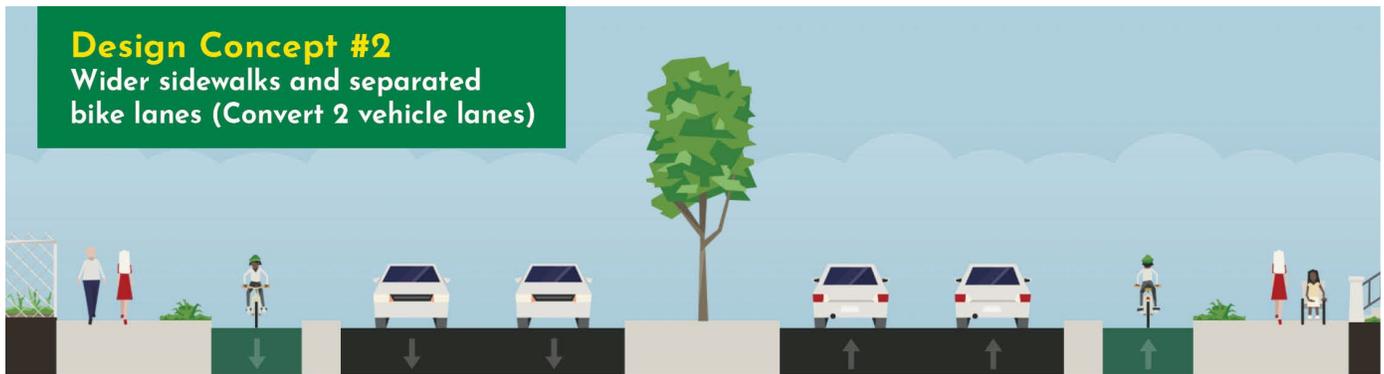
Design Concept #1 will add continuous sidewalks on both sides of the street to improve pedestrian safety. The width of the sidewalk will remain the same, and at some locations sidewalks will share space with bus stops and utilities. No vehicle lanes are removed.

This concept provides a one-way painted bike lanes (Class II bikeway) on both sides of the street to provide a dedicated lane for people on bikes and scooters.

Cyclist Safety	LOW	Retains Travel Speed	HIGH
Pedestrian Safety	LOW	Addresses Flood Impacts	MED
Maintains Street Parking	MED	Minimize Traffic Diversion to Local Streets	HIGH



Figure 24: Preferred Design Concept 2



Design Concept #2 will convert the outer vehicle lanes in each direction to add wider continuous sidewalks on both sides of the street to improve pedestrian safety.

This concept provides a one-way buffered or separated bikeway (Class IV bikeway) on both sides of the street to provide a dedicated lane for cyclists. People on bikes are buffered from traffic by a 2-3-foot wide median. One vehicle in each direction (2 total) is converted to make room for enhanced bikeways, sidewalks, and bus stops.

Cyclist Safety	HIGH	Retains Travel Speed	MED
Pedestrian Safety	HIGH	Addresses Flood Impacts	MED
Maintains Street Parking	LOW	Minimize Traffic Diversion to Local Streets	MED

6.1 Implementation Strategy

As noted earlier, any infrastructure improvements along ECR are controlled by Caltrans’ project development process and are subject to their approval and oversight. Caltrans has the authority to direct improvements that meet their needs, objectives and standards.

6.1.1 Project Partnerships

The successful delivery of a future preferred concept will be reliant on partnerships between multiple organizations, including the TA, Town, Caltrans, and potentially others both locally and regionally. The partnerships may come in various forms that focus on advancing the project to a preferred concept and final design and/or focused on securing full funding.

In Atherton and Redwood City, Caltrans completed the project initiation phase for a State Highway Operation and Protection Program (SHOPP) project on ECR. Between Selby Ln and Brewster Ave, the project alternatives include repurposing on-street parking for bikeways and reconstructing intersections to include removing slip lanes, installing ladder-style crosswalks, adding a Pedestrian Hybrid Beacon (PHB) system, and upgrading curb ramps. The environmental review phase and selection of a preferred alternative on the SHOPP project should be coordinated closely as the additional review of Atherton’s Concept 1 and Concept 2 advances since both projects explore the potential for a roadway reconfiguration.



