

**El Camino Real**

# Complete Streets Corridor Study

## APPENDIX

### PROJECT SPONSOR

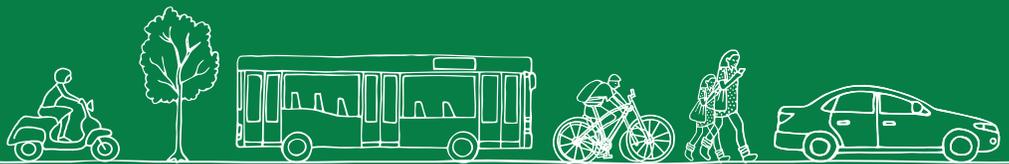
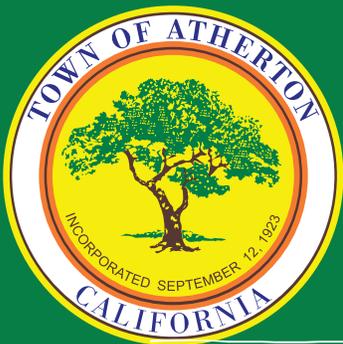
Town of Atherton

### PROJECT PARTNERS

San Mateo County Transportation Authority (TA)

SamTrans

City of Menlo Park



# El Camino Real Complete Streets Corridor Plan

SMCTA ON-CALL TRANSPORTATION,  
PLANNING, MANAGEMENT AND SUPPORT SERVICES

CONTRACT NO. 20-T-P-008A  
WDR NO. 993

## Data Collection Technical Memo

JUNE 7, 2024



SAN MATEO COUNTY  
**Transportation  
Authority**



**samTrans**



PREPARED BY WSP USA

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9.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

KEY: OR—Originator; CH—Checker

**COMMENTS** (e.g., for draft versions, explain if checklist items are required but not “checked”)

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## 1. EXECUTIVE SUMMARY

This memo documents traffic flow, safety, and multimodal accessibility data along a critical 1.5-mile segment of El Camino Real between Selby Lane and Valparaiso Ave in the Town of Atherton. The purpose of this memo, which is part of a larger Traffic Engineering Performance Assessment Report (TEPA), is to document and highlight the collected data.

### KEY FINDINGS:

**Traffic Volume and Flow:** Data from Turning Movement Counts (TMCs) and Automatic Traffic Recorders (ATR) reveal peak traffic volumes during key morning and evening hours. The El Camino Real bi-directional peak volumes reach 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.

**Crash Analysis:** An analysis spanning from 2018 to 2022 identified 73 injury crashes. Notably, two pedestrian fatalities were recorded, highlighting the need for safety interventions, particularly for non-motorized users.

**Travel Characteristics:** StreetLight data analysis reveals distinct travel patterns among bicyclists, pedestrians, transit users, and vehicle drivers. An analysis was conducted to determine the difference between "local" and "through" vehicle trips, with local trips defined as those that begin or end in the five census tracts surrounding the project corridor and through trips defined as those that begin or end outside those five census tracts. The analysis of local and through vehicle trips indicates that for an average day and time, the project corridor facilitates more through trips within the study area, reflecting its role as a major north-south artery in the county. These patterns change 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, indicating potential for a shift to bicycles if safer infrastructure is added.

### NEXT STEPS:

1. **Safety Improvements:** Given the identified safety concerns, particularly regarding pedestrian fatalities, the project prioritizes pedestrian and bicycle safety improvements.
2. **Traffic Flow Optimization:** Recommendations include signal timing adjustments such as LPI (leading pedestrian intervals), timing optimization and roadway design modifications to improve pedestrian safety and better manage peak hour traffic volumes.
3. **Multimodal Accessibility:** Infrastructure improvements are recommended to bolster access for bicyclists and pedestrians, ensuring safe, efficient movement throughout the corridor.

This memo serves as the initial step in the Traffic Engineering Performance Assessment (TEPA) for the El Camino Real corridor, aimed to summarize the existing traffic conditions of the corridor.

## 2. BACKGROUND

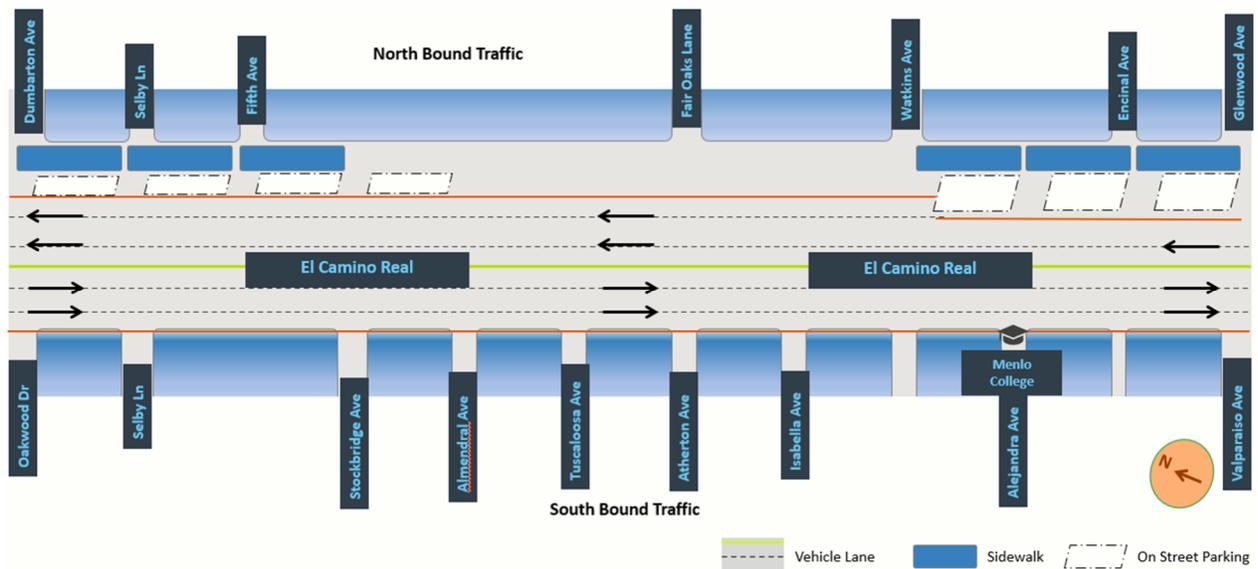
Following the Executive Summary, this section delves deeper into the El Camino Real Complete Streets Corridor Plan. The complete project extends for a distance of 1.5 miles from Selby Lane to Valparaiso Ave along El Camino Real, a key arterial road pivotal for regional mobility. This traffic analysis, however, specifically concentrates on a critical 1.76-mile segment between Oakland Dr and Valparaiso Ave and it has been selected for detailed study as it captures significant traffic impacts that are indicative of the entire study area.

### OBJECTIVES

This traffic data collection memo serves as an essential foundational step in the broader Traffic Engineering Performance Assessment for the El Camino Real Complete Streets Corridor Plan. The objectives of this memo are specifically tailored towards the initial stages of data collection, providing critical inputs for comprehensive traffic and safety analysis. By systematically documenting traffic volumes, signal timings, and crash data, this memo lays the groundwork necessary for conducting detailed analyses, such as Synchro modeling to optimize traffic flow and identifying areas of concern for targeted safety improvements. The objective of the memo is as follows:

- 1. Understand Current Traffic Conditions:** This objective entails collecting precise data on vehicle volumes and flow patterns along El Camino Real during both peak and off-peak hours.
- 2. Assess Safety Concerns:** A thorough examination of historical crash data is vital for identifying safety concerns and determining necessary improvements within the project's scope.
- 3. Evaluate Multimodal Integration:** Analyzing travel patterns from data sources including the StreetLight platform will reveal how well different transportation modes—such as driving, bicycling, walking, and public transit—are integrated along the corridor.

*Figure 2.1: Existing Lane Configuration*



## STUDY AREA OVERVIEW

**CORRIDOR SPECIFICATIONS:** The El Camino Project Corridor extends over a distance of 1.5 miles and is classified as an Arterial Roadway. This corridor varies between five to six lanes with a shoulder (paved and unpaved) on both sides, supporting high volumes of bidirectional traffic. Its critical role in facilitating connectivity across local and regional transportation systems cannot be overstated. The posted speed limit in both NB and SB direction is 35 mph. Sidewalks are available intermittently and on the northbound side. Please refer to Table 2.1 for more detailed information on sidewalks, shoulder and on-street parking,

**TRAFFIC AND INTERSECTION ANALYSIS:** Detailed analysis of data between Oakwood Dr and Valparaiso Ave will consider the network of five signalized intersections, four unsignalized (stop-controlled) intersections and three pedestrian High Intensity Activated Crosswalk (HAWK) signal crossings focusing on improving safety and traffic flow.

**LAND USE AND COMMUNITY IMPACT:** Surrounding the corridor is a diverse landscape of single- and multi-family uses, educational facilities, and commercial zones. This mix significantly influences traffic patterns and underscores the need for a corridor that accommodates the dynamic needs of the community.

Figure 2.2: Project Map

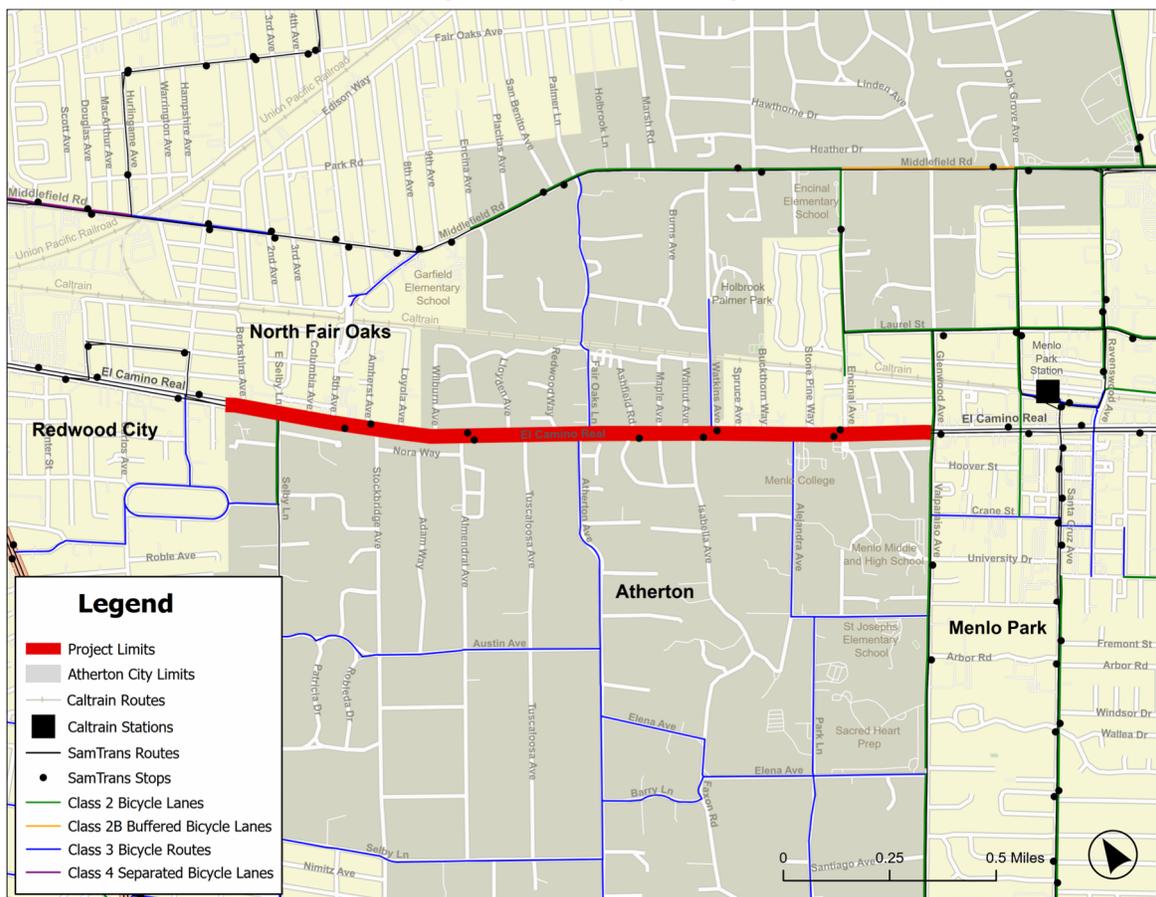


Table 2.1: El Camino Real Roadway Characteristics

EL CAMINO REAL RD		SIDEWALK		SHOULDER		PARKING	
From	To	NB	SB	NB	SB	NB	SB
Oakwood Dr	Selby Ln	✓	✗	✗	✓	✓	✗
Selby Ln	Fifth Ave	✓	✗	✗	✓	✓	✗
Fifth Ave	Stockbridge Ave	✓	✗	✗	✓	✓	✗
Stockbridge Ave	Almendral Ave	✗	✗	✗	✓	✓	✗
Almendral Ave	Tuscaloosa Ave	✗	✗	✓	✓	✗	✗
Tuscaloosa Ave	Atherton Ave	✗	✗	✓	✓	✗	✗
Atherton Ave	Isabella Ave	✗	✗	✓	✓	✗	✗
Isabella Ave	Watkins Ave	✗	✗	✓	✓	✗	✗
Watkins Ave	Alejandra Ave	✓	✗	✗	✓	✓	✗
Alejandra Ave	Encinal Ave	✓	✗	✗	✓	✓	✗
Encinal Ave	Valparaiso Ave	✓	✗	✗	✓	✓	✗
1) PARTIALLY COMPLETE OR NO SIDEWALKS BETWEEN SEGMENTS ARE MARKED AS ✗. ONLY SEGMENTS WITH COMPLETE SIDEWALK WILL BE MARKED AS ✓							
2) INCOMPLETE SHOULDERS (2' - 5') BETWEEN SEGMENTS ARE MARKED AS ✗. ONLY SEGMENTS WITH COMPLETE SHOULDER WILL BE MARKED AS ✓							
3) IF THERE IS ZERO ON-STREET PARKING, THE SEGMENTS ARE MARKED AS ✗. ONLY SEGMENTS WITH ON-STREET PARKING WILL BE MARKED AS ✓							

## DATA COLLECTION

In preparation for a comprehensive analysis of the El Camino Real corridor, WSP implemented a multifaceted data collection strategy to capture current traffic patterns accurately:

1. **Turning Movement Counts (TMCs):** Conducted on Tuesday, March 12, 2024, these counts included vehicles, heavy vehicles, pedestrians, and bicycles at key locations depicted in Figure 1.3. 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 (ADTs):** From March 12 to March 14, 2024, Automatic Average Daily Traffic counts were performed at four strategic locations, as detailed in Figure 1.3. This effort helps to ascertain 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 seven signalized intersections within the study area, including five standard and two 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.

This comprehensive data collection phase is foundational to the El Camino Real Complete Streets Corridor Plan, ensuring that any traffic flow, safety enhancements, and accessibility improvements are based on accurate, up-to-date information. With a detailed understanding of current conditions, the project can effectively target interventions that will significantly benefit the corridor's efficiency and safety.

The Background section has established a strong foundation for the El Camino Real Complete Streets Corridor Plan, highlighting its objectives and the comprehensive data collection efforts. In the next section, we will conduct detailed data analysis to uncover insights into the corridor's characteristics.

Figure 1.3 Traffic Demand Data Collection Location



### 3. CRASH ANALYSIS

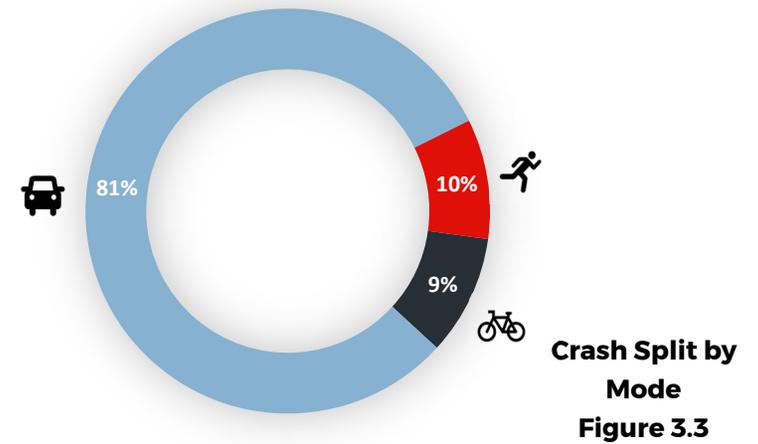
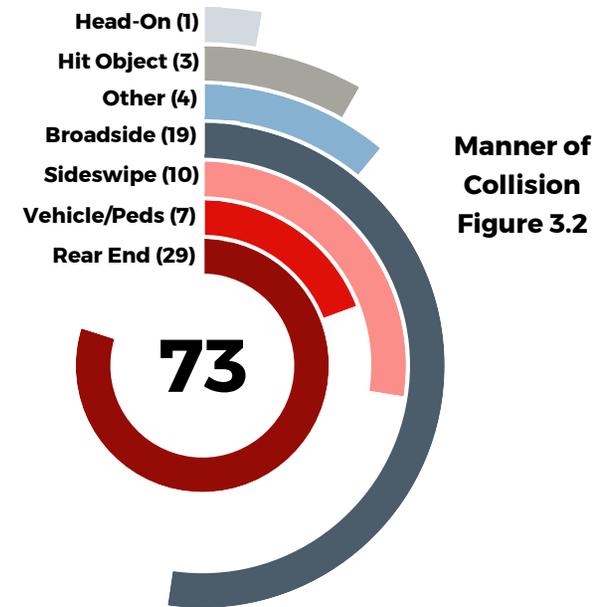
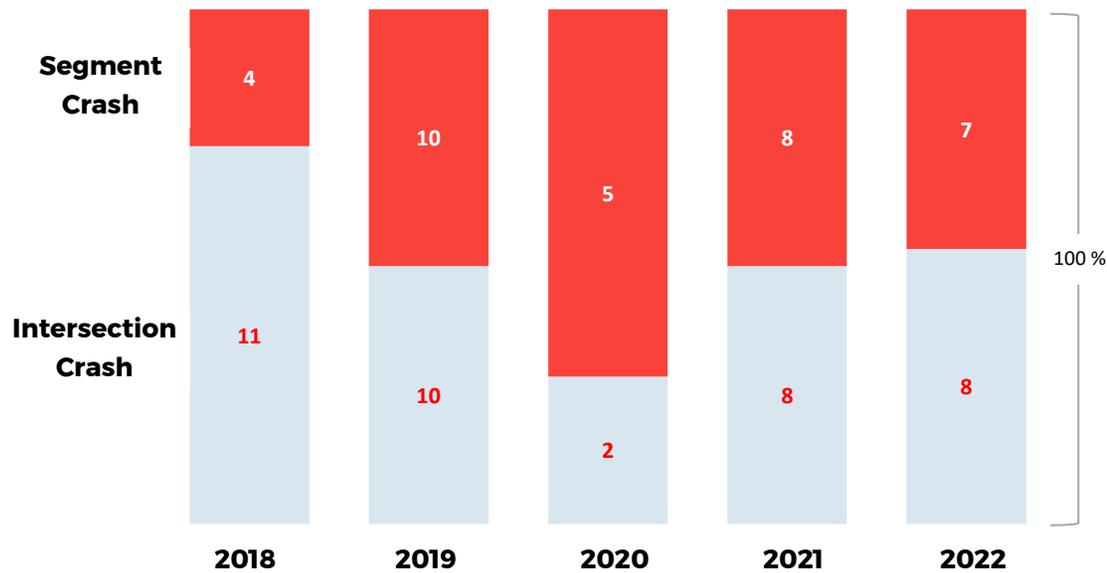
This section of the Data Collection Memo focuses on analyzing crash data relevant to the El Camino Real Complete Streets Corridor Plan. A thorough examination of historical crash data is vital for identifying safety concerns and determining necessary improvements within the project's scope. Our analysis primarily relies on crash records obtained from the Statewide Integrated Traffic Records System (SWITRS), accessed through the Transportation Injury Mapping System (TIMS). Please refer to Appendix B for compiled crash raw data.

The most recent five-year dataset available from the SWITRS database spans from January 1, 2018, to December 31, 2022. Our findings from this period are as follows:

1. A total of 73 crashes have been recorded in the corridor (see Figure 3.4 for more details)
2. 53% of the crashes occurred at intersections, while the remaining 47% took place along roadway segments. (Refer to Figure 3.1)
3. The corridor experienced roughly 15-20 crashes annually. The significant reduction in 2020, with only 7 crashes, was likely due to the reduced travel demand during the COVID-19 pandemic when many people worked from home. As travel patterns normalize in 2024, crash numbers may revert to previous levels. The intersections of Selby Lane (11), Watkins Ave (5) and Alejandra Ave (4) with El Camino Real witnessed the highest number of crashes within the project area.
4. Rear end collisions account for 40% of the crashes, followed by Broadside or T-bone collisions accounts to 27% of crashes followed by sideswipe crash at 14%. (Refer to Figure 3.2)
5. Crashes involving non-motorized vehicles accounted for 19% of the total incidents. (Refer to Figure 3.3)
6. There were 2 fatal pedestrian crashes, attributed to midblock crossing near Watkins Ave and standing in the shoulder in Valparaiso Ave intersection. (Refer to Figure 3.4).

Figure 3: Crash Analysis Figures.

Crash Location Vs Year  
Figure 3.1



■ Bikes ■ Motor Vehicles ■ Pedestrians



## 4. TRAVEL DEMAND DATA COLLECTION

As part of this study, traffic volume data was obtained, and this data formed the foundation of the traffic analysis. The methodology involved includes conducting turning movement counts (TMCs) at all 12 study intersections, as detailed in Figure 1.3, during the peak periods of a Tuesday (7-9 AM and 4-6 PM). Additionally, this approach included gathering 72-hour Automatic Traffic Recorder (ATR) data 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 ATR data, meticulously gathered as part of this study, is thoroughly documented in Appendix A, providing a detailed resource for further analysis and insights. Table 4.1 summarizes the ADT data summarized from all the counters.

	AM PEAK HOUR	PM PEAK HOUR	WEEKDAY AVERAGE
Time Period	07:45 AM - 08:45 AM	04:30 PM - 05:30 PM	Typical Weekday
Traffic Volume <sup>1</sup>	2,812	2,980	36,058
K-Factor <sup>2</sup>	7.8%	8.3%	N/A
Directional Distribution	68% SB / 32% NB	41% SB / 59% NB	50% SB/ 50% NB
<sup>1</sup> vpd = volume per day, vph = volume per hour, based on <b>ADT</b> data (Mar 12-14, 2024), unadjusted. Traffic volumes entered are bi-directional.			
<sup>2</sup> percent of daily traffic that occurs during the peak hour			

**Table 4.1: Summary of Average ADT Data**

For the 2024 traffic volume analysis of the El Camino Real State Highway (SH 82) between Selby Lane and Valparaiso Ave, the Average Daily Traffic (ADT) is documented at 36,058 vehicles per day (vpd). The analysis identifies peak traffic periods in the morning, between 7:45 to 8:45 AM, contributing to 7.8% of the daily volume, and in the evening, between 4:30 to 5:30 PM, representing 8.3% of daily volume. However, it should be noted that Turning Movement Counts were collected on a Tuesday and the PM peak hour for all the intersections were 3:45 to 4:45 PM. Directional flow analysis during these peak periods reveals a distribution of 68% southbound and 32% northbound traffic in the AM, with a shift to 41% southbound and 59% northbound in the PM. Additionally, Figure 4.1 represents the Annual Average Daily Traffic (ADT) on El Camino Real State Highway (SH 82), showcasing northbound, southbound, and total traffic volumes. Figures 4.2 and 4.3 illustrate the 2024 existing weekday morning and evening peak hour traffic volumes including pedestrians and bicycles.

## PEDESTRIAN AND BICYCLE DEMAND

The TMCs also captured pedestrian and bicycle movements at the 12 intersections during peak hours. The data reveals significant variations in pedestrian and bicycle demand across different intersections and times of the day. Below is a summary of key findings and refer Table 4.2.

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

INTERSECTION	CONTROL TYPE	AM PEAK PED DEMAND	PM PEAK PED DEMAND	AM PEAK BIKE DEMAND	PM PEAK BIKE DEMAND
Oakwood Dr	Signalized	E: 10, N: 14	E: 18, N: 13	EB: 6, SB: 4	SB: 9, NB: 6
Fifth Ave	Signalized	E: 13, S: 7	E: 30, S: 10	SB: 4	NB, SB: 4
Atherton Ave	Hawk Beacon	W: 2	E, W: 2	WB: 2, SB: 2	SB: 17, NB: 38
Valparaiso Ave	Signalized	E: 11, S: 3	E: 17, N: 5	EB: 21, WB: 10	EB: 5

*Table 4.2: Summary of High Micro-modal Data*

Figure 4.1: ADT Schematic

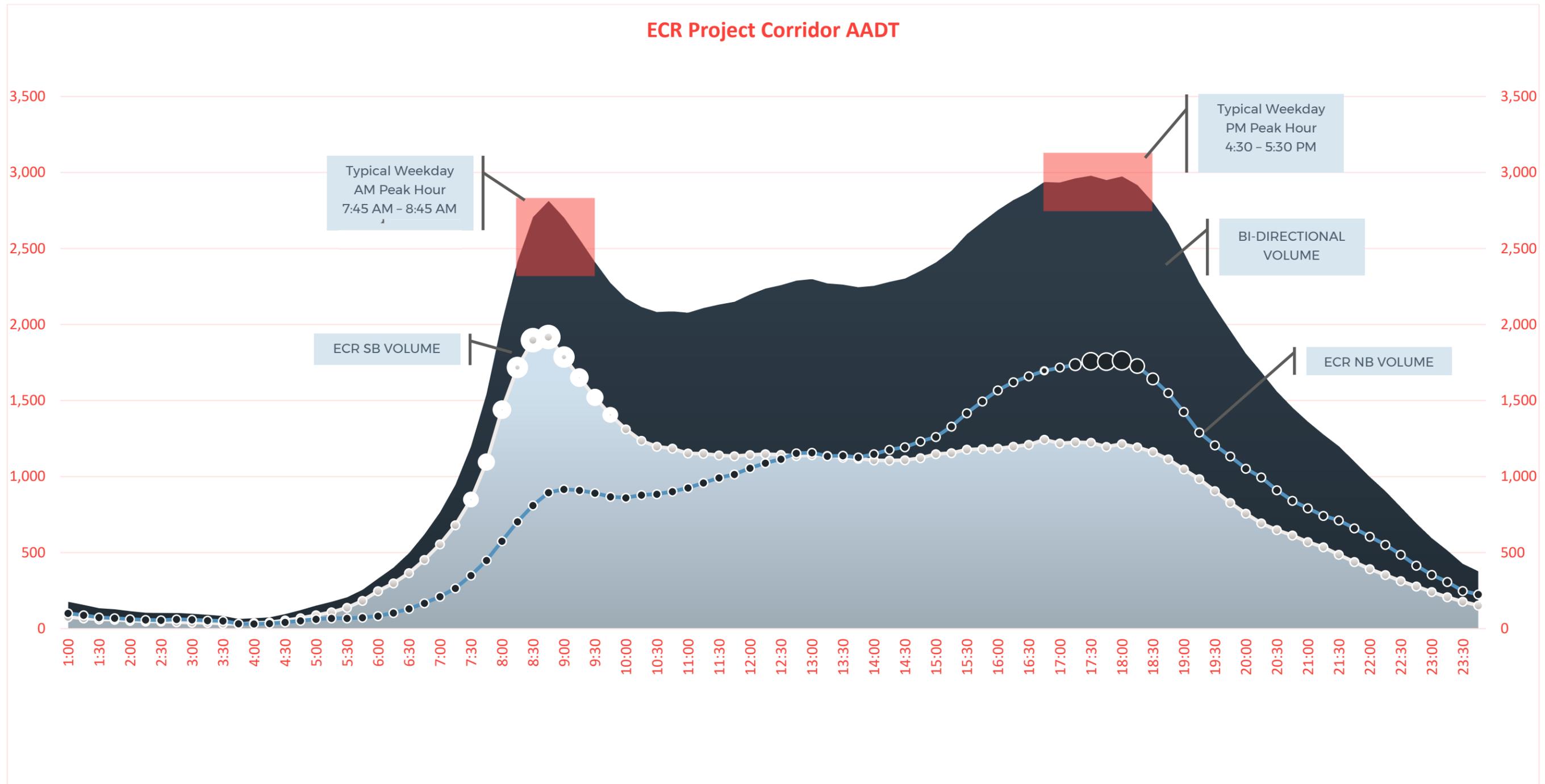


Figure 4.2: 2024 Typical Weekday AM Turning Movement Count Volumes

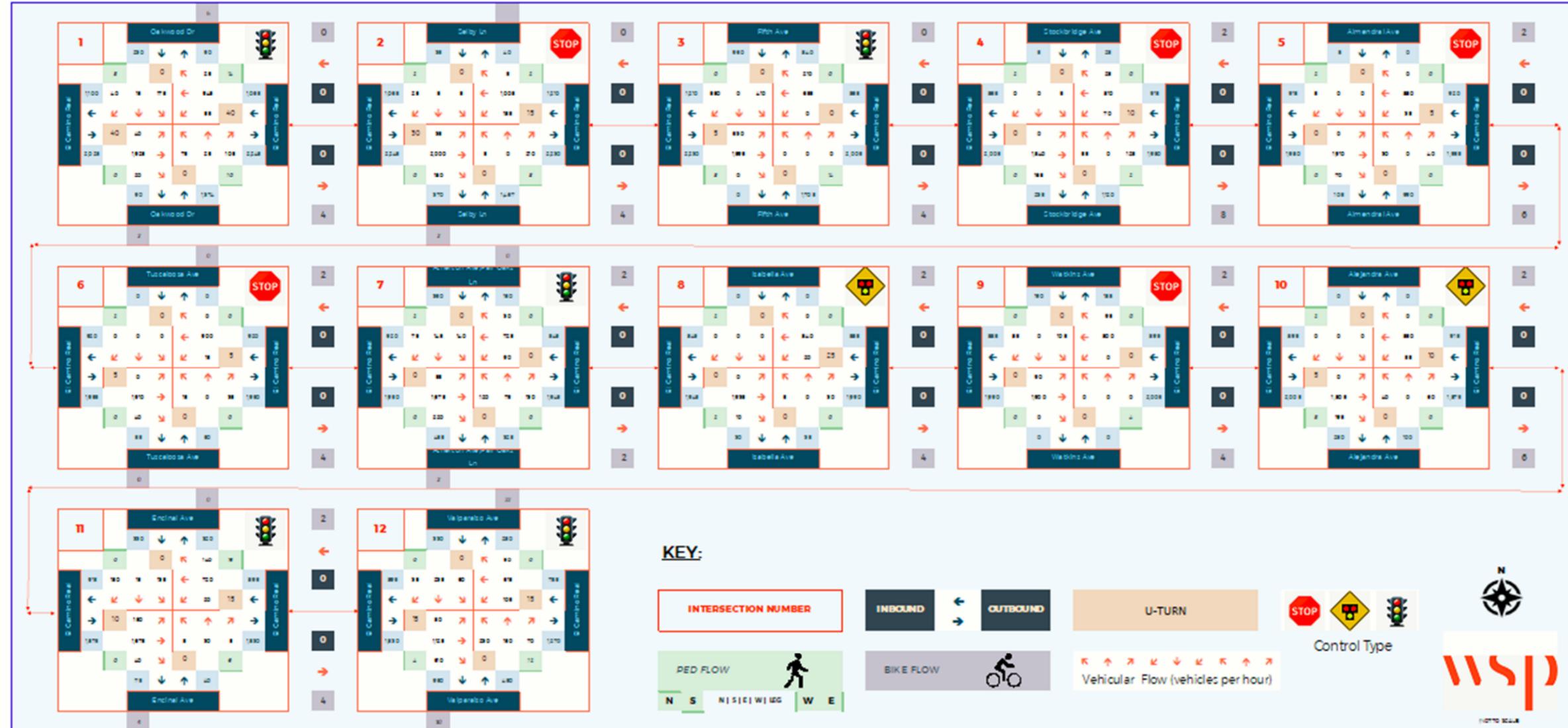
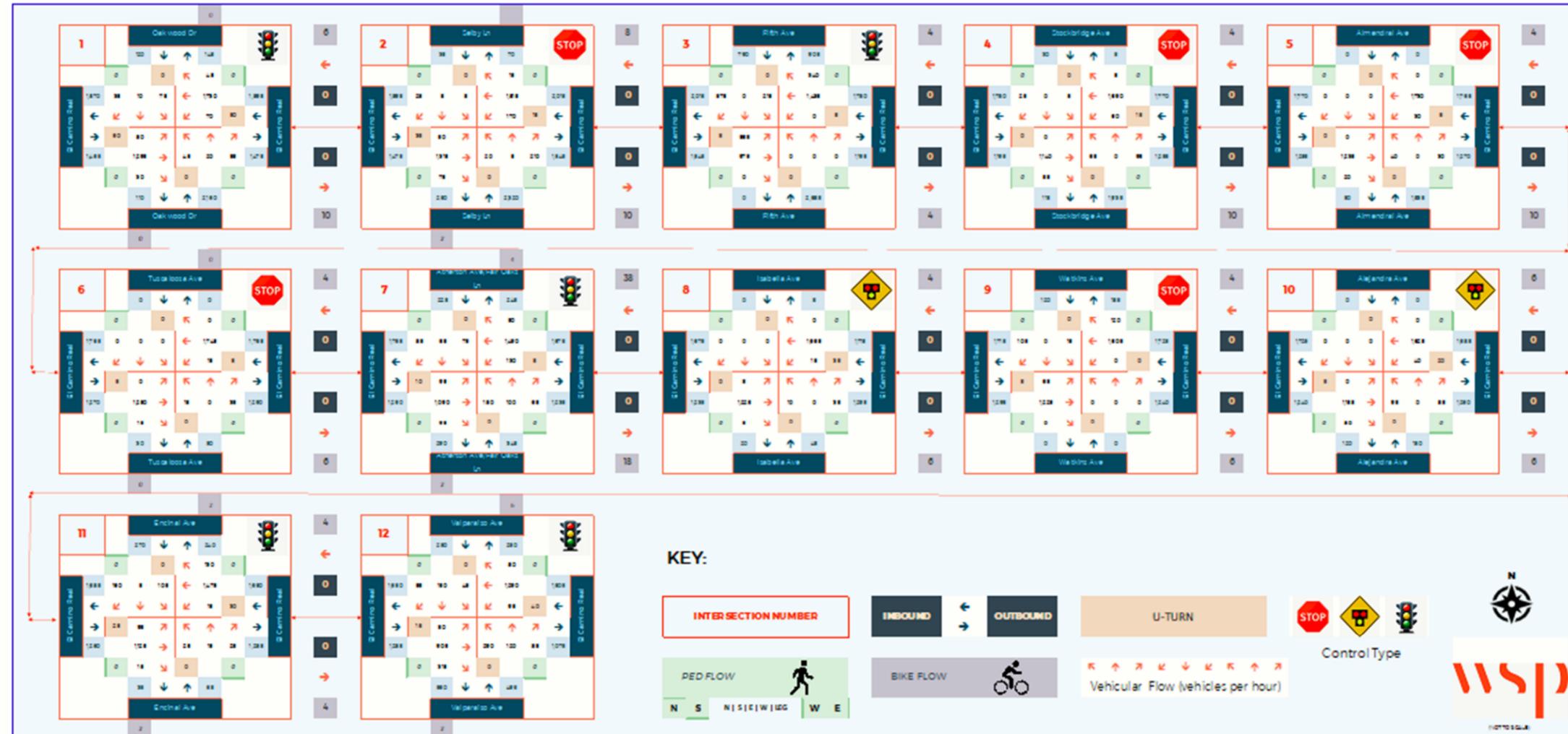


Figure 4.3: 2024 Typical Weekday PM Turning Movement Count Volumes

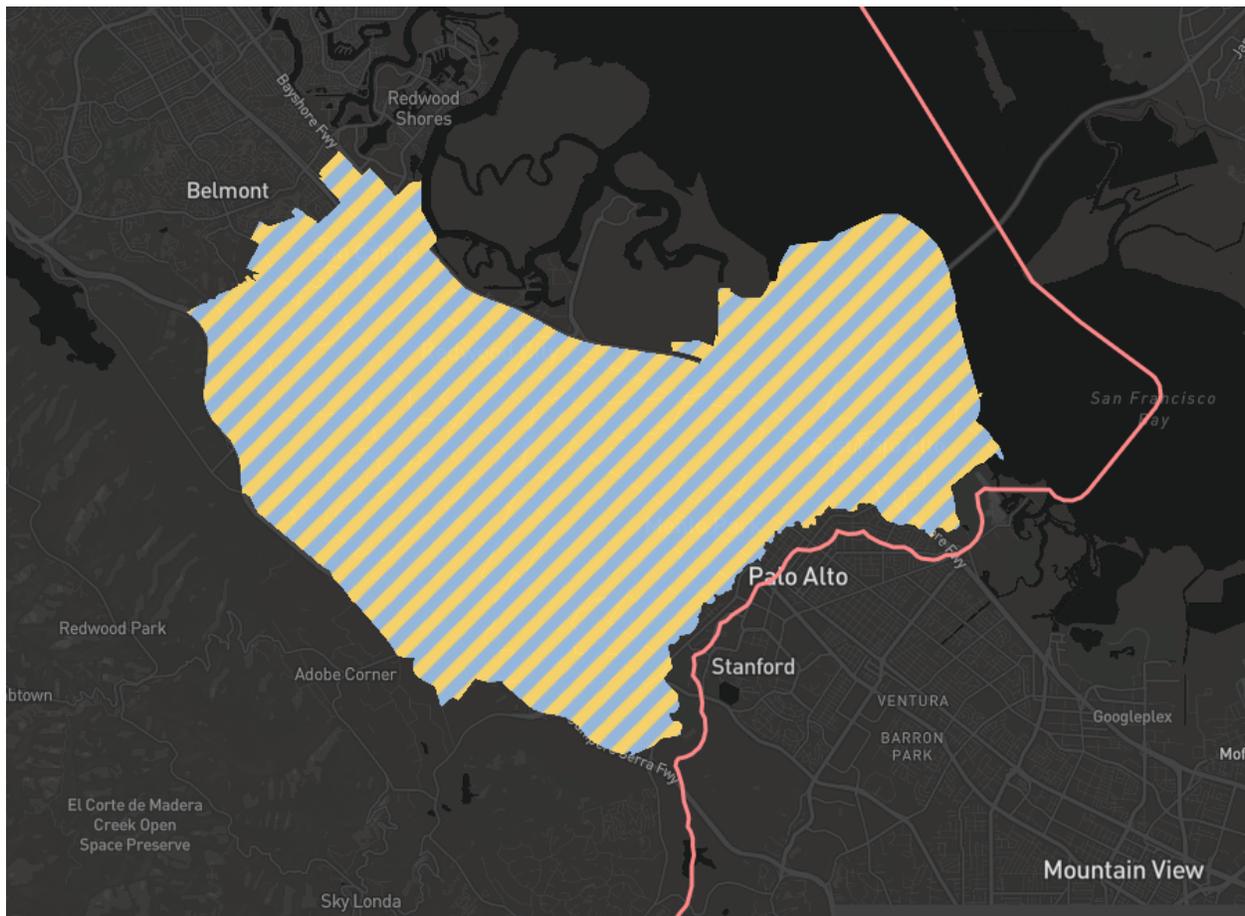


## 5. TRAVEL CHARACTERISTICS

In addition to the data described above, WSP utilized data from StreetLight Data, Inc. to determine travel patterns for various modes within the defined study area. StreetLight is an on-demand mobility analytics platform that takes travel data from mobile devices to analyze origin/destination patterns, travel times, and other travel patterns. Due to the number of assumptions built into the StreetLight data processing methodology, the results should be viewed as a high-level snapshot of travel patterns within the study area rather than an accurate estimate of total travel volumes.

WSP first worked with the Town of Atherton to determine the extent of the study area, which included 48 census tracts within San Mateo County, as shown in Figure 5.1. Data is not available for trips outside of San Mateo County, so all data shown is for intra-county trips. WSP analyzed origin/destination patterns by utilizing the *Middle Filter* tool to view trips to and from the census tracts within the study area that use the portion of El Camino Real between Selby Lane and Valparaiso Avenue. Unfortunately, this specific type of analysis is only available for vehicle and bicycle data.

*Figure 5.1: Study Area for StreetLight Data*



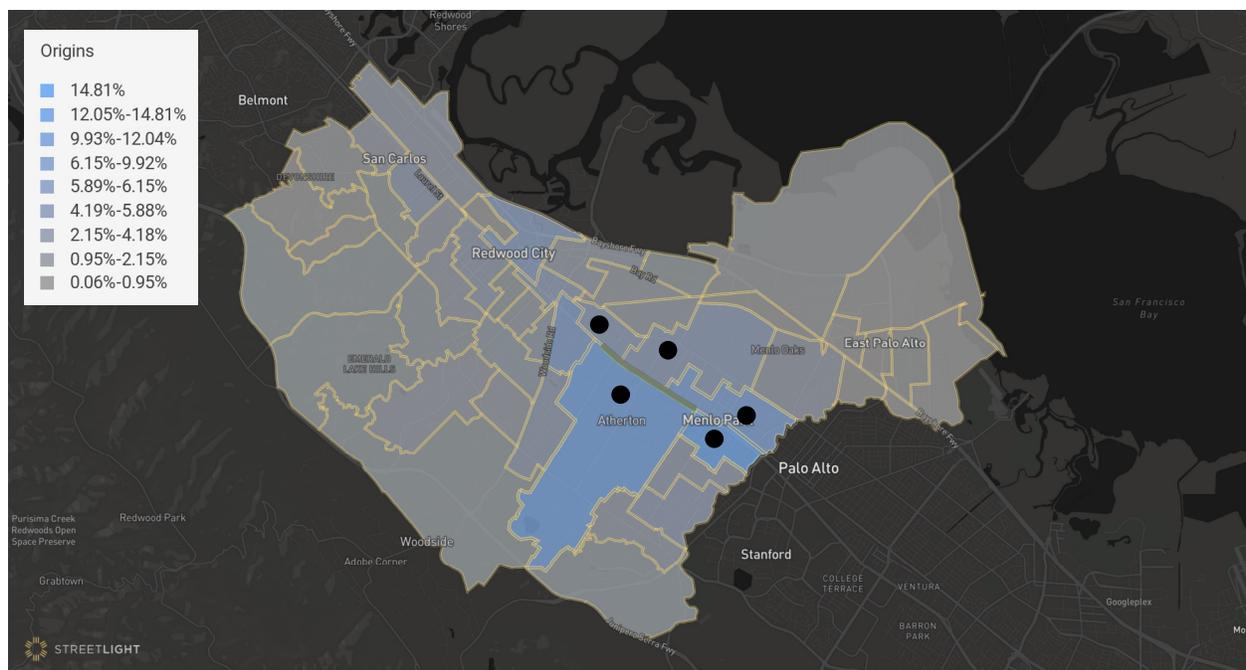
Aggregated trip data was obtained for March, April, September, and October 2021. This included aggregated trips from all days of the week at all times.

## LOCAL VS THROUGH VEHICLE TRIPS

Through discussions with the Town of Atherton, WSP focused on analyzing two components of the StreetLight data. The first was the difference between “local” and “through” vehicle trips. WSP utilized the data from StreetLight’s Middle Filter tool described above to determine origin and destination patterns for vehicle trips using the project corridor. 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.

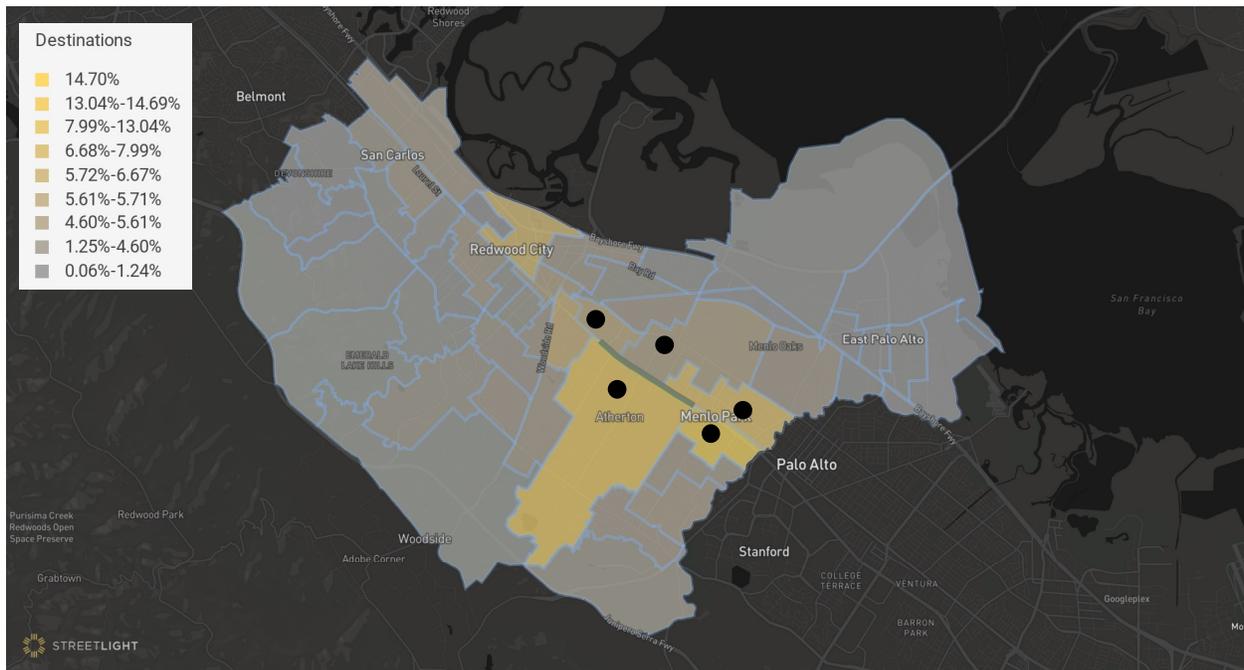
To gain perspective of overall trip patterns, Figure 5.1 and Figure 5.2 show the percentage of vehicle trip origins and destinations by census tract using the project corridor. The census tracts with the highest percentage of vehicle trip origins primarily border the project corridor, with some higher percentages in Redwood City as well.

*Figure 5.2: Origins of Vehicle Trips Using the Project Corridor*



● *Census tracts that are included in local trips*

Figure 5.3: Destinations of Vehicle Trips Using the Project Corridor



● *Census tracts that are included in local trips*

WSP determined the percentage of local and through vehicle trip origins for weekday and weekend day types and further analyzed the data by time period (AM peak and PM peak). As shown in Table 5.1 and Figure 5.4, the percentages are similar for an average day and time (46% local vs 54% through). However, the largest disparities are in the AM peak with a larger percentage of through trips. This is most likely due to the need for residents from throughout the project area to use the corridor to access jobs or potentially key transit nodes (i.e. Caltrain stations).