Along the ECR corridor in San Mateo County, SamTrans is leading the relaunch of the GBI, an effort that first started in 2006 to support the development of transportation and housing projects and help make the corridor a safe, inviting, connected, and transit-oriented boulevard. The GBI is a partnership bringing SamTrans, Caltrans, neighboring cities, other public sector partners, and advocacy and public interest groups together with the GBI Task Force and Working Group, focusing exclusively on transportation improvements on ECR aimed at improving safety and connectivity for people walking, biking, driving, and taking transit. SamTrans is sponsoring the first phase of a coordinated Caltrans PID for all of ECR in San Mateo County. Once complete, the PID will define the purpose and need for the changes along the corridor as well as potential design options.

SamTrans is also developing the Central El Camino Real Multimodal Plan, with the cities of San Mateo, Belmont, San Carlos, and Redwood City, to create a plan that creates a clear vision of the corridor that meets both local and countywide needs for all types of transportation. The plan begun in Spring 2025 and is expected to be completed in Summer 2026. Both of these GBI-related efforts will be key opportunities to coordinate with and keep the momentum behind the proposed improvements on Atherton's segment of ECR.

6.1.2 Funding Opportunities

Acquiring project funding remains challenging and highly competitive across programs at the county, regional, state and federal level. Program eligibility is critical to demonstrating project need, and project sponsors must rely heavily on the ability to exemplify project benefits. As described in 6.1.1, project partnerships are one facet of demonstrating need, with collaboration typically highly valued by program evaluators.

As the study enters its next phase to continue the progress towards identifying a preferred concept, the TA and Town will continue to explore funding programs this project may be eligible for. Potential funding program examples include but are not limited to:

- **SMCTA Highway Program:** This program is intended to fund projects that reduce congestion and improve safety on highways in San Mateo County and may be an opportunity to implement near-term components such as intersection and crossing improvements;
- **Metropolitan Transportation Commission (MTC) One Bay Area Planning Grant (OBAG):** This program guides how MTC distributes federal transportation funding from the Federal Highway Administration to projects and programs that improve safety, spur economic development and help the Bay Area meet climate change and air quality improvement goals; and
- **Caltrans SHOPP:** This program is the State Highway System's "fix-it-first" program that funds the repair and preservation, emergency repairs, safety improvements, and some highway operational improvements on the State Highway System. This project may be programmed by Caltrans in future years as a key safety and operational improvement area.

A detailed exploration into funding opportunities will be conducted in a future study.



6.2 Near-Term Recommendations

The following near-term implementation actions are recommended to address safety issues within the corridor that will be compatible with the long-term project options developed within this study. The proposed improvements would address safety issues within the ECR corridor and improve the pedestrian environment. For a complete Existing Conditions summary, please see (**Appendix 11**).

Through the existing conditions analysis at the ECR and Selby Lane intersection, the Atherton City Council directed further exploration of near-term improvements. This could include enhanced bicycle and pedestrian crossing improvements, or the installation of a traffic signal based on traffic volume and crash experience. A traffic signal would allow for retaining the existing roadway and intersection configuration while maintaining options for future reconfiguration and is seen as the preferred near-term action. An intersection traffic control like a multilane roundabout would require extensive reconfiguration of the intersection and are therefore not seen as feasible near-term actions.

Below are details for a conceptual plan for a traffic signal at ECR:

- New traffic signal equipment and upgrading intersection lighting within the existing highway right of way that would not conflict future bicycle or bike facilities.
- A modified north side median to provide a crossing refuge for people in the north side crosswalk.
- New paved corner areas with detectable warning surfaces on the northwest and southwest corners to establish an accessible pedestrian path of travel. The paving could be constructed as concrete curb ramps or with asphalt.
- Optional paved areas on the west side of ECR to facilitate transit boarding and alighting, concrete, asphalt, or other treatment.
- Minor surface gutter improvements to direct stormwater runoff.
- Upgraded pavement markings and traffic control signs.

The design would retain the existing sidewalk and curb ramps at the northeast and southeast corner and the existing center running median on ECR. It would also accommodate stormwater improvements that would be designed to “de-water” localized ponding and flooding along ECR at Selby Lane. These improvements would be defined in the Town’s parallel design analysis of localized improvements at this intersection.

The typical cost for new traffic signal systems is between \$400,000 and \$600,000.¹³ Costs for bicycle and pedestrian improvements could be comparable, depending on the extent of changes to the median and the inclusion of any HAWK beacon.

The figure below shows the traffic signal concept for the Selby Lane intersection (Figure 25).

¹³ The cost estimate was generated by canvassing the cost data of comparable projects and generating a cost per linear foot of road basis. The list of comparable projects can be found in **Appendix 10**.



Figure 25: Selby Lane Intersection