Table 5.1: Percentages of Local and Through Vehicle Trip Origins

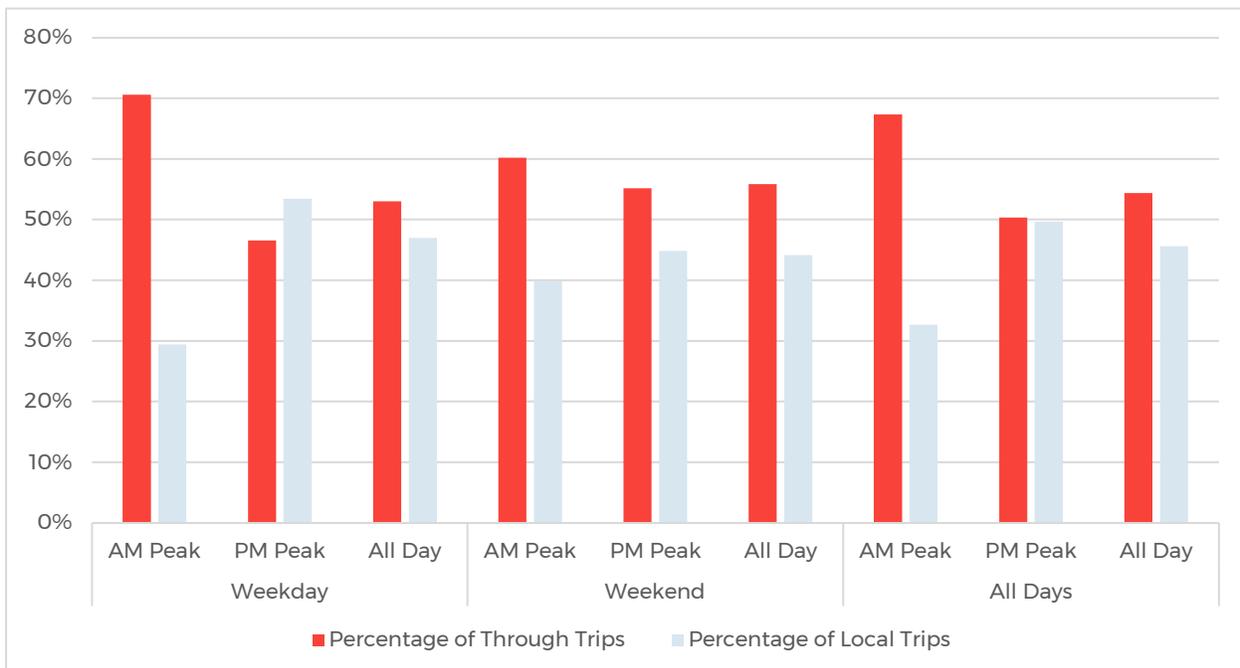
	TIME PERIOD <sup>1</sup>	PERCENTAGE OF LOCAL TRIPS <sup>2</sup>	PERCENTAGE OF THROUGH TRIPS <sup>3</sup>
Weekday	AM Peak	29%	71%
	PM Peak	53%	47%
	All Day	47%	53%
Weekend	AM Peak	40%	60%
	PM Peak	45%	55%
	All Day	44%	56%
All Days	AM Peak	33%	67%
	PM Peak	50%	50%
	All Day	46%	54%

<sup>1</sup> AM Peak is 6:00-10:00 AM, PM Peak is 3:00-7:00 PM

<sup>2</sup> through trips are defined as those originating outside the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

<sup>3</sup> local trips are defined as those originating in the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

Figure 5.4: Percentages of Local and Through Vehicle Trip Origins



Similarly, WSP determined the percentage of local and through vehicle trip destinations for weekday and weekend day types and further analyzed the data by time period (AM peak and PM peak). As shown in Table 5.2 and Figure 5.4, there are larger percentages of local trip

destinations than through trips during weekday and all day AM peak periods. The corresponding larger percentage of through trips in the PM peak could be caused by residents returning home from work or school and using the corridor to access a wider range of destinations.

*Table 5.2: Percentages of Local and Through Vehicle Trip Destinations*

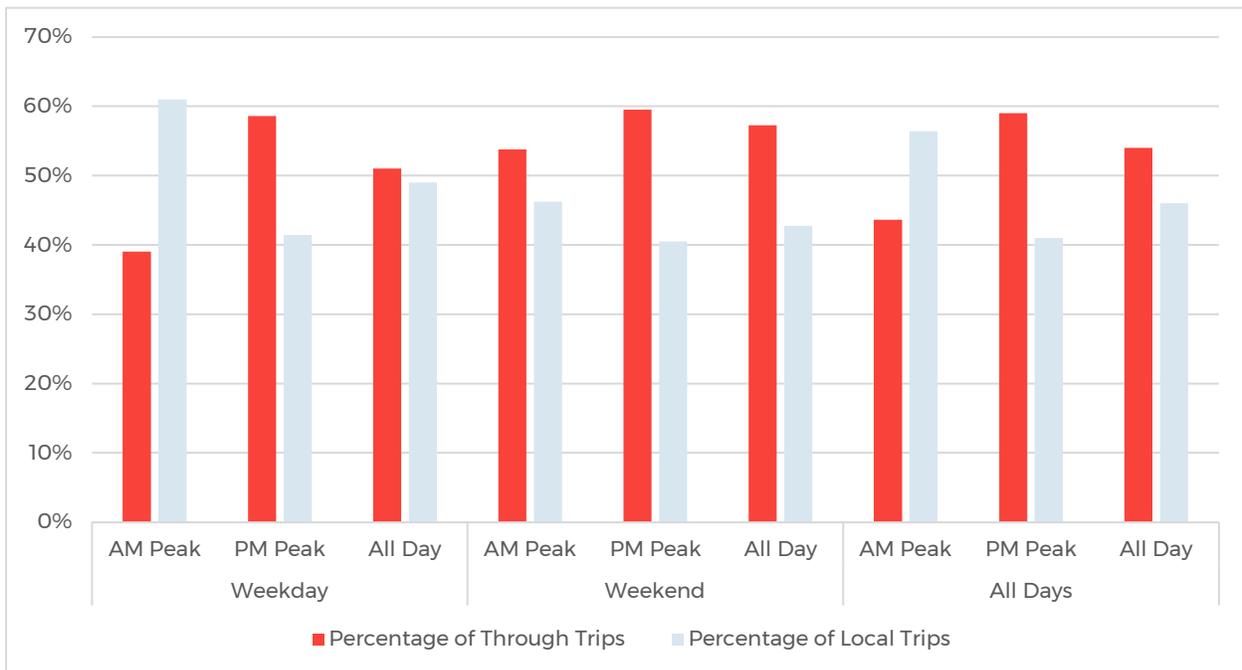
	TIME PERIOD <sup>1</sup>	PERCENTAGE OF VEHICLE LOCAL TRIPS <sup>2</sup>	PERCENTAGE OF VEHICLE THROUGH TRIPS <sup>3</sup>
Weekday	AM Peak	61%	39%
	PM Peak	41%	59%
	All Day	49%	51%
Weekend	AM Peak	46%	54%
	PM Peak	40%	60%
	All Day	43%	57%
All Days	AM Peak	56%	44%
	PM Peak	41%	59%
	All Day	46%	54%

<sup>1</sup> AM Peak is 6:00-10:00 AM, PM Peak is 3:00-7:00 PM

<sup>2</sup> through trips are defined as those originating outside the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

<sup>3</sup> local trips are defined as those originating in the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

*Figure 5.5: 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. As evidenced by the data in Section 3, using a bicycle along El Camino Real can be dangerous. Despite being a major north-south corridor within the county, 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 miles per hour. 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 anywhere within the study area regardless of corridor (3%). This can be due to several factors, with the most important being the lack of safe bicycle infrastructure along the corridor.

Despite the low number of bicyclists currently using the project corridor, there is a possibility that 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.<sup>1</sup> Table 5.3 and Figure 5.6 show that over 50% 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).

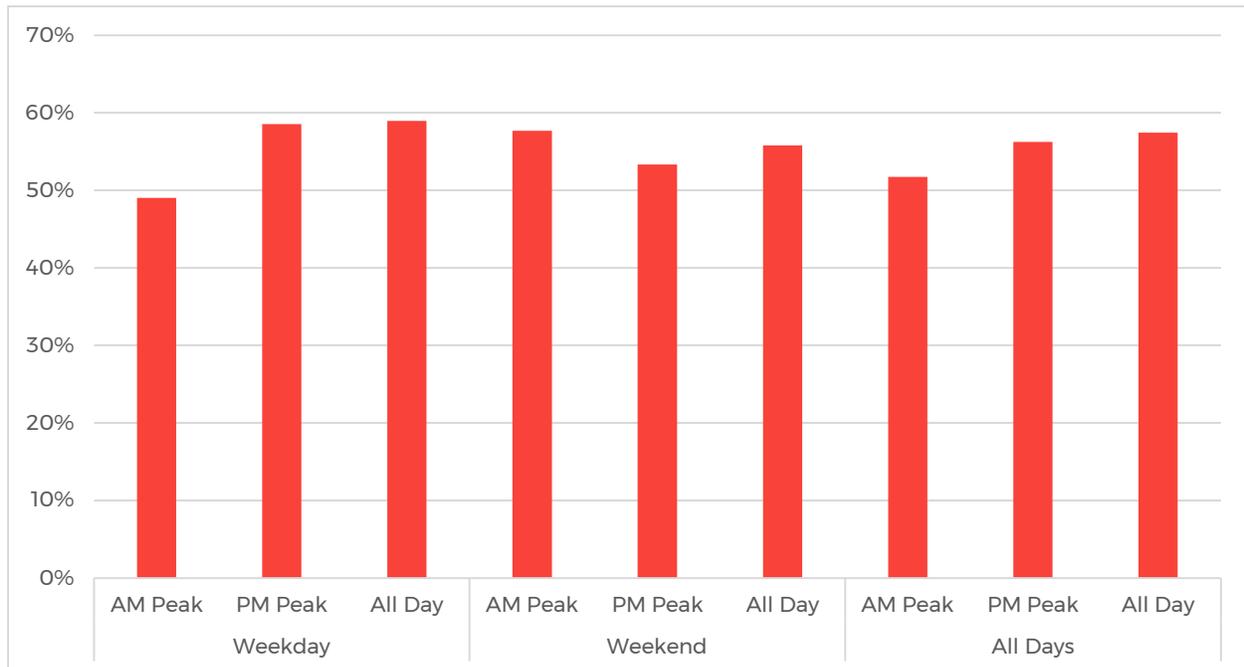
*Table 5.3: Percentage of Vehicle Trips Under Five Miles*

	TIME PERIOD <sup>1</sup>	PERCENTAGE OF VEHICLE TRIPS UNDER FIVE MILES
Weekday	AM Peak	49%
	PM Peak	59%
	All Day	59%
Weekend	AM Peak	58%
	PM Peak	53%
	All Day	56%
All Days	AM Peak	52%
	PM Peak	56%
	All Day	57%

<sup>1</sup> AM Peak is 6:00-10:00 AM, PM Peak is 3:00-7:00 PM

<sup>1</sup> Source: "Route Planning", National Association of City Transportation Officials, 2023, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/route-planning/>.

Figure 5.6: Percentage of Vehicle Trips Under Five Miles



## KEY TAKEAWAYS

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 makes sense considering this is one of the few major north-south corridors serving the county. However, these patterns change based on the time of day. Particularly during weekdays, AM peak periods experience more local trip origins than destinations, with the opposite occurring in 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 vehicle 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.

Results from the outreach phases of the project should be monitored to determine how residents are using the project corridor, as well as the desire for improved bicycle infrastructure along the project corridor. The results will be compared to the data in this memo, along with further analysis during the Alternatives Analysis and Concept Designs portion of the project, to determine the impacts of converting existing travel lanes to accommodate dedicated bicycle infrastructure.

## 6. CONCLUSION

In summarizing the collected data for the El Camino Real Complete Streets Corridor Plan, the crash analysis indicates safety concern for micro-mobility modes and demand data indicates challenges in managing traffic flow during peak times. The crash data highlights a critical need for safety improvements at key intersections, while travel demand data emphasizes the corridor's pivotal role in facilitating more trips accessing areas outside those adjacent to the corridor. Additionally, StreetLight data shed light on the corridor's significance in facilitating varied travel patterns, pointing towards the necessity for better multimodal infrastructure to support safe and efficient transportation for all users.

### *Next Steps*

Moving ahead, the focus will shift to completing the traffic analysis to thoroughly evaluate current traffic conditions and pinpoint opportunities for enhancing multimodal safety, connectivity, and traffic flow efficiency. This analysis will lay the groundwork for the Traffic Engineering Performance Assessment Report (TEPA), aiming to provide a detailed look into the corridor's traffic dynamics and suggesting practical measures for its improvement. By improving infrastructure to support a diverse range of transport modes, the project seeks to establish a safer, more accessible, and efficiently navigated corridor, addressing both present and anticipatory community needs.



## MEMO

**TO:** Kay Cheng, PM  
**FROM:** Emma O'Hara and Mitchell Fong  
**SUBJECT:** Existing Conditions Geotechnical Desktop Study Memorandum for El Camino Real Complete Streets Corridor Plan, W DPR #063023  
**DATE:** March 27, 2025

## INTRODUCTION

The WSP Geotechnical and Tunneling Team has conducted a geotechnical desktop study to prepare an existing conditions memorandum per optional task 2.1.1. of the El Camino Real Complete Streets Corridor Plan, W DPR #063023. Our team understands that the project goal is to improve travel safety within the existing corridor width for the 1.5-mile segment of El Camino Real (California State Route 82, AKA SR 82) within the Town of Atherton (Figure 1). The following sections summarize the desktop study for this existing conditions memo which consisted of compiling available 1) geologic setting information 2) maps, 3) aerial imagery, and 4) existing nearby geotechnical explorations.

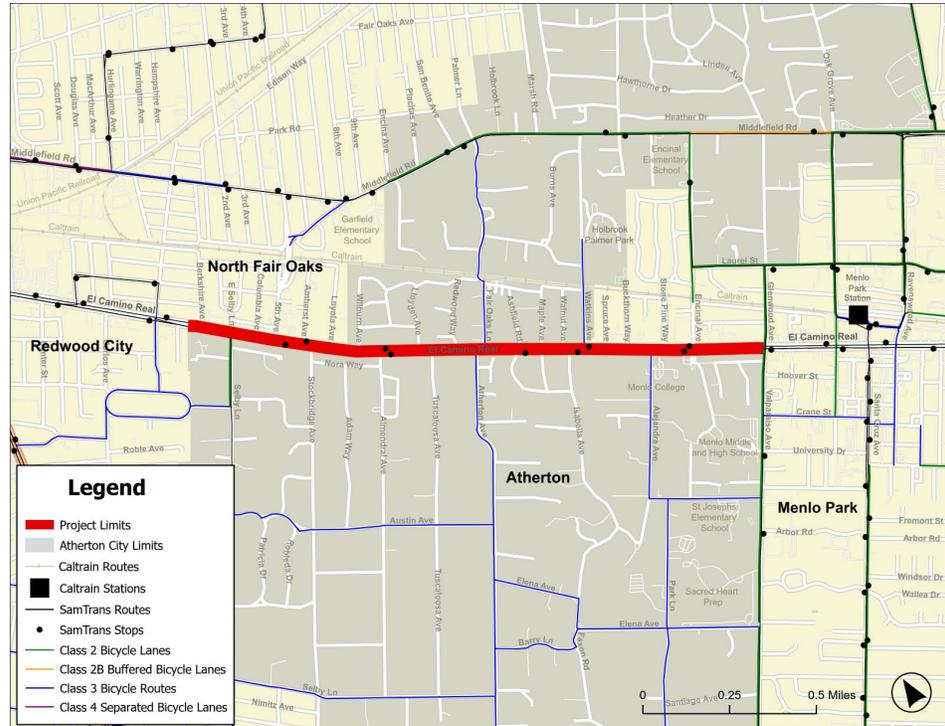


Figure 1. Study Area



## GEOLOGIC SETTING

The Town of Atherton is located in the center of the Coast Ranges physiographic province of California—northwest-southeast trending mountain and valley ranges along the coast of California that is composed of Mesozoic-aged and Cenozoic-aged sedimentary and meta-sedimentary rocks (CGS, 2002). The Coast Ranges physiographic province is nearly bisected north-south by a regional depression which is filled in by the San Francisco Bay, and the Town of Atherton is located on the southwestern edge of this depression (CGS, 2002). It is expected that tens to about 100-feet of Pleistocene-aged to Holocene-aged marine and alluvial deposits make up the flat to gently sloping Bay-adjacent land that make up Redwood City, Atherton, Menlo Park, Palo Alto, Mountain View, Santa Clara, and San Jose (CGS, 2002; Graymer, 2006).

Note that the San Francisco Bay Area is a seismically active region (USGS, 2025). According to the United States Geologic Survey (USGS) Quaternary Faults database, the project alignment is 2.5-miles northeast of the well constrained right lateral strike slip San Andreas fault zone Peninsula section that has shown recent (less than 150 years) slip rates of greater than 5.0 mm/yr (Figure 2).

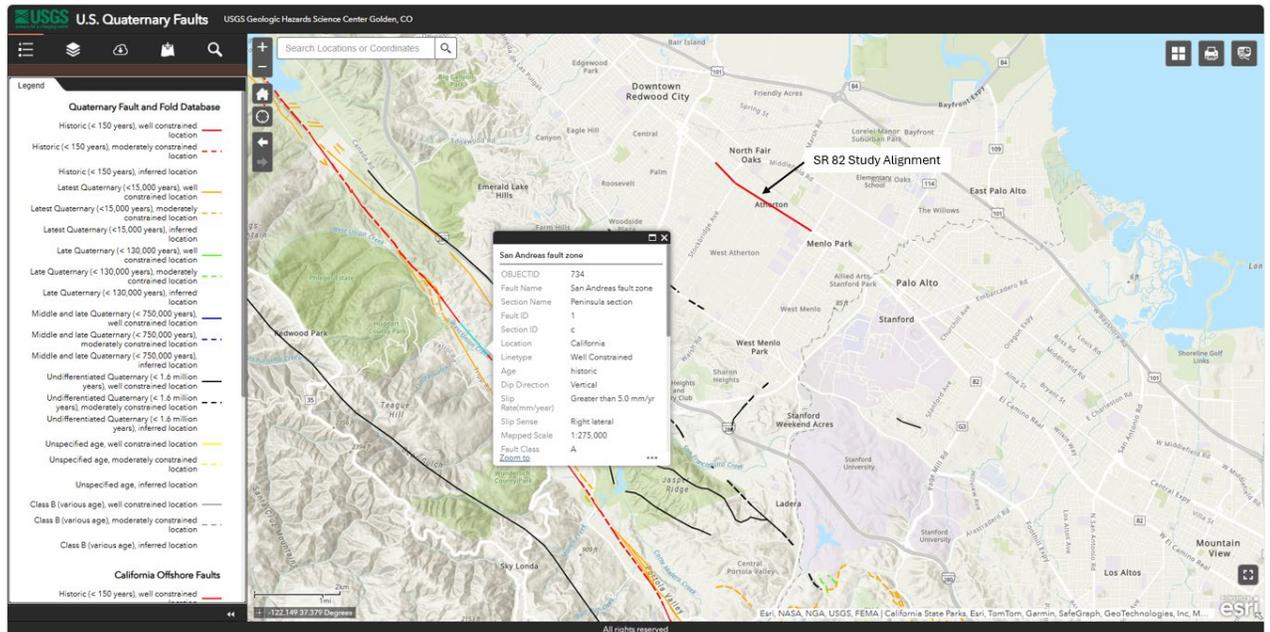


Figure 2. USGS Fault Map

## MAP COMPILATION

The earliest and most legible map found for this region is dated 1873 (Whitney, 1873) and an unlabeled road is shown along approximately the same alignment of the current day El Camino Real through Atherton. This unlabeled road is also shown in an 1897 topographic map of the 7.5-minute Palo Alto quadrangle (USGS, 1897). This indicates that SR 82 through Atherton has been in its current alignment for well over a century.

A 2021 topographic map of the 7.5-minute Palo Alto quadrangle generally shows that the ground surface elevation ranges between +60-ft and +40-ft elevation NAVD88, gently dipping in the northwest direction (USGS, 2021). This is generally consistent with the 1897 topographic map which reports +50-ft to +25-ft elevation above mean sea level, gently dipping in the northwest direction (USGS, 1897). This indicates that no significant permanent changes have occurred in the project vicinity.



The highest resolution and recent geologic maps of the region are from 2006 and 2007 (Graymer, 2006; Dibblee, 2007). Both maps show the surficial geology of the SR 82 alignment in Atherton to be Holocene-aged alluvium. The 2007 Dibblee map specifies that the alluvium is likely sand to fine-grained silt with little gravels. This is consistent with the aforementioned geologic setting of the Town of Atherton.

## HISTORICAL AERIAL IMAGERY

Consistent with the historical maps in the previous section, Google Earth historic imagery shows that SR 82 through Atherton has not changed alignment since before 1948 (Google, 2025). Along the SR 82 corridor the only changes that have occurred between 1948 and 2025 which can be observed in aerial imagery are the development of several single-family home plots both east and west of SR 82.

## EXISTING GEOTECHNICAL EXPLORATIONS

Our team searched for existing geotechnical explorations in the study area in four places:

- California Department of Transportation’s (Caltrans) Digital Archive of Geotechnical Data (GeoDOG)
- California Geological Survey’s (CGS) Borehole Database
- California Department of Water Resources’ (CDWR) Well Completion Report Map
- General Google search for geotechnical reports in Atherton

Our team found twenty-five (25) relevant borehole logs from these databases. GeoDOG contained no relevant data for the study area. The CGS Borehole Database contained three (3) relevant boreholes within 150-ft of the SR 82 alignment in Atherton—lithology and blow count data were discovered but the original logs could not be obtained. The CDWR Well Completion Report Map contained twelve (12) relevant boreholes within 300-ft of the SR 82 alignment in Atherton. A general Google search for Atherton geotechnical reports yielded one such report from 2015 by Murray Engineers. This report contained ten (10) relevant borehole logs that are within 1,000-ft of the SR 82 alignment in Atherton. Relevant geotechnical explorations have been compiled into a summary table (Table 1). Information regarding the top 40-ft of materials has been compiled into a subsurface summary table (Table 2). Figure 3 is an existing borehole map for the study area based on a KMZ file that was developed in Google Earth. The KMZ is available in the project folder or upon request.

## DISCUSSION

Historical maps and aerial imagery indicate that the current alignment of SR 82 through the Town of Atherton and the area surrounding SR 82 have been unchanged for over 125 years.

Across the 25 relevant borehole logs which range between 20-ft and 1,000-ft from the SR 82 alignment in Atherton, 13 of the boreholes show ground water between 24.5-ft to 33.7-ft depth below ground surface. Thus, it is reasonable to assume that ground water will not be encountered in any construction that will occur in the top 10- to 15-ft of ground surface materials.

As seen in the subsurface summary table (Table 2), the upper 40-ft of materials are typically stiff to hard lean clays (CL) or silts (ML) with interlayered medium dense to very dense silty to clayey sands and gravels (SC, SM, GM, GC). Field blow counts typically are 15+ blows/ft but some clays in the upper 15-ft depth have blow counts as low as 6 blows/ft. Generally, the higher the field blow count, the stiffer/denser the soil is. Note that the upper 0-15-ft of materials tend to be fine-grained materials (clays and silts) according to the identified existing explorations. Therefore, the upper fine-grained soils are generally not very permeable.

The study area is relatively close to a well constrained active fault so ground shaking is an anticipated hazard. No saturated very loose to medium dense sands or silty sands were identified in the existing borehole



explorations so liquefaction is not an anticipated hazard. No faults are mapped on the SR 82 alignment in Atherton so surface fault rupture is not an anticipated hazard.

*Table 1. Existing Geotechnical Exploration Summary Table*

Exploration ID	Data Source	Date	Estimated Distance from SR 82, ft	Total Depth, ft	Ground Water Depth*, ft
MW-1	CDWR	5/14/1998	200	48	31
MW-2	CDWR	5/14/1998	20	48	31.4
MW-3	CDWR	5/15/1998	300	48	30
MW-4	CDWR	5/15/1998	300	48	29.4
MW-5	CDWR	2/11/1999	200	45	31.21
MW-6	CDWR	2/11/1999	300	45	32.1
MW-7	CDWR	11/1/2004	200	50	42
MW-8	CDWR	11/2/2004	275	50	42
V-1A	CDWR	1/10/2012	200	5.25	NR
V-1B	CDWR	1/10/2012	200	15.25	NR
V-2A	CDWR	1/10/2012	200	5.5	NR
V-2B	CDWR	1/10/2012	200	15.25	NR
B-1	Murray Engineers	4/27/2015	845	50	42
B-2	Murray Engineers	4/27/2015	925	30	NR
B-3	Murray Engineers	4/27/2015	890	50	34
B-4	Murray Engineers	4/28/2015	890	30	NR
B-5	Murray Engineers	4/28/2015	890	40	33.1
B-6	Murray Engineers	4/28/2015	1000	5	NR
B-7	Murray Engineers	4/28/2015	845	5	NR
B-8	Murray Engineers	4/28/2015	890	5	NR
B-9	Murray Engineers	4/28/2015	845	50	33.7
B-10	Murray Engineers	4/28/2015	765	13.5	NR
H6Q_3B1	CGS	7/10/1998	95	35	NR
H6Q_4B4	CGS	3/31/1998	90	31.5	NR
E4Q_1B1	CGS	5/29/1992	150	26.5	24.5

\*NR – Not Recorded



Table 2. Subsurface Summary Table

Exploration ID	Ground Water Depth*, ft	Total Depth, ft	USCS (to 40-ft depth)	Field Blow Counts
MW-1	31	48	0-11-ft GP 11-13.5-ft SP 13.5-19.5-ft ML 19.5-29-ft ML/CL 29-35-ft CL 35-40-ft ML/SM	15-34 blows/ft
MW-2	31.4	48	0-5-ft Fill SC/CL 5-9-ft ML 9-13-ft SP 13-19-ft SC 19-24-ft CL/ML 24-29-ft SP/SM 29-40-ft GP/GC	11 blows/ft to refusal
MW-3	30	48	0-1 Fill GP 1-9-ft SC 9-19-ft ML 19-24-ft SM/ML 24-29-ft CL 29-34-ft ML/SC 24-40-ft CL	23-44 blows/ft
MW-4	29.4	48	0-1-ft Fill GP 1-9-ft SC 9-14-ft SM/SP 14-20-ft CL/SM 20-40-ft SM/CL/ML	15-34 blows/ft
MW-5	31.21	45	0-2.5-ft Fill 2.5-24.5-ft ML 24.5-40-ft GM	14-53 blows/ft
MW-6	32.1	45	0-1-ft Fill GP 1-31-ft ML 31-35-ft SM 35-40-ft SP	18-48 blows/ft
MW-7	42	50	0-0.5-ft Fill GP 0.5-30-ft CL 30-30.5-ft ML 30.5-36-ft CL 36-39-ft GP 39-40-ft CL	9-21 blows/ft
MW-8	42	50	0-15-ft CL 15-18-ft GC 18-30-ft CL 30-39-ft CL 39-40-ft ML	17-23 blows/ft



V-1A	NR	5.25	0-5.25-ft SW	
V-1B	NR	15.25	0-10-ft SW 10-12-ft SP 12-13.6-ft CL 13.6-15.25-ft CL/ML	
V-2A	NR	5.5	0-5.5-ft SW	
V-2B	NR	15.25	0-7-ft SW 7-11-ft SP 11-12.5-ft CL/ML 12.5-15.25-ft ML	
B-1	42	50	0-24-ft CL 24-30-ft SC 30-40-ft CL	6-39 blows/ft
B-2	NR	30	0-7-ft CL 7-13-ft ML 13-30-ft CH	6-22 blows/ft
B-3	34	50	0-34-ft CL 34-37-ft SC 37-40-ft CL	8-32 blows/ft
B-4	NR	30	0-24-ft CL 24-30-ft SW	8-30 blows/ft
B-5	33.1	40	0-7-ft Cl 7-14-ft ML 14-25-ft CL 25-34-ft SW 34-40-ft CL	6-56 blows/ft
B-6	NR	5	0-4-ft CL 4-5-ft ML	10-21 blows/ft
B-7	NR	5	0-5-ft CL	60 blows/ft
B-8	NR	5	0-5-ft CL	18 blows/ft
B-9	33.7	50	0-4-ft CL 4-6-ft ML 6-14-ft CL 14-34-ft SW 34-40-ft CL	12-33 blows/ft
B-10	NR	13.5	0-13.5-ft CL	2-15 blows/ft
H6Q_3B1	NR	35	0-13-ft CL 13-16-ft SW 16-23-ft CL 23-28-ft SM 28-35-ft SP	10-25 blows/ft



H6Q_4B4	NR	31.5	0-1-ft Asphalt 1-3.5-ft CL 3.5-11-ft ML 11.5-23-ft SP-SM 23-28-ft ML 28-31.5-ft GP-GC	5-26 blows/ft
E4Q_1B1	24.5	26.5	0-1.5-ft Fill 1.5-6-ft CL 6-9.5-ft ML 9.5-24.5-ft CL 24.5-26.5-ft SM	9-26 blows/ft

\*NR – Not Recorded

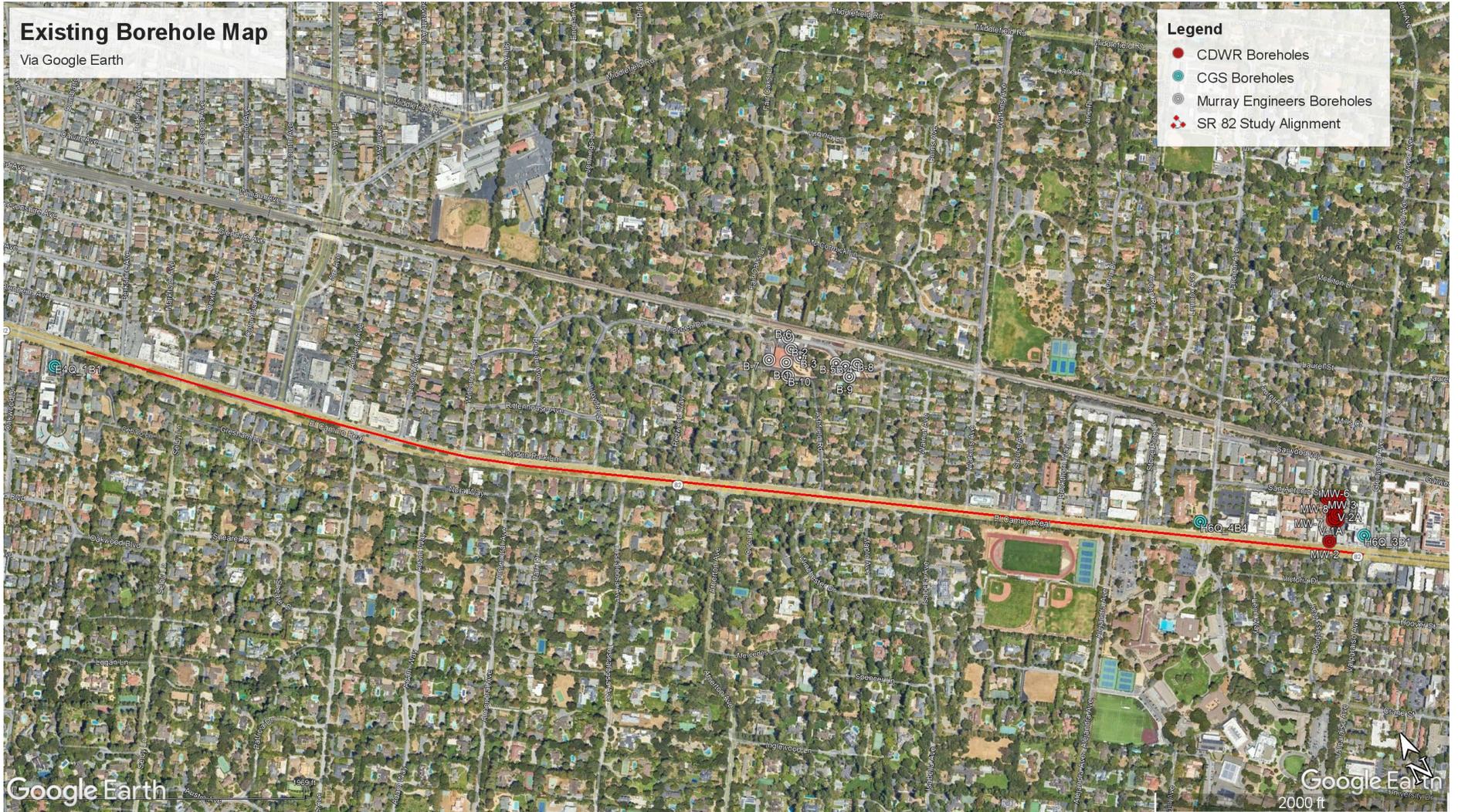


Figure 3. Existing Borehole Map



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wsp



# El Camino Real Complete Streets Corridor Plan

SMCTA ON-CALL TRANSPORTATION,  
PLANNING, MANAGEMENT AND SUPPORT SERVICES

CONTRACT NO. 20-T-P-008A  
WD NO. 993

## Existing Conditions Technical Memo

Final Version

JULY 30, 2024



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Authority



samTrans



PREPARED BY WSP USA



VERSION CONTROL				
VERSION	PURPOSE/CHANGE DESCRIPTION	AUTHORS	REVIEWERS	SUBMITTAL DATE
1.0	Initial Release	Akshaey Sabha	Michael Trueblood, Douglas Kim, Carolyn Mamaradlo	6/28/24
2.0	Final Release			

### QAQC DOCUMENTATION

No.	Description	Req'd	OR	CH
1.	SCOPE—OBJECTIVE(S) OF THE WORK IS DEFINED AND CONFORMS TO CONTRACTUAL WORK SCOPE AND LEVEL OF COMPLETENESS AS MENTIONED IN TASK	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	SCOPE—AS MENTIONED IN TASK 2.3, DOES THIS MEMO SUMMARIZE TRAFFIC, COLLISION DATA AND STREETLIGHT DATA	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.	ACCURACY—CALCULATION(S) HAVE BEEN CHECKED IN ACCORDANCE WITH QP-04	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.	STYLE—REPORT FORMATTING, GRAMMAR, SYNTAX, AND WRITING STYLE IS CONSISTENT WITH THE PROGRAM/PROJECT GUIDELINES	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6.	DRAWINGS AND GRAPHICS (EXHIBITS OR REFERENCES) HAVE BEEN CHECKED AND REVIEWED	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.	CLIENT/STAKEHOLDER COMMENTS BEEN ADDRESSED AND INCORPORATED	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	REVISIONS HAVE BEEN ADEQUATELY IDENTIFIED, IF REQUIRED FOR UPDATED DELIVERABLE	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>

KEY: OR—Originator; CH—Checker

**COMMENTS** (e.g., for draft versions, explain if checklist items are required but not "checked")



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**Transportation  
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## 1. EXECUTIVE SUMMARY

This memo documents traffic flow, safety, and multimodal accessibility data along a critical 1.5-mile segment of El Camino Real between Selby Lane and Valparaiso Ave in the Town of Atherton. The purpose of this memo, which is part of a larger Traffic Engineering Performance Assessment Report (TEPA), is to document and highlight the collected data.

### KEY FINDINGS:

**Focused traffic management needed to serve local and regional mobility:** Data from Turning Movement Counts (TMCs) and Automatic Traffic Recorders (ATR) reveal peak traffic volumes during key morning and evening hours. The El Camino Real bi-directional peak volumes reach 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.

**Disproportionate non-motorized crashes:** An analysis from 2018 to 2022 identified 73 crashes, with a disproportionate number involving non-motorized users. Notably, two pedestrian fatalities were recorded. Despite micromobility vehicles comprising less than 1% of traffic, they account for 20% of crashes, underscoring the urgent need for safety interventions to improve their safety.

**Potential for Bicycle Shift:** StreetLight data 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.

**Moderate Congestion with Targeted Improvement Needs:** The 2024 analysis offers insights into the operational performance of the El Camino Real corridor, focusing on a 1.76-mile segment between Oakwood Dr and Valparaiso Ave. Key performance indicators such as Level of Service (LOS), movement delay, 95<sup>th</sup> percentile queue, total travel time, and average speed were evaluated. 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 queuing analysis identifies intersections where queue lengths exceed storage capacities, indicating the need for targeted interventions to improve traffic flow and efficiency.

Overall, the El Camino Real corridor operates at an acceptable level, with moderate congestion and specific areas needing improvement. This analysis will lay the groundwork for the Traffic Engineering Performance Assessment Report (TEPA), which will provide a detailed look into the corridor's traffic dynamics and suggest practical measures for its improvement. 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.



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## 2. BACKGROUND

Following the Executive Summary, this section delves deeper into the El Camino Real Complete Streets Corridor Plan. The complete project extends for a distance of 1.5 miles from Selby Lane to Valparaiso Ave along El Camino Real, a key arterial road pivotal for regional mobility. This traffic analysis, however, specifically concentrates on a critical 1.76-mile segment between Oakwood Dr and Valparaiso Ave and it has been selected for detailed study as it captures significant traffic impacts that are indicative of the entire study area.

### OBJECTIVES

This existing condition memo serves as an essential foundational step in the broader Traffic Engineering Performance Assessment for the El Camino Real Complete Streets Corridor Plan. The objectives of this memo are specifically tailored towards conducting safety and traffic analysis. By systematically analyzing collision and traffic data, we can identify areas of concern for targeted safety improvements. The objectives of the memo are as follows:

- 1. Understand Current Traffic Conditions:** This objective entails collecting traffic data and conducting traffic analysis within project limits during both peak and off-peak hours.
- 2. Assess Safety Concerns:** A thorough examination of historical crash data is vital for identifying safety concerns and determining necessary improvements within the project's scope.
- 3. Evaluate Multimodal Integration:** Analyzing travel patterns from data sources including the StreetLight platform will reveal how well different transportation modes—such as driving, bicycling, walking, and public transit—are integrated along the corridor.
- 4. Lay the groundwork for the development of Alternatives and Concept Designs:** This objective involves conducting a thorough evaluation of existing conditions, including crash, street light data and traffic analysis. The findings will provide essential insights into the corridor's current state, highlighting areas for improvement in multimodal transportation. This analysis will serve as a foundation for the next phase, where alternative designs and concept plans will be developed to enhance transportation options for all users, including cars, bicyclists, pedestrians, and public transit users.



Figure 2.1: Existing Lane Configuration

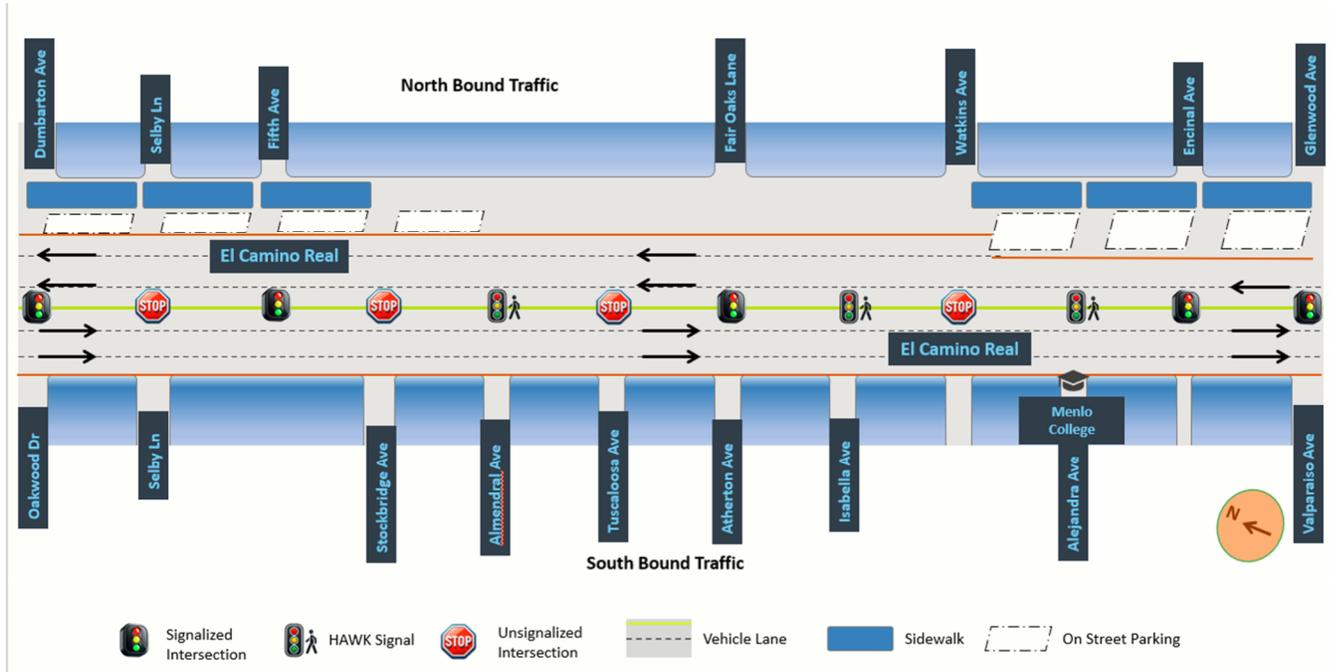
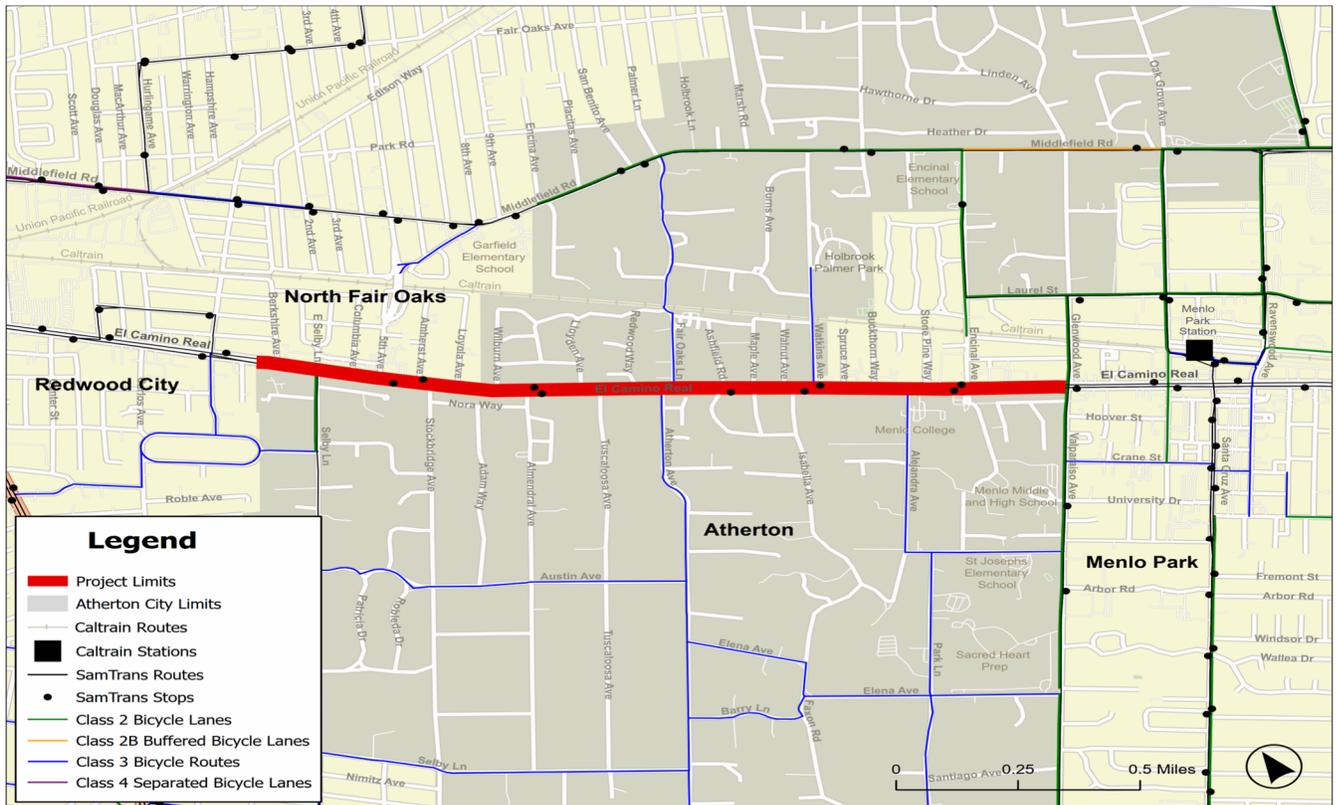


Figure 2.2: Project Map





## STUDY AREA OVERVIEW

**CORRIDOR SPECIFICATIONS:** The El Camino Project Corridor extends over a distance of 1.5 miles and is classified as an arterial roadway according to the San Mateo County General Plan. An arterial roadway is a street or highway serving major activity centers, carrying the highest traffic volumes, with running speeds of 25 to 45 miles per hour 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. Its critical role in facilitating connectivity across local and regional transportation systems cannot be overstated. The posted speed limit in both NB and SB direction is 35 mph. Sidewalks are available intermittently and on the northbound side. Please refer to Table 2.1 and Figure 2.1 for more detailed information on sidewalks, shoulders, and on-street parking,

**TRAFFIC AND INTERSECTION ANALYSIS:** Detailed analysis of data between Oakwood Dr and Valparaiso Ave will consider the network of five signalized intersections, three unsignalized (stop-controlled) intersections and three pedestrian High Intensity Activated Crosswalk (HAWK) signal crossings focusing on improving safety and traffic flow.

**LAND USE AND COMMUNITY IMPACT:** The developments along the El Camino Real (ECR) corridor 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.



Table 2.1: El Camino Real Roadway Characteristics

EL CAMINO REAL RD		SIDEWALK		SHOULDER		PARKING	
From	To	NB	SB	NB	SB	NB	SB
Oakwood Dr	Selby Ln	✓	✗	✗	✓	✓	✗
Selby Ln	Fifth Ave	✓	✗	✗	✓	✓	✗
Fifth Ave	Stockbridge Ave	✓	✗	✗	✓	✓	✗
Stockbridge Ave	Almendral Ave	✗	✗	✗	✓	✓	✗
Almendral Ave	Tuscaloosa Ave	✗	✗	✓	✓	✗	✗
Tuscaloosa Ave	Atherton Ave	✗	✗	✓	✓	✗	✗
Atherton Ave	Isabella Ave	✗	✗	✓	✓	✗	✗
Isabella Ave	Watkins Ave	✗	✗	✓	✓	✗	✗
Watkins Ave	Alejandra Ave	✓	✗	✗	✓	✓	✗
Alejandra Ave	Encinal Ave	✓	✗	✗	✓	✓	✗
Encinal Ave	Valparaiso Ave	✓	✗	✗	✓	✓	✗

1) PARTIALLY COMPLETE OR NO SIDEWALKS BETWEEN SEGMENTS ARE MARKED AS ✗. ONLY SEGMENTS WITH COMPLETE SIDEWALK WILL BE MARKED AS ✓

2) INCOMPLETE SHOULDERS (2' - 5') BETWEEN SEGMENTS ARE MARKED AS ✗. ONLY SEGMENTS WITH COMPLETE SHOULDER WILL BE MARKED AS ✓

3) IF THERE IS ZERO ON-STREET PARKING, THE SEGMENTS ARE MARKED AS ✗. ONLY SEGMENTS WITH ON-STREET PARKING WILL BE MARKED AS ✓



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## DATA COLLECTION

In preparation for a comprehensive analysis of the El Camino Real corridor, WSP implemented a multifaceted data collection strategy 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 1.3. 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 (ADTs):** From March 12 to March 14, 2024, Automatic Average Daily Traffic counts were performed at four strategic locations, as detailed in Figure 1.3. 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.

This comprehensive data collection phase is foundational to the El Camino Real Complete Streets Corridor Plan, ensuring that any traffic flow, safety enhancements, and accessibility improvements are based on accurate, up-to-date information. With a detailed understanding of current conditions, the project can effectively target interventions that will significantly benefit the corridor's efficiency and safety.

The Background section established a strong foundation for the El Camino Real Complete Streets Corridor Plan, highlighting its objectives and the comprehensive data collection efforts. The following section provides detailed data analysis to uncover insights into the corridor's characteristics.



Figure 1.3 Traffic Demand Data Collection Location





SAN MATEO COUNTY  
Transportation  
Authority

### 3. CRASH ANALYSIS

This section of the Data Collection Memo focuses on analyzing crash data relevant to the El Camino Real Complete Streets Corridor Plan. A thorough examination of historical crash data is vital for identifying safety concerns and determining necessary improvements within the project's scope. Our analysis primarily relies on crash records obtained from the Statewide Integrated Traffic Records System (SWITRS), accessed through the Transportation Injury Mapping System (TIMS). Please refer to Appendix B for compiled raw crash data.

The most recent five-year dataset available from the SWITRS database spans from January 1, 2018, to December 31, 2022. Our findings from this period are as follows:

1. A total of 73 crashes have been recorded in the corridor along a critical 1.5-mile segment of El Camino Real between Selby Lane and Valparaiso Ave (see Figure 3.4 for more details)
2. 53% of the crashes occurred at intersections, while the remaining 47% took place along roadway segments. (Refer to Figure 3.1)
3. The corridor experienced roughly 15-20 crashes annually. The significant reduction in 2020, with only 7 crashes, was likely due to the reduced travel demand during the COVID-19 pandemic when many people worked from home. As travel patterns normalize in 2024, crash numbers may revert to previous levels. The intersections of Selby Lane (11), Watkins Ave (5) and Alejandra Ave (4) with El Camino Real witnessed the highest number of crashes within the project area.
4. Rear end collisions account for 40% of the crashes, followed by Broadside or T-bone collisions accounts to 27% of crashes followed by sideswipe crash at 14%. (Refer to Figure 3.2)
5. Crashes involving non-motorized vehicles accounted for 19% of the total incidents. (Refer to Figure 3.3)
6. There were 2 fatal pedestrian crashes, attributed to midblock crossing near Watkins Ave and standing in the shoulder in Valparaiso Ave intersection. (Refer to Figure 3.4).



Figure 3: Crash Analysis Figures.

Crash Location Vs Year  
Figure 3.1

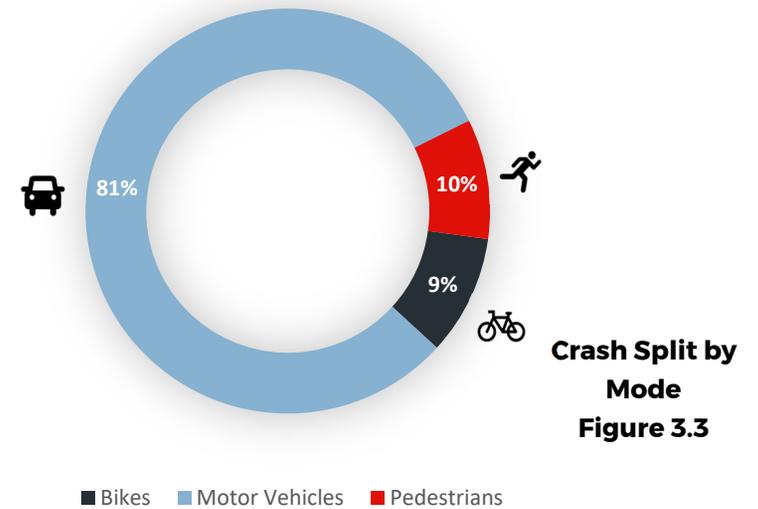
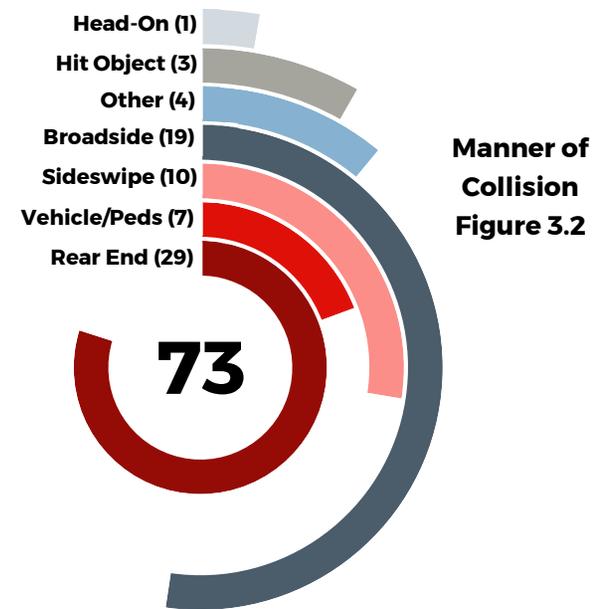
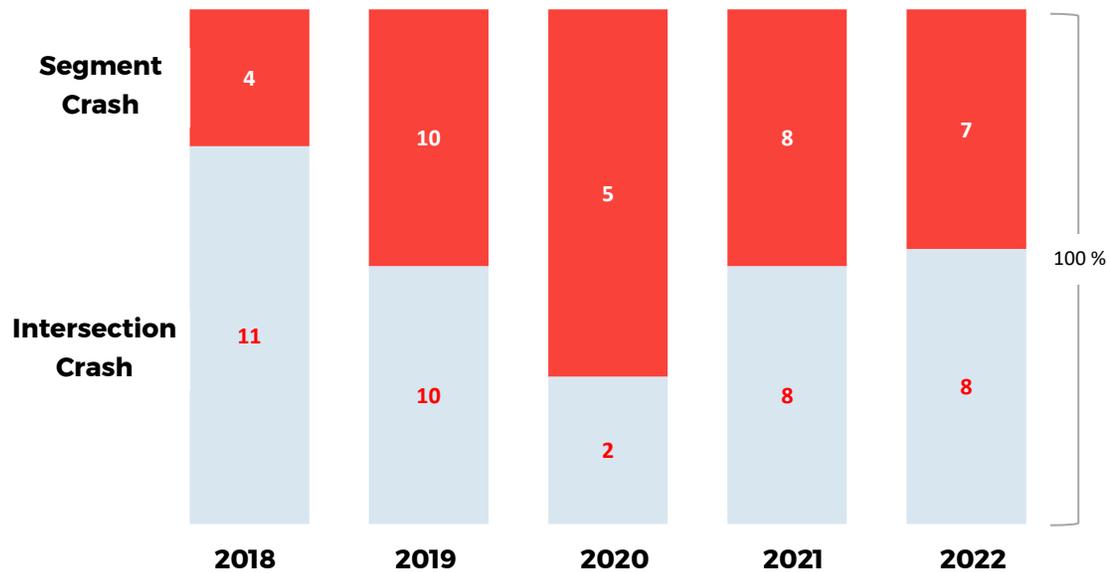
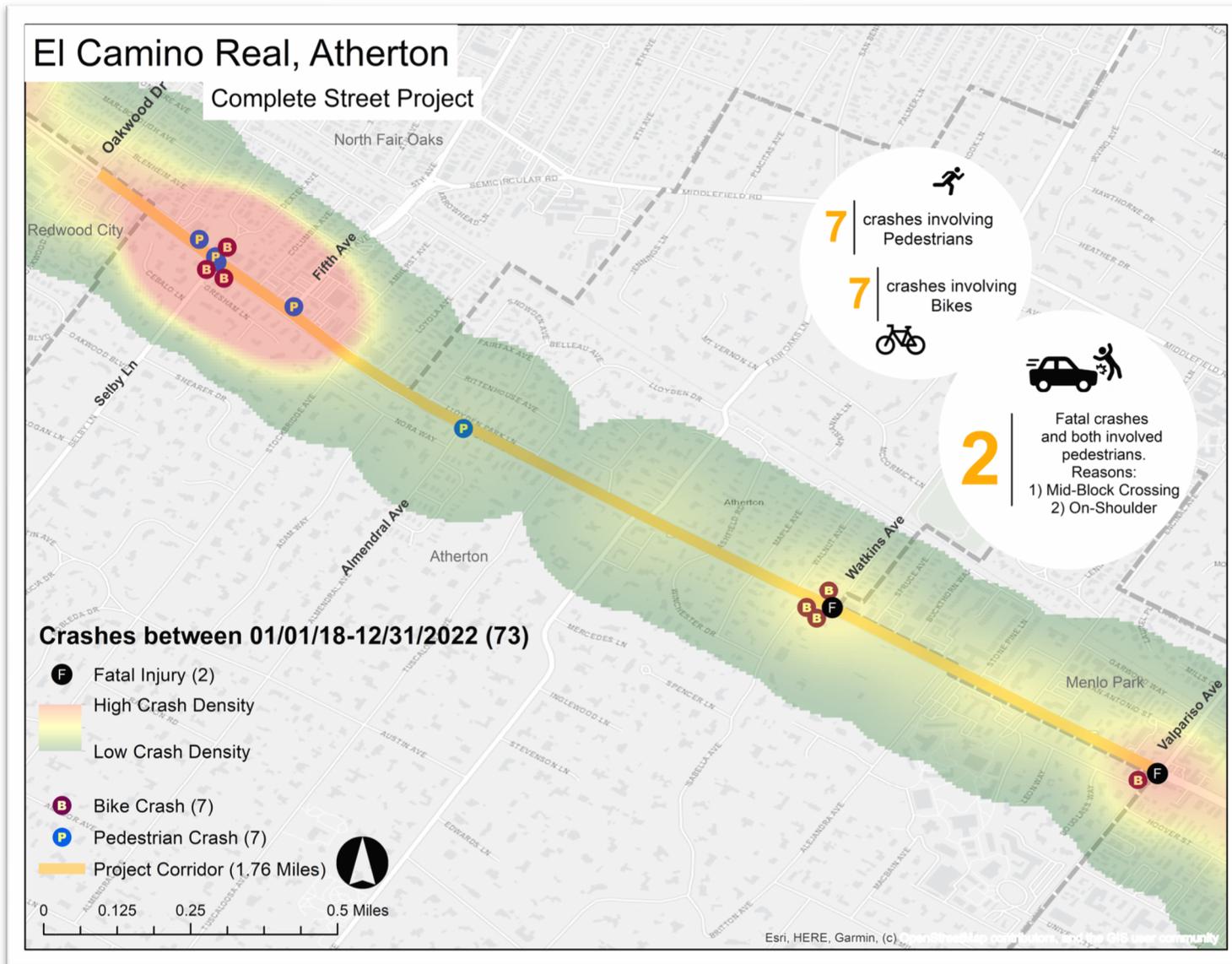




Figure 3.4: Crash Analysis Schematic.





## 4. TRAVEL DEMAND DATA COLLECTION

As part of this study, traffic volume data was obtained, and this data formed the foundation of the traffic analysis. The methodology involved conducting turning movement counts (TMCs) at all 12 study intersections, as detailed in Figure 1.3, during the peak periods of a Tuesday (7-9 AM and 4-6 PM). Additionally, this approach included gathering 72-hour Automatic Traffic Recorder (ATR) data 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 ATR data, gathered as part of this study, is thoroughly documented in Appendix A, providing a detailed resource for further analysis and insights. Table 4.1 summarizes the ADT data summarized from all the counters.

	AM PEAK HOUR	PM PEAK HOUR	WEEKDAY AVERAGE
Time Period	07:45 AM - 08:45 AM	04:30 PM - 05:30 PM	Typical Weekday
Traffic Volume <sup>1</sup>	2,812	2,980	36,058
K-Factor <sup>2</sup>	7.8%	8.3%	N/A
Directional Distribution	68% SB / 32% NB	41% SB / 59% NB	50% SB / 50% NB
<sup>1</sup> vpd = volume per day, vph = volume per hour, based on <b>ADT</b> data (Mar 12-14, 2024), unadjusted. Traffic volumes entered are bi-directional.			
<sup>2</sup> percent of daily traffic that occurs during the peak hour			

*Table 4.1: Summary of Average ADT Data*

For the 2024 traffic volume analysis of the El Camino Real State Highway (SH 82) between Selby Lane and Valparaiso Ave, the Average Daily Traffic (ADT) is documented at 36,058 vehicles per day (vpd). The analysis identifies peak traffic periods in the morning, between 7:45 to 8:45 AM, contributing to 7.8% of the daily volume, and in the evening, between 4:30 to 5:30 PM, representing 8.3% of daily volume. However, it should be noted that Turning Movement Counts were collected on a Tuesday and the PM peak hour for all the intersections were 3:45 to 4:45 PM. Directional flow analysis during these peak periods reveals a distribution of 68% southbound and 32% northbound traffic in the AM, with a shift to 41% southbound and 59% northbound in the PM. Additionally, Figure 4.1 represents the Annual Average Daily Traffic (ADT) on El Camino Real State Highway (SH 82), showcasing northbound, southbound, and total traffic volumes. Figures 4.2 and 4.3 illustrate the 2024 existing weekday morning and evening peak hour traffic volumes including pedestrians and bicycles.



## PEDESTRIAN AND BICYCLE DEMAND

The TMCs also captured pedestrian and bicycle movements at the 12 intersections during peak hours. The data reveals significant variations in pedestrian and bicycle demand across different intersections and times of the day. Below is a summary of key findings in Table 4.2.

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

INTERSECTION	CONTROL TYPE	AM PEAK PED DEMAND	PM PEAK PED DEMAND	AM PEAK BIKE DEMAND	PM PEAK BIKE DEMAND
Oakwood Dr	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 Ave	Signalized	E: 13, S: 7	E: 30, S: 10	SB: 4	NB, SB: 4
Atherton Ave	Signalized	W: 2	E, W: 2	WB: 2, SB: 2	SB: 17, NB: 38
Valparaiso Ave	Signalized	E: 11, S: 3	E: 17, N: 5	EB: 21, WB: 10	EB: 5

*Table 4.2: Summary of High Micro-modal Data*

Figure 4.1: ADT Schematic

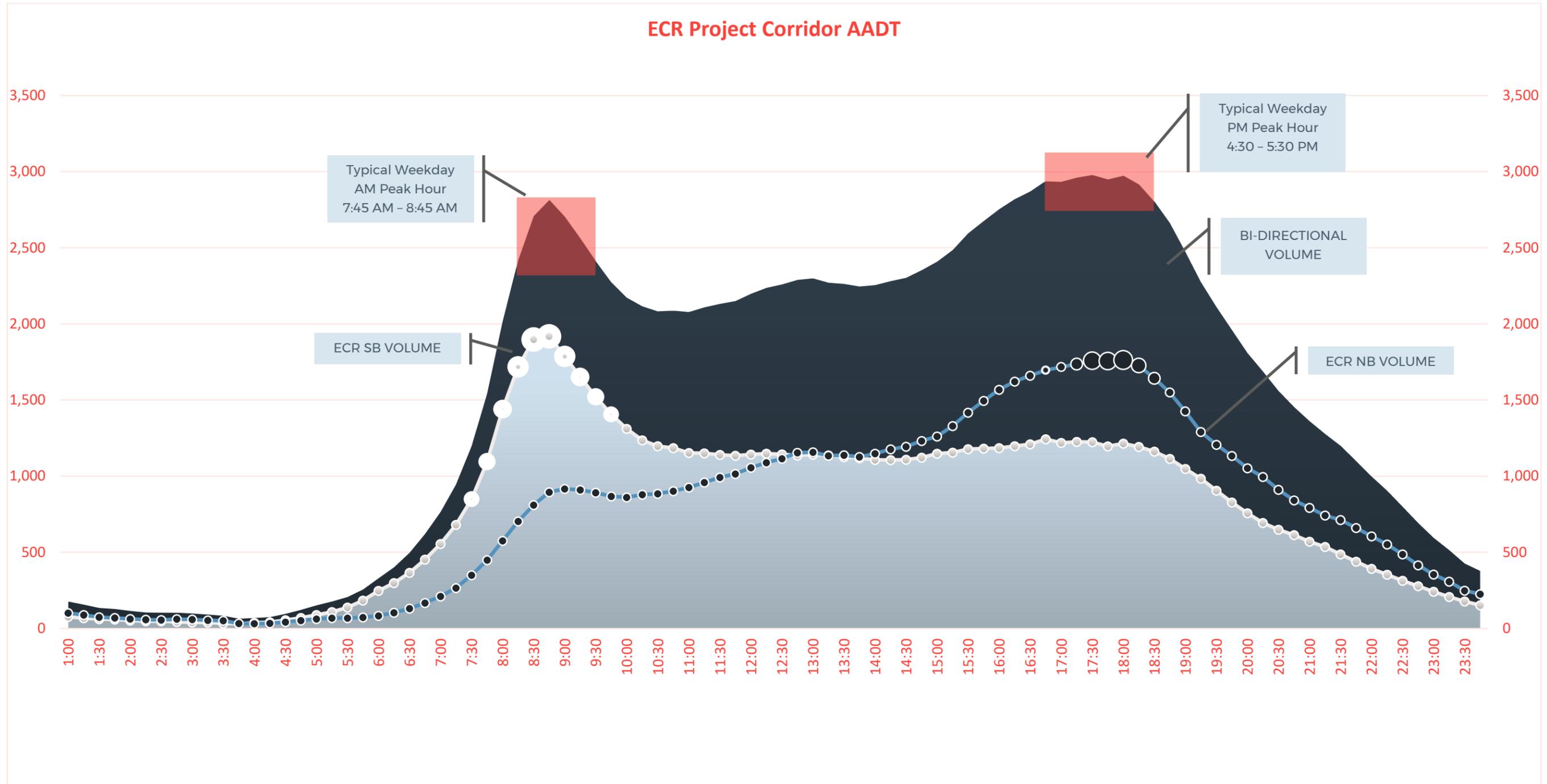


Figure 4.2: 2024 Typical Weekday AM Turning Movement Count Volumes

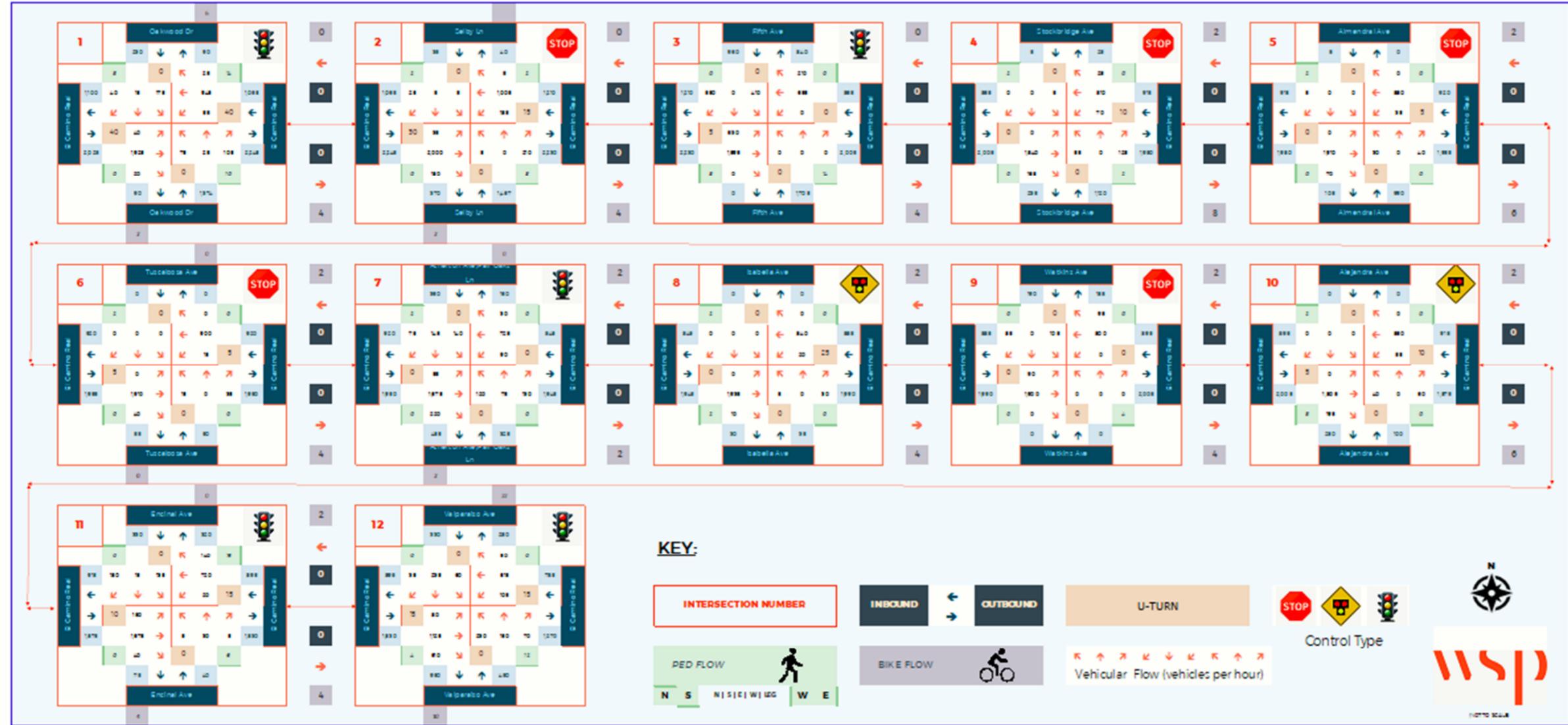


Figure 4.3: 2024 Typical Weekday PM Turning Movement Count Volumes



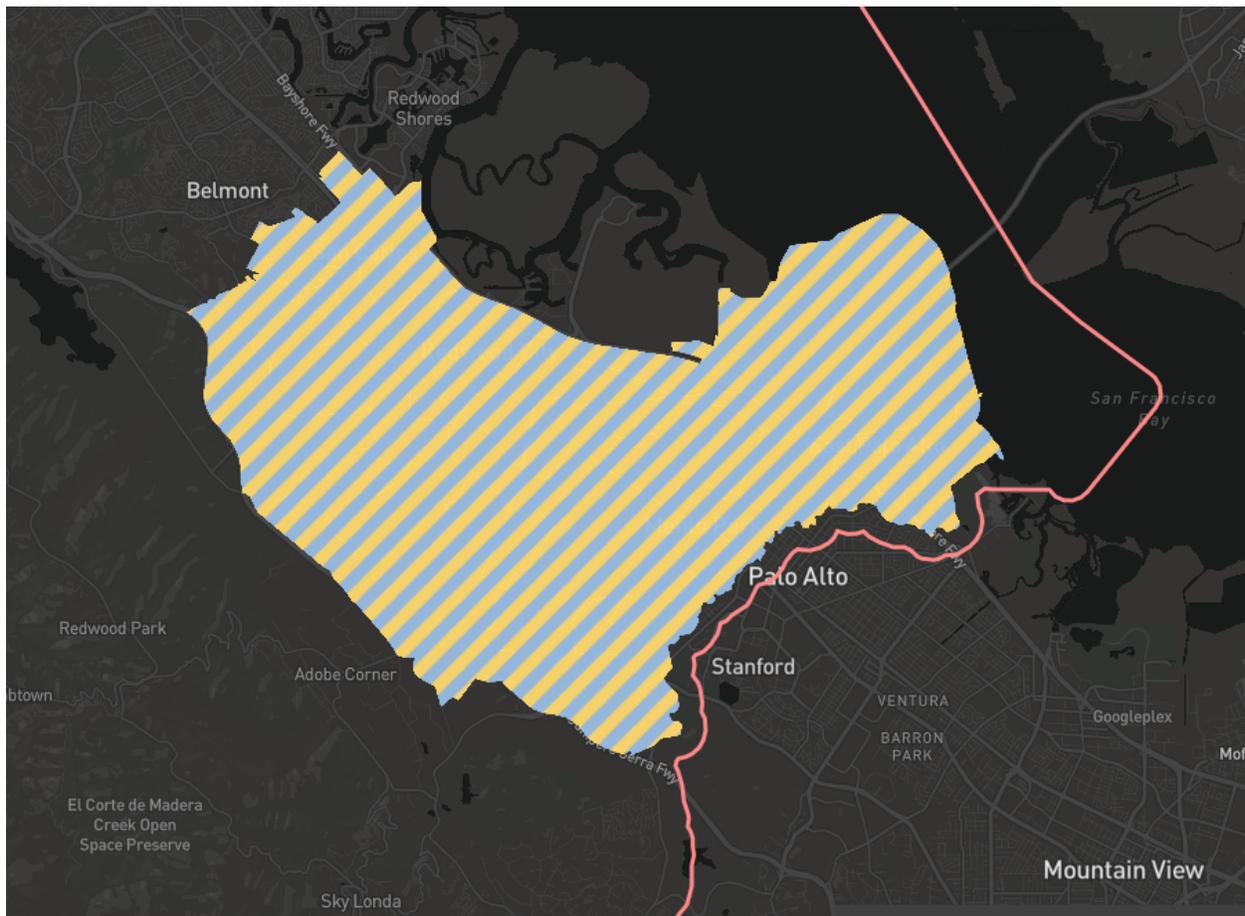


## 5. TRAVEL CHARACTERISTICS

In addition to the data described above, WSP utilized data from StreetLight Data, Inc. to determine travel patterns for various modes within the defined study area. StreetLight is an on-demand mobility analytics platform that takes travel data from mobile devices to analyze origin/destination patterns, travel times, and other travel patterns. Due to the number of assumptions built into the StreetLight data processing methodology, the results should be viewed as a high-level snapshot of travel patterns within the study area rather than an accurate estimate of total travel volumes.

WSP first worked with the Town of Atherton to determine the extent of the study area, which included 48 census tracts within San Mateo County, as shown in Figure 5.1. Data is not available for trips outside of San Mateo County, so all data shown is for intra-county trips. WSP analyzed origin/destination patterns by utilizing the *Middle Filter* tool to view trips to and from the census tracts within the study area that use the portion of El Camino Real between Selby Lane and Valparaiso Avenue. Unfortunately, this specific type of analysis is only available for vehicle and bicycle data.

*Figure 5.1: Study Area for StreetLight Data*





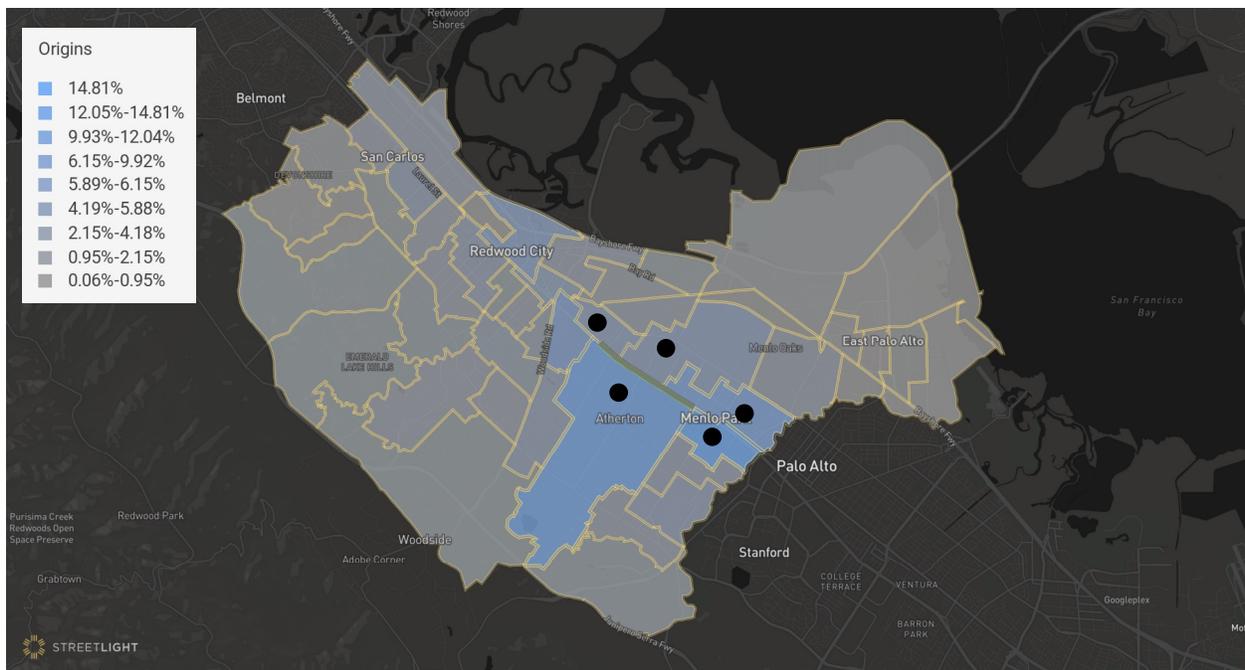
Aggregated trip data was obtained for March, April, September, and October 2021. This included aggregated trips from all days of the week at all times.

## LOCAL VS THROUGH VEHICLE TRIPS

Through discussions with the Town of Atherton, WSP focused on analyzing two components of the StreetLight data. The first was the difference between “local” and “through” vehicle trips. WSP utilized the data from StreetLight’s Middle Filter tool described above to determine origin and destination patterns for vehicle trips using the project corridor. 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.

To gain perspective of overall trip patterns, Figure 5.1 and Figure 5.2 show the percentage of vehicle trip origins and destinations by census tract using the project corridor. The census tracts with the highest percentage of vehicle trip origins primarily border the project corridor, with some higher percentages in Redwood City as well.

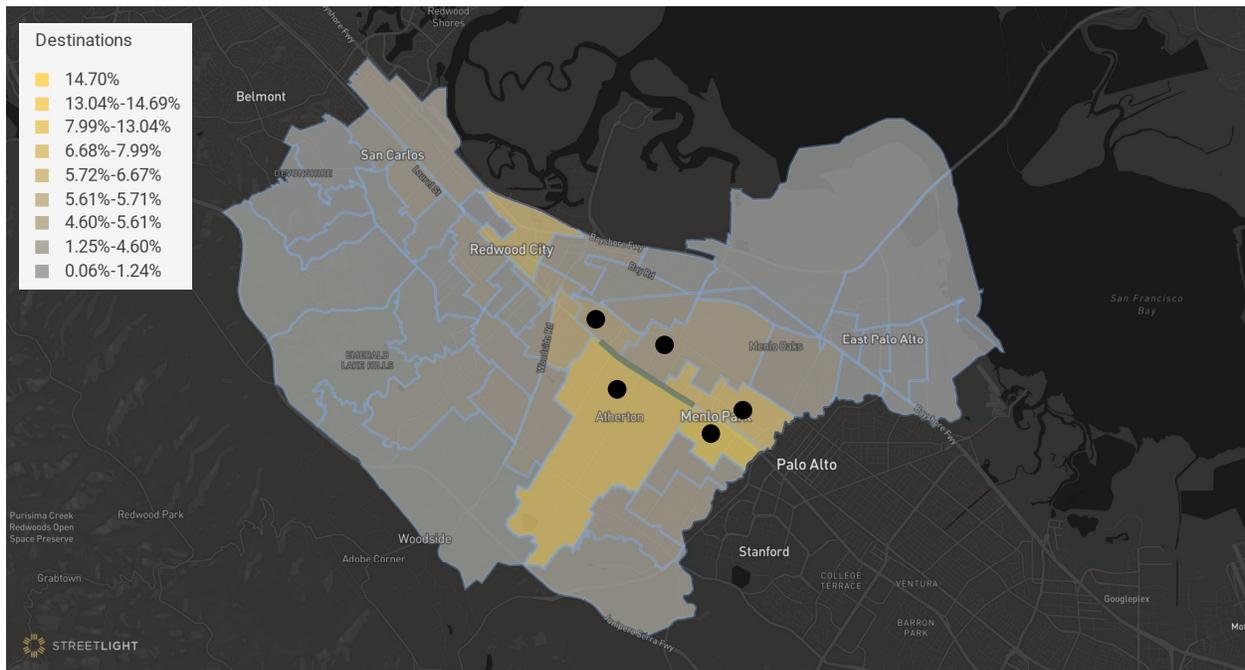
*Figure 5.2: Origins of Vehicle Trips Using the Project Corridor*



● *Census tracts that are included in local trips*



Figure 5.3: Destinations of Vehicle Trips Using the Project Corridor



● *Census tracts that are included in local trips*

WSP determined the percentage of local and through vehicle trip origins for weekday and weekend day types and further analyzed the data by time period (AM peak and PM peak). As shown in Table 5.1 and Figure 5.4, the percentages are similar for an average day and time (46% local vs 54% through). However, the largest disparities are in the AM peak with a larger percentage of through trips. This is most likely due to the need for residents from throughout the project area to use the corridor to access jobs or potentially key transit nodes (i.e. Caltrain stations).



Table 5.1: Percentages of Local and Through Vehicle Trip Origins

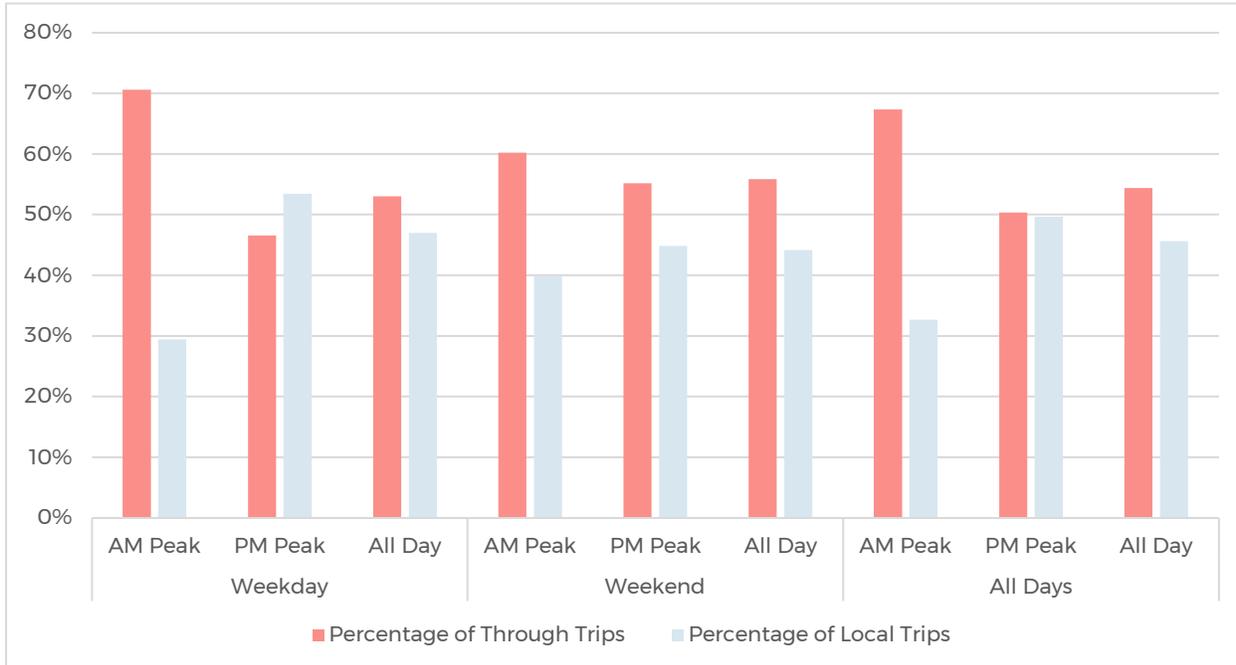
	TIME PERIOD <sup>1</sup>	PERCENTAGE OF LOCAL TRIPS <sup>2</sup>	PERCENTAGE OF THROUGH TRIPS <sup>3</sup>
Weekday	AM Peak	29%	71%
	PM Peak	53%	47%
	All Day	47%	53%
Weekend	AM Peak	40%	60%
	PM Peak	45%	55%
	All Day	44%	56%
All Days	AM Peak	33%	67%
	PM Peak	50%	50%
	All Day	46%	54%

<sup>1</sup> AM Peak is 6:00-10:00 AM, PM Peak is 3:00-7:00 PM

<sup>2</sup> through trips are defined as those originating outside the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

<sup>3</sup> local trips are defined as those originating in the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

Figure 5.4: Percentages of Local and Through Vehicle Trip Origins



Similarly, WSP determined the percentage of local and through vehicle trip destinations for weekday and weekend day types and further analyzed the data by time period (AM peak and PM peak). As shown in Table 5.2 and Figure 5.4, there are larger percentages of local trip



destinations than through trips during weekday and all day AM peak periods. The corresponding larger percentage of through trips in the PM peak could be caused by residents returning home from work or school and using the corridor to access a wider range of destinations.

*Table 5.2: Percentages of Local and Through Vehicle Trip Destinations*

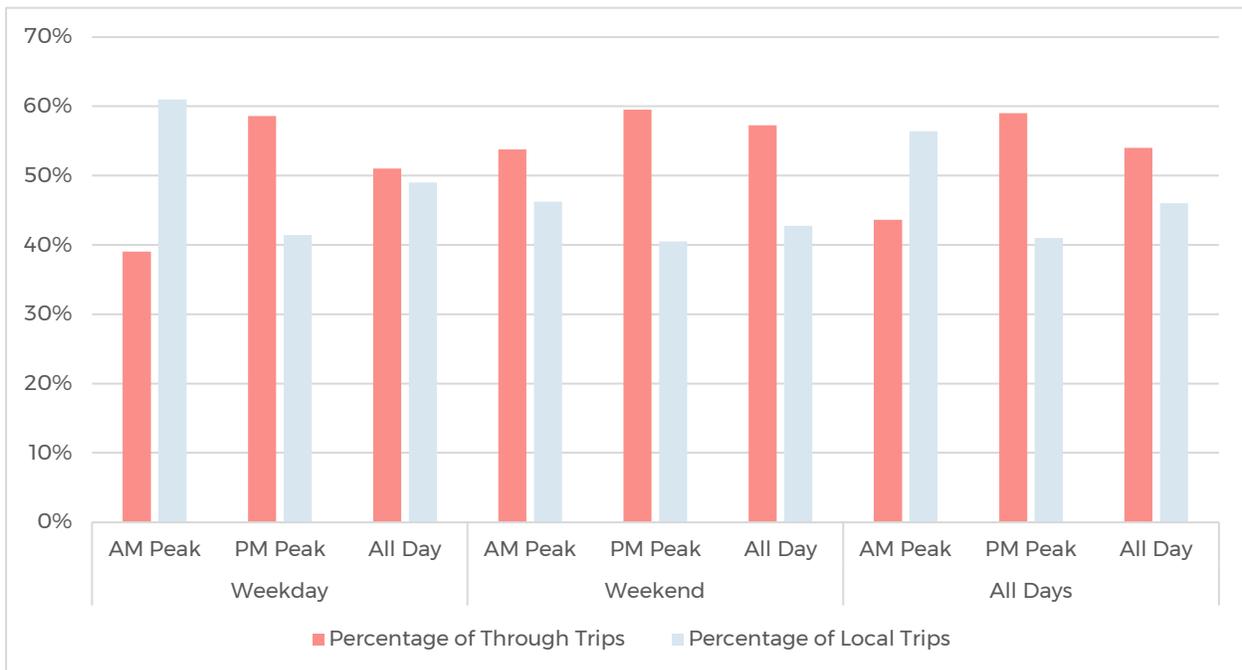
	TIME PERIOD <sup>1</sup>	PERCENTAGE OF VEHICLE LOCAL TRIPS <sup>2</sup>	PERCENTAGE OF VEHICLE THROUGH TRIPS <sup>3</sup>
Weekday	AM Peak	61%	39%
	PM Peak	41%	59%
	All Day	49%	51%
Weekend	AM Peak	46%	54%
	PM Peak	40%	60%
	All Day	43%	57%
All Days	AM Peak	56%	44%
	PM Peak	41%	59%
	All Day	46%	54%

<sup>1</sup> AM Peak is 6:00-10:00 AM, PM Peak is 3:00-7:00 PM

<sup>2</sup> through trips are defined as those originating outside the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

<sup>3</sup> local trips are defined as those originating in the five census tracts bordering the portion of El Camino Real between Selby Lane and Valparaiso Avenue

*Figure 5.5: 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. As evidenced by the data in Section 3, using a bicycle along El Camino Real can be dangerous. Despite being a major north-south corridor within the county, bicyclists are forced to share two to three travel lanes in each direction with vehicles that are often moving faster than the posted speed limit of 35 miles per hour. According to Streetlight data, only 101 bicyclists within the study area used the project corridor compared to nearly 3,400 bicycle trips that were taken anywhere within the study area regardless of corridor (3%). This can be due to several factors, with the most important being the lack of safe bicycle infrastructure along the corridor.

Despite the low number of bicyclists currently using the project corridor, there is a possibility that 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.<sup>1</sup> Table 5.3 and Figure 5.6 show that over 50% 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).

*Table 5.3: Percentage of Vehicle Trips Under Five Miles*

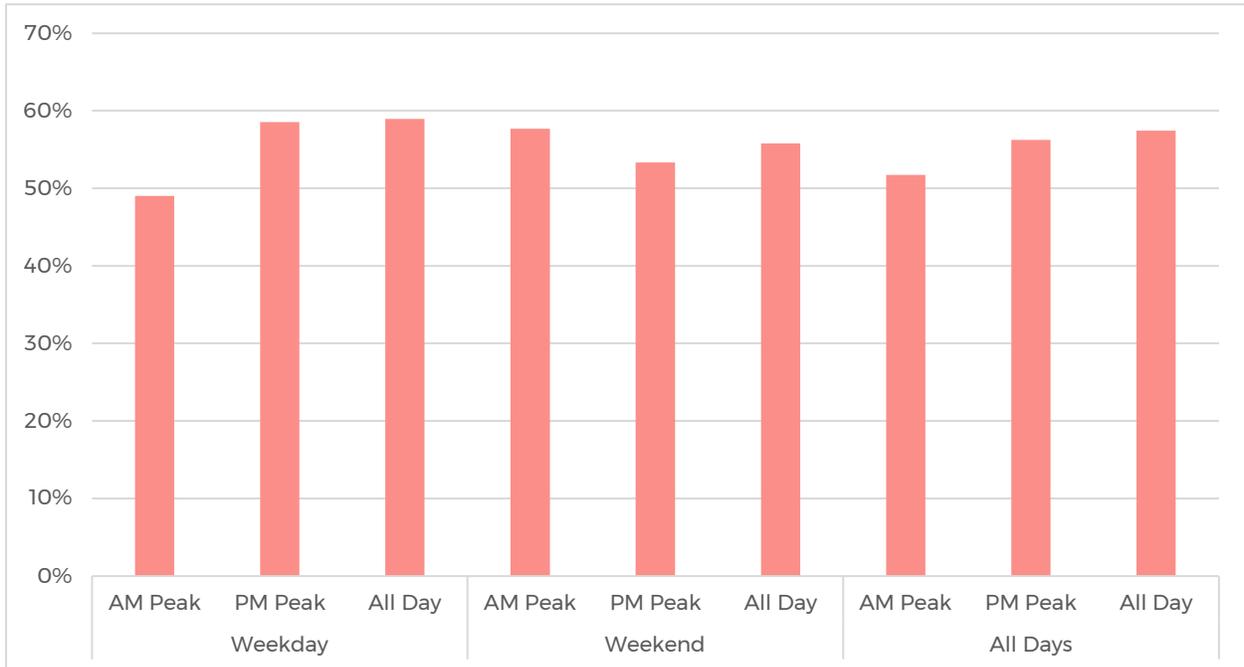
	TIME PERIOD <sup>1</sup>	PERCENTAGE OF VEHICLE TRIPS UNDER FIVE MILES
Weekday	AM Peak	49%
	PM Peak	59%
	All Day	59%
Weekend	AM Peak	58%
	PM Peak	53%
	All Day	56%
All Days	AM Peak	52%
	PM Peak	56%
	All Day	57%

<sup>1</sup> AM Peak is 6:00-10:00 AM, PM Peak is 3:00-7:00 PM

<sup>1</sup> Source: “Route Planning”, National Association of City Transportation Officials, 2023, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/route-planning/>.



Figure 5.6: Percentage of Vehicle Trips Under Five Miles



### KEY TAKEAWAYS

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 makes sense considering this is one of the few major north-south corridors serving the county. However, these patterns change based on the time of day. Particularly during weekdays, AM peak periods experience more local trip origins than destinations, with the opposite occurring in 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 vehicle 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.

Results from the outreach phases of the project should be monitored to determine how residents are using the project corridor, as well as the desire for improved bicycle infrastructure along the project corridor. The results will be compared to the data in this memo, along with further analysis during the Alternatives Analysis and Concept Designs portion of the project to determine the impacts of converting existing travel lanes to accommodate dedicated bicycle infrastructure.



## 6. EXISTING CONDITIONS (2024) ANALYSIS

This section provides a comprehensive analysis of the current traffic flow conditions along the El Camino Real corridor between Oakwood Dr and Valparaiso Ave. The complete project extends for 1.5 miles from Selby Lane to Valparaiso Ave along El Camino Real. This traffic analysis, however, specifically concentrates on a critical 1.76-mile segment between Oakwood Dr and Valparaiso Ave, selected for detailed study as it captures significant traffic impacts indicative of the entire study area. The scope of this analysis is to evaluate the operational performance of traffic under current conditions and assess how the corridor performs with its current geometric layout. This understanding is vital for comparing with future proposed alternatives in the next project phase.

### METHODOLOGY

To accurately represent existing traffic conditions, WSP 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 7<sup>th</sup> Edition where applicable, or HCM 2000 results if necessary. Key performance indicators (KPIs) such as Level of Service (LOS), movement delay, 95<sup>th</sup> 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:** LOS is a qualitative measure based on the Highway Capacity Manual (HCM) methodology. It rates traffic operating conditions from A (best) to F (worst) and reflects driver comfort and convenience. The ratings are determined by factors such as volume-to-capacity ratio, signal progression, and cycle lengths. Movement delay measures the average time vehicles are delayed at intersections. High delays indicate intersections nearing or at capacity, resulting in cycle failures and extended wait times.

LOS	DESCRIPTION	SIGNALIZED INTERSECTION DELAY	UNSIGNALIZED INTERSECTION DELAY
A	Free flow	<= 10	<=10
B	Stable flow	>10 to 20	>10 to 15
C	Stable flow but cycle failures	>20 to 35	>15 to 25
D	Unstable flow with delays	>35 to 55	>25 to 35
E	Unstable flow with cycle failures	>55 to 80	>35 to 50
F	Breakdown flow	>80	>50

Table 6.1: HCM Delay and Level of Service (LOS) Criteria



**95<sup>th</sup> Percentile Queue:** This metric represents the queue length not exceeded 95% of the time during peak periods. It highlights key intersections where extended queues impact overall corridor flow and can cause congestion.

**Total Travel Time:** Total travel time measures the cumulative time, in seconds, that vehicles spend traveling between signalized intersections within the project limit, including delays. High total travel times indicate significant congestion and inefficiencies in traffic flow. Synchro 12 provides outputs that allow for effective comparisons between travel times at intersections and free-flow travel times.

**Average Speed:** Average speed in Synchro calculates the mean speed of all vehicles, including both moving and stopped times, traveling along El Camino Real within the analysis limits. Lower average speeds indicate increased congestion and reduced operational efficiency.

## EXISTING CONDITION RESULTS

**Signalized intersection LOS and 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 6.2.

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	<b>108</b>	<b>F</b>
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

*Table 6.2: Existing Condition Signalized Intersection Delay (Average Seconds per Vehicle)*

The 2024 analysis of signalized intersections along the El Camino Real corridor shows that, except for the intersection at Atherton Ave / Fair Oaks Lane, 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 Lane, 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 Lane (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 El Camino Real operate with moderate delays, ensuring a generally acceptable level of service.



**Unsignalized intersections LOS:** The analysis results for worst movements across all unsignalized intersections under existing conditions are summarized in Table 6.3. 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 El Camino Real Rd.

INTERSECTION	INTERSECTING		
	MINOR STREET		
		AM LOS	PM LOS
El Camino Real @ Selby Ln	Selby Ln (EB)	<b>F</b>	<b>F</b>
	Selby Ln (WB)	<b>C</b>	<b>F</b>
El Camino Real @ Stockbridge Ave	Stockbridge Ave (EB)	<b>F</b>	<b>F</b>
	Stockbridge Ave (WB)	<b>F</b>	<b>E</b>
El Camino Real @ Tuscaloosa Ave	Tuscaloosa Ave (EB)	<b>F</b>	<b>D</b>
El Camino Real @ Watkins Ave	Watkins Ave (WB)	<b>F</b>	<b>F</b>

Table 6.3: Existing Condition Unsignalized Intersections Level of Service

**Arterial Speed and Travel Time:**

Travel time and speed are key metrics for assessing arterial traffic flow. Travel speed, accounting for intersection delays, determines 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 6.4

LOS	CLASS III - AVERAGE TRAVEL SPEED (MPH)
A	>=30
B	24 - 30
C	18 - 24
D	14 - 18
E	10 - 14
F	<= 10



Table 6.4: Urban Street Class III Speeds HCM Level of Service Metrics

The analysis of arterial level of service (LOS) for El Camino Real 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 Lane 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 Lane, 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.

DIRECTION	PERIOD	OVERALL SPEED	KEY DELAY INTERSECTIONS (LOS)	TOTAL TRAVEL TIME (S)	FREE FLOW TIME (S)	LOS
Northbound (NB)	AM	20	Valparaiso Ave (E), Fair Oaks Lane (D)	350	236	C
Southbound (SB)	AM	18	Oakwood Dr (E), Atherton Ave (E)	381	231	D
Northbound (NB)	PM	20	Valparaiso Ave (E), Fair Oaks Lane (E)	360	236	C
Southbound (SB)	PM	21	Oakwood Dr (D), Atherton Ave (E)	333	231	C



Table 6.5: Summary of Arterial LOS for El Camino Real Corridor

95<sup>th</sup> Percentile Queue:

The queue analysis for the El Camino Real 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 Lane, 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 the table below:

INTERSECTION	TURN MOVEMENT	STORAGE LENGTH (FT)	95 <sup>TH</sup> AM QUEUE LENGTH (FT)	95 <sup>TH</sup> 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	WBL	65	222	171
	SBL	150	238	185
El Camino Real @ Valparaiso Ave	NBL	180	186	202



## 7. CONCLUSION

In summarizing the collected data for the El Camino Real Complete Streets Corridor Plan, the crash analysis indicates safety concern for micro-mobility modes and demand data indicates challenges in managing traffic flow during peak times. The crash data highlights a critical need for safety improvements at key intersections and segments. StreetLight data shed light on the corridor's significance in facilitating varied travel patterns, pointing towards the necessity for better multimodal infrastructure to support safe and efficient transportation for all users.

The existing conditions analysis for 2024 provides further insights into the operational performance of the El Camino Real corridor. The analysis focused on a 1.76-mile segment between Oakland Dr and Valparaiso Ave, evaluating key performance indicators such as Level of Service (LOS), movement delay, 95th percentile queue, total travel time, and average speed.

Key findings from this analysis include:

**Level of Service (LOS) and Movement Delay:** While El Camino Real @ Fair Oaks Lane operates at LOS F during PM peak hr period, the remainder of the intersections within the study area operate at LOS D or better during both AM and PM peak hour period.

**Total Travel Time and Average Speed:** 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 within a manageable range, reflecting typical urban traffic conditions.

**Queue Analysis:** The queue analysis identified turning movements where queue lengths exceed storage capacities. These findings suggest areas for targeted interventions to enhance traffic flow and operational efficiency.

Overall, the El Camino Real corridor operates at an acceptable level, with moderate congestion and specific areas needing improvement. This analysis will lay the groundwork for the Traffic Engineering Performance Assessment Report (TEPA), aiming to provide a detailed look into the corridor's traffic dynamics and suggesting practical measures focusing on sustainable multi-modal improvements. By improving infrastructure to support a diverse range of transport modes, the project seeks to establish a safer, more accessible, and efficiently navigated corridor, addressing both present and anticipatory community needs.



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## TASK 3.2.2 – TECHNICAL MEMORANDUM SUMMARIZING POTENTIAL ROADWAY CONFIGURATION TRAFFIC ANALYSIS

**TO:** Carolyn Mamaradlo (San Mateo County Transportation Authority), Douglas Kim (Town of Atherton)

**FROM:** Kay Cheng (WSP), Akshaey Sabha (WSP)

**SUBJECT:** Technical Memorandum Summarizing Potential Roadway Configuration Traffic Evaluations

**DATE:** February 5, 2025

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### INTRODUCTION

This memorandum presents a technical analysis of potential roadway configuration concepts along El Camino Real between Oakwood Dr and Valparaiso Ave, focusing on traffic operations under 2025 conditions. The objective is to evaluate three proposed concepts—a 6-lane, 5-lane, and 4-lane configuration with separated and/or striped bike lanes—and their impacts on multimodal accessibility, intersection performance, corridor travel time, and arterial speed. Key improvements such as new signalized intersections, HAWK signals, and pedestrian enhancements were incorporated to optimize network operations. This analysis provides data-driven insights to support decision-making for enhancing mobility and safety along the corridor.

### 1. FUTURE CONDITIONS (2025) ANALYSIS

This analysis considers the anticipated traffic demand for 2025 and evaluates three potential concepts within the corridor. These concepts were developed to address key objectives, including improving multimodal accessibility and enhancing overall traffic efficiency.

The following concepts were analyzed:

1. **No-Build Configuration:** This scenario maintains the existing corridor geometry with no project-specific geometric modifications. Only background infrastructure improvements and signal timing changes are included.
2. **6-Lane Configuration with Striped Bike Lane:** This alternative maintains six travel lanes and incorporates a dedicated bike lane, striped from vehicular traffic.
3. **4-Lane Configuration with Separated Bike Lane:** This alternative reduces the travel lanes to four, allowing additional space for a separated bike lane.
4. **5-Lane Configuration with Separated/Striped Bike Lane:** This alternative provides a middle ground, maintaining five travel lanes and adding a separated or striped bike lane.

Key adjustments to the corridor for all three concepts provided by the City of Atherton include:



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1. **Selby Lane Intersection Signalization:** Selby Lane was upgraded to a signalized intersection to enhance safety and operational performance for minor street traffic movements.
2. **Watkins Avenue Intersection Signalization:** A new traffic signal was installed at Watkins Avenue to better manage traffic flow and reduce delays.
3. **Stockbridge Avenue HAWK Signal Installation:** A High-Intensity Activated Crosswalk (HAWK) signal was installed at Stockbridge Avenue to improve pedestrian safety.
4. **Encinal Avenue Intersection Improvements:** A new south-leg crosswalk was added to the Encinal Avenue and El Camino Real intersection, enhancing pedestrian connectivity and safety.
5. **Median Refuge Islands:** Median refuge islands were installed at Alejandra, Almendral, and Isabella intersections to provide safer crossing opportunities for pedestrians.

The traffic demand data for this analysis was derived from the C/CAG-VTA model, by processing the existing condition demand, applying a growth rate, and balancing the volumes to generate demand input. Adjustments were made to the network signal timing to optimize traffic flow along El Camino Real and ensure efficient clearance for vehicles on minor streets. The evaluation results for each alternative will include performance metrics such as Level of Service (LOS), movement delay, 95<sup>th</sup> percentile queue lengths, total travel time, and average speeds. These results will be discussed in detail in subsequent sections to identify the most effective alternative for meeting the corridor's multimodal and traffic flow needs.

## METHODOLOGY

To accurately represent Year 2025 traffic conditions, WSP processed collected AM and PM peak hour vehicle, pedestrian, bicycle, heavy vehicle, and bus volumes. 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 7<sup>th</sup> Edition where applicable, or HCM 2000 results if necessary. Key performance indicators (KPIs) such as Level of Service (LOS), movement delay, 95<sup>th</sup> percentile queue, total travel time, and average speed were evaluated to assess the operational efficiency of intersections and roadway segments.

## 2025 CONDITION RESULTS

### *INTERSECTION LOS AND DELAY:*

An analysis of the Level of Service (LOS) and movement delay was conducted for 2025 conditions, comparing the No-Build scenario with the three proposed build concepts (Concept #1, Concept #2, and Concept #3). The analysis utilized the AM and PM peak hour turning movement volumes for each scenario. The results for signalized intersections and HAWK beacons under future conditions are summarized in Table 1 and 2, highlighting the operational performance differences between the No-Build and the three concepts for both AM and PM.



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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 Lane	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

Note:

Delay Units is in seconds

*Table 1.: AM Peak Hour Delay and LOS Comparison for No-Build and Concepts #1, 2, and 3*

The analysis of AM peak hour intersection operations indicates the following key performance outcomes for the No-Build and alternative scenarios:

- Oakwood Drive: Delay remains consistent at 26 seconds across the No Build and Concept #1 scenarios, with minor increases observed in Concepts #2 and 3 (28 seconds). LOS remains stable at C.
- Selby Lane: Delay remains at 19 seconds in Concept #1 but increases to 35 seconds in Concept #2 and 22 seconds in Concept #3. LOS is B in Concept #1, with Concept #2 experiencing a drop to C.
- Fifth Avenue: Delay remains largely consistent across all scenarios, ranging from 25-28 seconds, with LOS holding at C.
- Stockbridge Avenue, Almedral Avenue, Isabella Avenue, and Alejandra Avenue: These intersections continue to operate efficiently at LOS A, with minimal delays across all concepts.
- Fair Oaks Lane: Concept #1 maintains the lowest delay at 17 seconds (LOS B), while Concepts #2 and 3 experience increased delay at 29 seconds (LOS C).
- Watkins Avenue: Delay remains at 11 seconds for Concept #1 but rises to 15 seconds in Concept #2 and 27 seconds in Concept #3. LOS remains at B for Concepts #1 and 2 but drops to C for Concept #3.
- Encinal Avenue: Delay remains stable at 23 seconds for Concepts #1 and 3, with Concept #2 experiencing an increase to 33 seconds. LOS remains at C across all scenarios.



- Valparaiso Avenue: Concept #1 maintains the same delay as the No-Build scenario at 27 seconds (LOS C), whereas Concept #2 experiences a substantial increase to 51 seconds (LOS D), with Concept #3 holding at 27 seconds (LOS C).

Among the three concepts, Concept #1 performs most efficiently in minimizing vehicle roadway delays, followed by Concept #3, while Concept #2 experiences the highest delays at key intersections. However, all concepts remain within acceptable operational limits, as none exceed LOS E, ensuring effective corridor traffic flow during the AM peak hour period.

INTERSECTION WITH EL CAMINO REAL	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 Lane	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

Note:

Delay Units is in seconds

*Table 2: PM Peak Hour Delay and LOS Comparison for No-Build and Concepts #1, 2, and 3*

The analysis of PM peak hour intersection operations indicates the following key performance outcomes for the No-Build and alternative scenarios:

- Oakwood Drive: Delay remains at 10 seconds for Concept #1 and Concept #3, while Concept #2 experiences an increase to 23 seconds. LOS remains at A for Concepts #1 and 3, while Concept #2 operates at C.
- Selby Lane: Delay is consistent at 14 seconds for Concepts #1 and 2, increasing to 19 seconds in Concept #3. LOS remains at B across all scenarios.
- Fifth Avenue: Concept #2 experiences the highest delay at 62 seconds (LOS E), while Concept #3 reduces the delay to 34 seconds, maintaining LOS C.
- Stockbridge Avenue, Almedral Avenue, Isabella Avenue, and Alejandra Avenue: These intersections maintain LOS A across all concepts, with minimal delays.



- Fair Oaks Lane: Concept #1 experiences 18 seconds of delay (LOS B), while Concepts #2 and 3 see increased delays of 31 seconds and 26 seconds, respectively, both operating at LOS C.
- Watkins Avenue: Delay remains at 6 seconds in Concept #1 but increases significantly to 50 seconds in Concept #2 (LOS D) and 14 seconds in Concept #3 (LOS B).
- Encinal Avenue: Concept #1 maintains 15 seconds of delay (LOS B), while Concept #2 increases to 27 seconds (LOS C), with Concept #3 maintaining 15 seconds (LOS B).
- Valparaiso Avenue: Concept #1 holds steady at 24 seconds (LOS C), while Concept #2 sees an increase to 52 seconds (LOS D) and Concept #3 experiences 33 seconds (LOS C).

During PM peak hour period, Concept #1 has the lowest intersection delay, followed by Concept #3, while Concept #2 experiences the highest delays at key intersections. Fifth Avenue operates at LOS E during Concept #2, while all other intersections remain at LOS D or better. Despite these differences, all concepts function within acceptable limits, ensuring effective corridor traffic flow.

The analysis of corridor performance focuses on two key metrics: travel time and arterial speed for the northbound (NB) and southbound (SB) directions during the AM and PM peak hours.

**CORRIDOR TRAVEL TIME AND ARTERIAL SPEED:**

These metrics provide insights into the operational efficiency and congestion levels along the corridor under the three proposed geometric configurations: 6-lane, 4-lane, and 5-lane designs.

Travel time measures the total time required to traverse the corridor, accounting for delays at intersections and along the roadway. Arterial speed reflects the average travel speed achieved, incorporating both moving and stopped times. A recent speed survey found the critical speed and average speed for traffic is 38 and 35 mph, respectively, under free flow conditions on El Camino Real.<sup>1</sup> The results are summarized in the following table, highlighting the performance differences across the three concepts and identifying potential impacts on traffic flow and efficiency.

*Table 3: Comparison of Corridor Travel Time and Arterial Speed*

		Corridor Performance							
		Travel Time (min)				Arterial Speed (mph)			
		No-Build	Concept 1 6-Lane Geo	Concept 2 4-Lane Geo	Concept 3 5-Lane Geo	No-Build	Concept 1 6-Lane Geo	Concept 2 4-Lane Geo	Concept 3 5-Lane Geo
AM	NB	5.8	5.8	6.1	5.9	20.3	20.3	19.2	19.7
	SB	5.5	5.5	7.0	6.9	20.7	20.7	16.3	16.5
PM	NB	5.5	5.5	6.3	5.7	21.2	21.2	18.6	20.6
	SB	5.2	5.2	5.2	5.1	21.9	21.9	22.1	22.3

<sup>1</sup> California Department of Transportation, District 4; Report of the Engineering and Traffic Survey; December 19, 2024. Critical speed is the speed at or below which 85% of vehicles travel under free-flow conditions while average speed is the mean of all vehicles traveling during a specific period. Speeds reflect 1.39-mile stretch between Stone Pine Lane to 100 feet north of Berkshire Avenue.



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The results highlight the travel time and arterial speed performance under the three proposed configurations across AM and PM peak periods:

#### **6-Lane Configuration (Concept #1):**

1. Travel times remain unchanged compared to the No-Build scenario across all time periods. Northbound and southbound travel times during both AM and PM peaks remain consistent, indicating that this configuration does not introduce additional delay.
2. Arterial speeds remain the same as the No-Build scenario, with no changes observed in northbound or southbound directions across AM and PM peaks.

This configuration maintains the most efficient traffic flow, ensuring no increase in congestion or delay while preserving the existing operational conditions.

#### **4-Lane Configuration (Concept #2):**

3. Travel Time : The northbound AM peak experiences a 5% increase, rising from 5.8 minutes to 6.1 minutes. The southbound AM peak sees the most significant increase, with a 27% rise, reaching 7.0 minutes from 5.5 minutes. During the northbound PM peak, travel time increases by 14%, rising from 5.5 minutes to 6.3 minutes, while the southbound PM peak remains unchanged at 5.2 minutes.
4. Arterial Speed : The northbound AM peak speed decreases by 5%, dropping from 20.3 mph to 19.2 mph. The southbound AM peak speed sees a 21% decline, reducing from 20.7 mph to 16.3 mph. In the northbound PM peak, speed decreases by 12%, going from 21.2 mph to 18.6 mph, while the southbound PM peak speed increases slightly by 1%, reaching 22.1 mph.

This configuration results in the highest travel time increases and the largest arterial speed reductions, particularly affecting the southbound AM and northbound PM periods, indicating higher congestion and slower traffic movement compared to the No-Build scenario.

#### **5-Lane Configuration (Concept #3):**

5. Travel Time : The northbound AM peak sees a 2% increase, with travel time rising from 5.8 minutes to 5.9 minutes. The southbound AM peak experiences a 25% increase, increasing from 5.5 minutes to 6.9 minutes. During the northbound PM peak, travel time rises by 4%, reaching 5.7 minutes from 5.5 minutes, while the southbound PM peak sees a slight decrease of 2%, dropping from 5.2 minutes to 5.1 minutes.
6. Arterial Speed : The northbound AM peak speed decreases by 3%, from 20.3 mph to 19.7 mph. The southbound AM peak speed declines by 20%, reducing from 20.7 mph to 16.5 mph. The northbound PM peak speed drops by 3%, going from 21.2 mph to 20.6 mph, while the southbound PM peak speed increases slightly by 2%, reaching 22.3 mph.

This configuration presents moderate travel time increases compared to a No-Build scenario and smaller reductions in arterial speed compared to the 4-lane alternative. While it introduces some delays, it maintains better overall flow and efficiency than the 4-lane configuration.

#### **Key Impacts:**

- The 6-lane configuration maintains the fastest travel times and highest speeds, with no changes compared to No-Build.
- The 4-lane configuration results in the longest travel times and largest speed reductions, particularly in southbound AM and northbound PM, indicating greater congestion.
- The 5-lane configuration presents a middle ground, with moderate impacts on travel time and minimal reductions in arterial speed, making it more efficient than the 4-lane option.



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## CONCLUSION

The analysis evaluates the operational performance of the three proposed roadway configurations compared to the No-Build scenario, focusing on intersection delay, travel time, and arterial speed.

- 6-Lane Configuration (Concept #1) provides the most consistent traffic operations, with no increase in travel time or reduction in arterial speeds. This configuration ensures efficient traffic flow while integrating multimodal improvements without additional delays.
- 4-Lane Configuration (Concept #2) demonstrates acceptable intersection operations, with most locations maintaining LOS D or better. However, travel time is notably higher, particularly in the southbound AM at Atherton Ave and northbound PM at Fifth Ave, where a 27% increase in SB AM travel time and a 21% decrease in SB AM arterial speed are observed. This suggests a trade-off between multimodal accessibility and vehicle travel time efficiency.
- 5-Lane Configuration (Concept #3) presents a balanced approach, with moderate travel time increases and smaller reductions in arterial speed compared to the 4-lane alternative. While some delay increases are observed, this configuration provides better overall traffic flow than the 4-lane alternative, while still accommodating multimodal needs.

### **KEY FINDINGS:**

1. The 6-lane configuration maintains efficient traffic flow with no increase in congestion, making it the most effective in minimizing travel time and maintaining speed.
2. The 4-lane configuration 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. The 5-lane configuration serves as a middle ground, balancing traffic efficiency and multimodal considerations, with moderate travel time increases and manageable impacts on arterial speed.

This analysis underscores the trade-off between vehicle multimodal accessibility and vehicle speed and delay. The 6-lane configuration retains current vehicular conditions, the 4-lane configuration prioritizes non-motorized safety while introducing additional travel time, and the 5-lane configuration provides a middle ground between these objectives.

## TASK 3.2.2 MEMO SUPPLEMENTAL – TRAVEL DEMAND FORECASTS

TO: Carolyn Mamaradlo (San Mateo County), Douglas Kim (Town of Atherton)

FROM: Kay Cheng (WSP), George Naylor (WSP)

SUBJECT: Technical Memorandum – Travel Demand Forecasts

DATE: March 5, 2025

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### INTRODUCTION

The travel demand forecasts prepared for the El Camino Real Complete Streets Corridor study provide key outputs that are used to support the transportation analysis of the study, quantifying the traffic impact of the various design alternatives under consideration. These key outputs include the peak hour traffic volumes at the study intersections and along roadways in the project corridor, peak hour bicycle volumes along the corridor and the level of traffic volumes that could divert onto local streets as a result of capacity changes on El Camino Real.

The C/CAG-VTA Countywide models were used to prepare the travel demand forecasts to support the traffic impact analysis for the El Camino Real Complete Streets Corridor study. The C/CAG-VTA model is a traditional four-step model used to support countywide transportation system analysis and detailed project corridor analysis for projects located within San Mateo County. The C/CAG-VTA models provide a comprehensive analytical framework for estimating base year and future travel demand at varying levels-of-detail, from larger system corridor impacts to smaller level intersection turn movements. The C/CAG-VTA models provide the ability to forecast detailed trips by mode (auto vehicle by occupancy, transit and non-motorized trips) by time of day and can reflect changes in regional growth patterns and adjacent roadways that interact with the countywide expressway system. Three model horizons were available from the C/CAG-VTA model data files: 2015, 2025 and 2040. For purposes of this study, the year 2025 model data was used as the basis for the travel demand forecasts, as it was closest to the existing year 2024 and represents a close alignment to the more short-range timeline of 1 to 2 years when the project could be constructed and in operation.

The remainder of this memorandum summarizes the base year model calibration and the near-term year 2025 traffic forecasts for the project alternatives. Three network alternatives were modeled for the year 2025: a No Project Concept, a 6-lane road with bicycle lane and sidewalks, a 4-lane road diet with buffered/protected bicycle lanes and sidewalks and a 6/5-lane road diet with buffered/protected bicycle lanes and sidewalks.

## BASE YEAR VALIDATION

For this project, the C/CAG-VTA models were validated to local traffic conditions for the base year using intersection turn movement counts collected for the corridor in spring 2024. Model validation is the process by which the traffic volumes from the travel demand models are compared to observed traffic count data, and adjusted to ensure the models can reproduce observed conditions within an acceptable level of tolerance.

The starting point with the base year model validation was the C/CAG-VTA model. The C/CAG-VTA model provided three horizon years available for the project: 2015, 2025 and 2040. For this study, the approach was to use the 2025 model as the base year and review and refine the model inputs to achieve the model validation in the project corridor. The initial comparison of observed model volumes to the counts showed that the year 2025 C/CAG-VTA model overestimated traffic between 30 % to 140 % on El Camino Real, depending on the direction of travel. Much of the overestimation of traffic was due to the relatively high free-flow observed speed of 40 mph along El Camino Real; however, in addition to the input free-flow speeds, various input parameters were reviewed and modified to improve the model validation results. These model changes consisted of the following:

- Review of the base networks to ensure number of lanes for roadways in the project corridor and surrounding areas was up to date (using Google Maps as the review medium),
- Recoding of the free-flow speeds on El Camino Real from 40 miles per hour to the posted speed limit of 35 miles per hour,
- Review of households and the subsequent updating of the base year households in Atherton to be consistent with year 2020 census block number of households, if the C/CAG-VTA base year values were too low,
- Updated the public and private elementary and high school enrollment in the Town of Atherton based on publicly available data,
- Updated student enrollment and total employment at Menlo College with publicly available data, and
- Adjusted peak hour traffic factors to improve comparison of model volumes to counts.

Table 1 summarizes the final comparison of model volumes to observed count data for traffic volumes along El Camino Real for the AM and PM peak time periods after modification of the above model inputs. The volumes summarized in Table 1 consist of an accumulation of the approaching and departing traffic volumes at each of the twelve project intersections. These intersections included the following:

- Oakwood Drive/Dumbarton Avenue (signalized)
- Selby Lane
- Fifth Avenue (signalized)
- Stockbridge Avenue
- Almendral Avenue

- Tuscaloosa Avenue
- Atherton Avenue/Fair Oaks Lane (signalized)
- Isabella Avenue
- Watkins Avenue
- Alejandra Avenue
- Encinal Avenue (signalized), and
- Valparaiso Avenue/Glenwood Avenue (signalized)

A typical rule of thumb is that the model volumes should be within plus or minus 15 %, as that is typically how much traffic varies on a day-to-day basis. In general, for the peak directions of travel, which is southbound in the AM and northbound in the PM, the model volumes are very close to the observed count data at 2 % difference of observed in the AM and essentially matching the PM northbound direction. The off-peak directions for both the AM and PM peak hours are overestimated by the model, by 27% in the AM and 13 % in the PM. While this is outside the acceptable range of plus or minus 15 % difference for the AM off-peak direction, this overestimation occurs in the off-peak which would likely not influence the level-of-service analysis and peak hour traffic impacts. It should be noted that the volumes estimated by the model are not used directly from the model, rather, the volumes are adjusted using the base year observed volumes and the relative differences from the forecast model volumes to minimize volume over or under estimation in the base year validation. This correction process is described in more detail in a separate technical memorandum for the traffic impact analysis.

Table 1 Peak Hour Model Validation Summary – El Camino Real Corridor Model Volumes compared to Counts

Direction	Model	Count	Model/Count
AM Southbound*	47,223	46,509	1.02
AM Northbound	27,452	21,607	1.27
<b>AM Peak Hour All</b>	<b>74,675</b>	<b>68,116</b>	<b>1.10</b>
PM Southbound	34,114	30,244	1.13
PM Northbound*	40,705	40,639	1.00
<b>PM Peak Hour All</b>	<b>74,819</b>	<b>70,883</b>	<b>1.06</b>

\* Indicates peak direction of travel

## TRAVEL DEMAND FORECASTS

With the completion of the base year model validation, the models were applied to develop travel demand and traffic volumes for the three project alternatives. Since the model horizon for the alternatives was the same as the base validation (year 2025), minimal changes to the model inputs were required, such as inputs that would vary when applying a different horizon year of analysis. The project alternatives for the El Camino Real facility studied in the transportation analysis include the following:

- No Project that assumes the lane geometry of existing conditions on El Camino Real as of 2025: 6 lanes total, with 3 lanes in each direction from Oakwood to Valparaiso, with the exception of a 4-lane section in the northbound direction of El Camino Real from Valparaiso to Spruce Avenue, with no bicycle facilities nor continuous sidewalks,
- 6-Lane Configuration with striped Class II bike lane (Concept #1): This alternative maintains six travel lanes and incorporates a dedicated striped bike lane and continuous sidewalks..
- 4-Lane Configuration with separated bike lane (Concept #2): This alternative reduces the travel lanes to four, allowing additional space for a separated bike lane and wider continuous sidewalks.
- 6 and 5-Lane Configuration with separated/striped bike lane (Concept #3): This alternative provides a middle ground, maintaining five travel lanes and adding a separated or striped bike lane and continuous sidewalks.

Implementation of the travel demand forecasts for the various project concepts was straightforward and only required the coding of the various network alternatives lane configurations and bicycle facilities, as the socioeconomic data and all other inputs remained unchanged from the existing year validated models. Once the alternative lane configurations and bicycle infrastructure features were coded into the model networks, the C/CAG-VTA model was run to produce the revised travel demand associated with each alternative. Key outputs generated by the models included traffic volumes for the AM peak hour, PM peak hour and off-peak time periods as well as bicycle volumes on the bicycle lanes and adjacent roadways. The outputs of the travel demand model were used to develop the traffic operations and level-of-service analysis for the project, which is reported in a separate technical memorandum.

Table 2 provides a summary of the volumes on El Camino Real, calculated by summing the approach and departure volumes at each of the 12 project intersections, similar to the volumes shown in Table 1. The No Project and Concept 1 volumes are the same, as the roadway configurations for those alternatives are equal, and the improvements for Concept 1 do not alter the roadway volumes on El Camino Real. The results of Table 2 show that the Concept 2 (the 4-lane cross section), traffic volumes along El Camino Real reduce the most relative to the No Project/ Concept 1, particularly for the peak direction of travel in the southbound AM. Traffic volumes also reduce for the non-peak direction of travel, but to a

lesser extent. As expected, with the increased lane capacity for Concept 3, traffic volumes are not reduced as significantly relative to the No Project/ Concept 1 baselines, but they still are less along El Camino Real. The same relative traffic reductions also occur in the PM peak hour, however, the volume reductions are less than in the AM, when traffic volumes are at their highest in the corridor. The results shown on Table 2 indicate that with the reduction on capacity along El Camino Real, there is a corresponding reduction in traffic volumes, likely caused by the diversion of traffic onto parallel streets. For the AM peak hour, the reduction is highest for Concept 2. Since El Camino Real is a major regional facility that carries both local and through traffic, the reduction in capacity would cause through vehicle trips to divert to parallel arterials and freeways if the travel time increase is significant enough on El Camino Real. Based on the results in Table 2, for the most restrictive lane configuration in Concept 2, 14.5 % of the traffic on El Camino Real is reduced for the AM southbound which is the peak direction of travel. Approximately 30% of the traffic on El Camino Real was determined to be through traffic (based on the Existing Conditions analysis using Streetlight cell phone-based origin-destination data) that did not have an origin or destination in Atherton, which indicated that there was a significant travel market that could divert off El Camino Real. The result of the model simulation predicted approximately half of what would be considered the maximum amount of regional traffic that would divert.

Table 2 El Camino Real Corridor Traffic Volumes by Concept  
AM and PM Peak Hours

<b>Direction AM Peak Hour</b>	<b>No Project/Concept 1</b>	<b>Concept 2</b>	<b>Concept 3</b>
Southbound	47,223	40,479	44,458
<b>Change from No Project/Alt 1</b>	<b>N/A</b>	<b>-6,744 (-14.3%)</b>	<b>-2,765 (-5.9%)</b>
Northbound	27,452	26,969	27,358
<b>Change from No Project/Alt 1</b>	<b>N/A</b>	<b>-483 (-1.8%)</b>	<b>-94 (-0.3%)</b>
Both Directions Total	74,675	67,448	71,816
<b>Change from No Project/Alt 1</b>	<b>N/A</b>	<b>-7,227 (-9.7%)</b>	<b>-2,859 (-3.8%)</b>
<b>Direction PM Peak Hour</b>	<b>No Project/Concept 1</b>	<b>Concept 2</b>	<b>Concept 3</b>
Southbound	34,114	32,794	33,514
<b>Change from No Project/Alt 1</b>	<b>N/A</b>	<b>-1,320 (-3.9%)</b>	<b>-600 (-1.8%)</b>
Northbound	40,705	38,564	40,229
<b>Change from No Project/Alt 1</b>	<b>N/A</b>	<b>-2,141 (-5.3%)</b>	<b>-476 (-1.2%)</b>
Both Directions Total	74,819	71,358	73,743
<b>Change from No Project/Alt 1</b>	<b>N/A</b>	<b>-3,461 (-4.6%)</b>	<b>-1,076 (-1.4%)</b>

## **TRAFFIC DIVERSION**

While the results provided in Table 2 shows the total decrease in traffic using El Camino Real when capacity is constrained. There are also traffic impacts that can be associated with traffic that diverts to local streets when capacity along El Camino Real is reduced. Traffic diversion onto local streets can occur when there are capacity reductions due to road diets. Reduction in vehicle carrying capacity on roadways with through and local serving traffic may reroute through adjacent streets to minimize delay, intruding on local neighborhood streets not typically designed to handle high traffic volumes, which increases potential safety issues for vehicles, pedestrians and bicyclists. For the El Camino Real project, several alternative roadway configurations decreased the effective roadway capacity by decreasing the number of lanes on the facility from the baseline existing conditions, which essentially provides 6 lanes of capacity, the exception being a small segment between Valparaiso and Spruce in the northbound direction.

The evaluation of the traffic diversion impacts for each of the alternatives was performed by using the C/CAG-VTA travel demand model. The C/CAG-VTA travel demand model was used to estimated traffic volumes for the project alternatives, and is sensitive to changes in roadway capacity, estimates traffic flows for a large geographical area, and includes arterials and local streets in the simulation networks. The model thus provides an ideal means for quantifying the amount of traffic that occurs on each facility in the project corridor, with reporting ability to illustrate how local streets are impacted by changes in lane configurations for the project alternatives. For the traffic diversion analysis, the unit of measurement is vehicles. This metric is basically the number of vehicles traveling in the network for each time period. The model can be used to classify the type of roadway in the network in addition to the vehicles, allowing for the tabulation of vehicle travel occurring on El Camino Real and all other roads within the Town of Atherton limits.

The traffic diversion was quantified at two levels of analysis – a systemwide summary of vehicles by street for the entire Town of Atherton as described above and a more focused analysis using a technique known as a volume-difference analysis. The volume-difference analysis was used to identify local street diversion 'hot spots' to more specifically identify locations that could be influenced by the capacity reductions along El Camino Real for each alternative. The volume-difference analysis is straightforward and can be illustrated graphically by subtracting the traffic volumes of the build alternatives from the No Project. The volume-differences are color coded based on whether there is an increase in traffic or a decrease in traffic. This allows for the quick identification of specific locations and streets that may experience traffic diversion.

Table 3 summarizes the vehicles for the No Project Conditions and the various corridor alternatives, which is the systematic analysis of local traffic diversion. Vehicles were summarized based on two categories: all local roads and arterials and the segments of El Camino Real located on the project corridor, all within the Atherton Town limits. Local roads

in Table 3 would include all roads other than El Camino Real. This would include the cross streets at the 12 study intersections as well as streets and roads outside of the project corridor but still within the Atherton Town limits, such as Middlefield Road, Alameda de Las Pulgas and various local streets that could possibly use El Camino Real as an alternative. It should be noted for the diversion analysis, the No Project and Concept 1 vehicles are equal, as the 6-lane cross section is the same for both the No Project and Concept 1. The inclusion of bicycle facilities and sidewalks is assumed to not alter roadway capacity, yielding no difference in the traffic volumes as reported by the C/CAG-VTA model.

The results shown in Table 3 indicate that Concept 2 creates the most diversion onto local streets relative to Concepts 1 and 3 for the AM and PM peak hours as well as for daily traffic conditions. This is intuitive, as Concept 2 has the most reduction in lane capacity on El Camino Real. However, while Concept 2 diverted traffic onto local streets is highest, the percent increase is small and on the order of a 2.4 % increase over Concept 1 for the AM peak hour, and a 1.6% increase in the PM and a 1.2 % increase for daily traffic. This could indicate that local streets in Atherton serve a different market not significantly impacted by changes to lane capacity on El Camino Real (i.e., local traffic movements across El Camino Real, rather than using El Camino Real), and the fact that there are no significant local routes that offer a parallel alternative to El Camino Real. It should be noted that vehicle volumes on El Camino Real are lowest for Concept 2 and for all streets in Atherton in total under all time periods. This indicates that the road diet in Concept 2 likely causes a higher portion of traffic to divert to other facilities not within the Atherton town limits, for more regional through-traffic movements beginning or ending outside of Atherton previously served by El Camino Real under 6 lane conditions, but also for trips using a combination of local streets and then a shorter portion of El Camino Real than the other concepts.

The volume-difference analysis to identify diversion 'hot spots' is illustrated on Figure 1 through Figure 4. Figures 1 and 2 are for Concept 2 versus the No Project/Concept 1 volumes, for the AM and PM peak hours respectively. Figures 3 and 4 show the same information but for Concept 3 versus the No Project/Concept 1 for the AM and PM peak hours respectively. These volume-difference plots show alternative volume decreases in red and increases in green bandwidths, relative to the No Project/Concept 1. From the figures, it was determined that three local street traffic diversion 'hot'spots appear, as follows:

- Oakwood Drive traffic diverting to Oakwood Boulevard via Selby for Concepts 2 and 3 in the AM and the PM peak hours,
- Eastbound Atherton Avenue traffic diverting to Isabella Avenue/Alejandra Avenue for Concept 2 in the AM, and
- Eastbound and westbound Watkins Avenue/Encinal Avenue to eastbound and westbound Fair Oaks Lane for Concepts 2 in the AM hour.

While these three areas indicate possible local street diversion, it should be noted that the Oakwood Drive/Oakwood Blvd and Atherton Avenue/Isabella Avenue/Alejandra Avenue

locations have significant traffic calming infrastructure in place (speed bumps/speed tables), which the demand model would not consider in the route diversions, which implies that the demand model may be overestimating the impact of the local street traffic diversion and the traffic may actually stay on El Camino Real. Nonetheless, the results of the diversion analysis identifies areas that might need to be monitored to minimize diversion if Concepts 2 or 3 are the preferred alternative designs.

Table 3 Year 2025 Vehicle Summary – Streets within the Town of Atherton:  
Local Roads and Arterials versus El Camino Real

AM Peak Hour	No Project and Concept 1			Concept 2			Concept 3		
	Local Roads and Arterials	El Camino Real	Total	Local Roads and Arterials	El Camino Real	Total	Local Roads and Arterials	El Camino Real	Total
Facility Type									
Vehicles	1,146	3,168	4,314	1,174	2,843	4,018	1,165	3,044	4,209
Versus Base	N/A	N/A	N/A	28 (2.4%)	-325 (-10.3%)	-297 (-6.9%)	19 (1.7%)	-124 (-3.9%)	-105 (-2.4%)

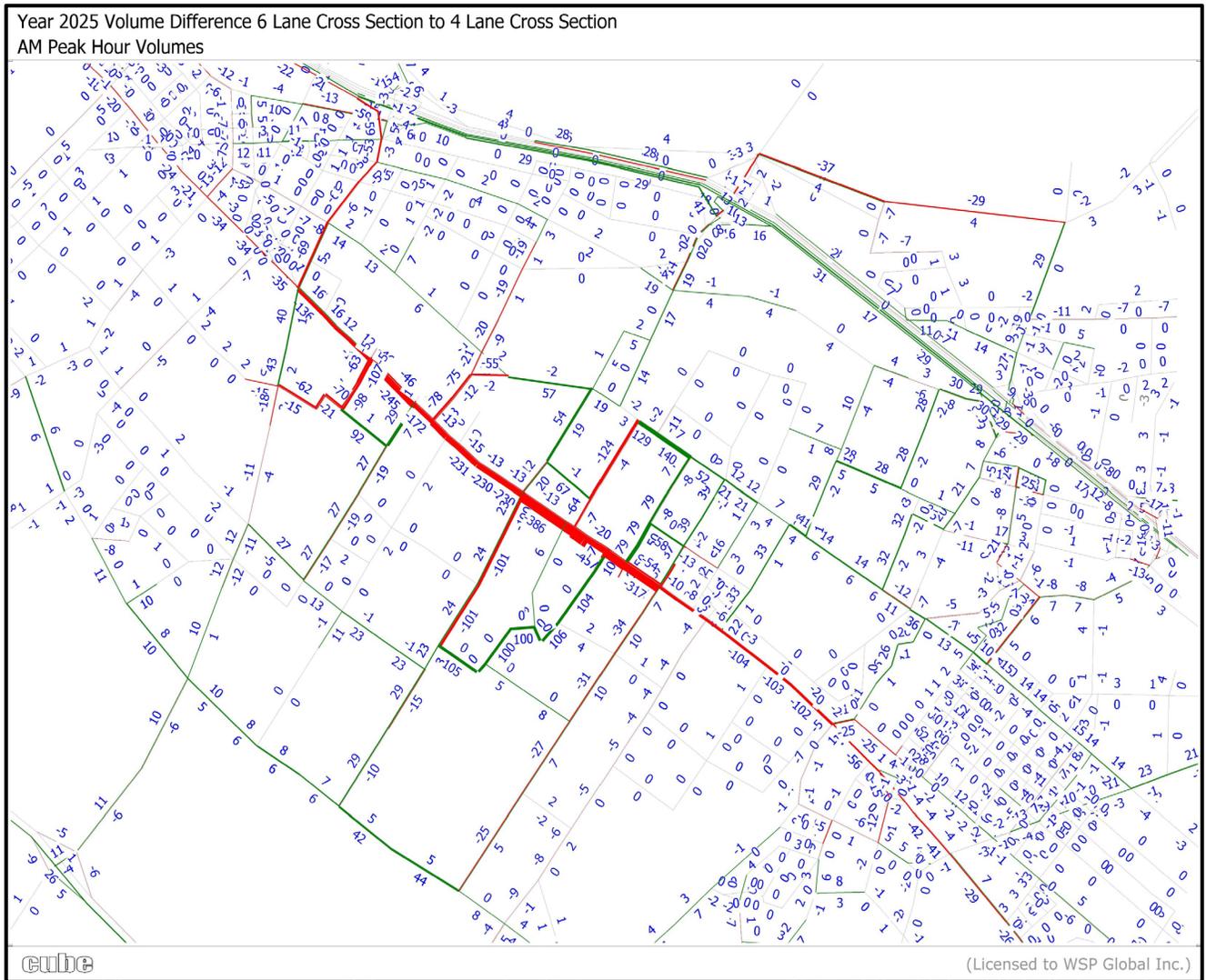
  

PM Peak Hour	No Project and Concept 1			Concept 2			Concept 3		
	Local Roads and Arterials	El Camino Real	Total	Local Roads and Arterials	El Camino Real	Total	Local Roads and Arterials	El Camino Real	Total
Facility Type									
Vehicles	1,147	3,170	4,317	1,165	3,014	4,178	1,156	3,114	4,271
Versus Base	N/A	N/A	N/A	18 (1.6%)	-156 (-4.9%)	-138 (3.2%)	9 (0.8%)	-55 (-1.7%)	-46 (-1.1%)

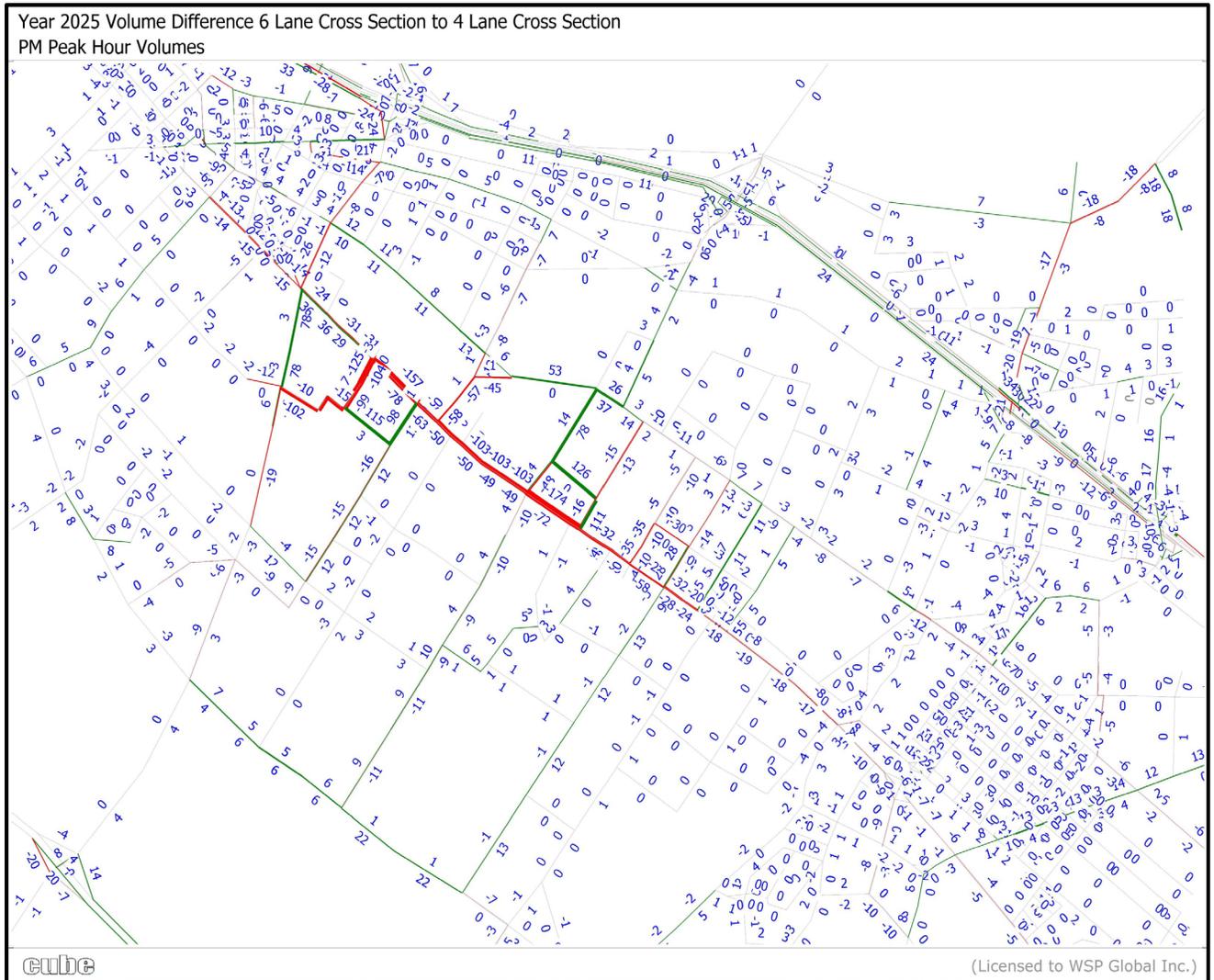
Daily	No Project and Concept 1			Concept 2			Concept 3		
	Local Roads and Arterials	El Camino Real	Total	Local Roads and Arterials	El Camino Real	Total	Local Roads and Arterials	El Camino Real	Total
Facility Type									
Vehicles	10,157	35,615	45,771	10,276	34,333	44,610	10,202	35,175	45,377
Versus Base	N/A	N/A	N/A	120 (1.2%)	-1,281 (-3.6%)	-1,161 (-2.5%)	45 (0.4%)	-440 (-1.2%)	-395 (-0.9%)

Figure 1 Volume Difference Concept 2 – No Project/Concept 1, AM Peak Hour



Volume decreases shown in RED  
Volume increases shown in GREEN

Figure 2 Volume Difference Concept 2 – No Project/Concept 1, PM Peak Hour



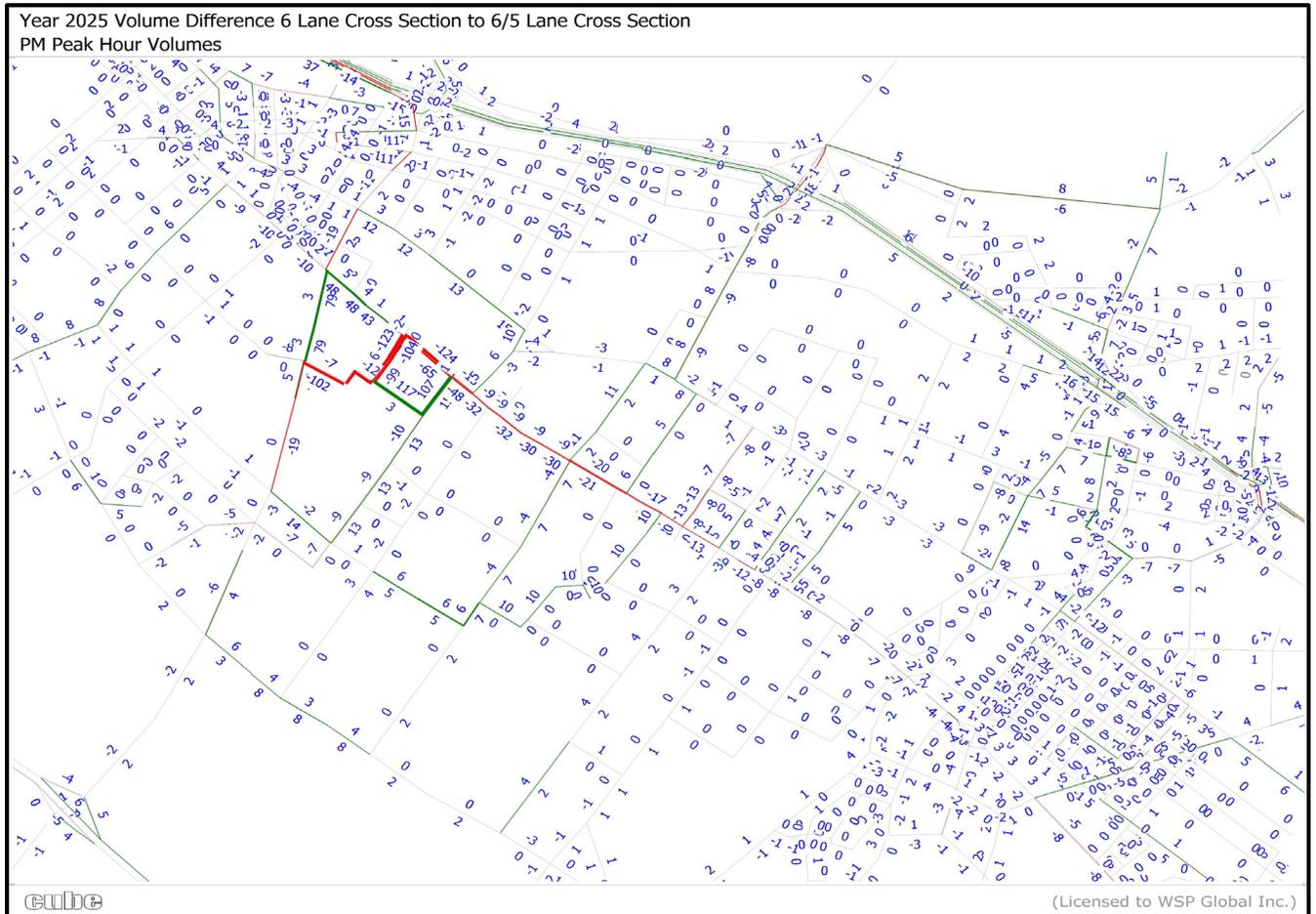
Volume decreases shown in RED  
Volume increases shown in GREEN

Figure 3 Volume Difference Concept 3 – No Project/Concept 1, AM Peak Hour



Volume decreases shown in RED  
Volume increases shown in GREEN

Figure 4 Volume Difference Concept 3 – No Project/Concept 1, PM Peak Hour



Volume decreases shown in RED  
Volume increases shown in GREEN

## TASK 3.2.2 – C/CAG TRAVEL DEMAND MODEL USER NOTES

TO: Carolyn Mamaradlo (San Mateo County), Douglas Kim (Town of Atherton)

FROM: George Naylor (WSP)

SUBJECT: Technical Memorandum – C/CAG Travel Demand Model User Notes

DATE: May 20, 2025

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The travel demand forecasts prepared for the El Camino Real Complete Streets Corridor study were prepared by using the C/CAG travel model files provided by the San Mateo C/CAG. The purpose of this document is to provide a brief overview of the C/CAG model files (model) and data subdirectory structures used to populate the model and the CUBE software application procedures that are needed to implement the models to prepare the travel demand forecasts. It is assumed that the audience for this document is an experienced CUBE user and has experience using the San Mateo C/CAG models. The model files were provided by the Santa Clara Valley Transportation Authority (VTA), which partnered with San Mateo C/CAG to make available a comprehensive regional travel demand model and consistent input data files for use in planning studies in San Mateo County. The model was developed and maintained by VTA Planning staff. The model encompasses 13 Counties that comprise the greater San Francisco Bay Area, with significant transportation network and socioeconomic data detail added for both San Mateo and Santa Clara Counties. The model was last calibrated to year 2015 conditions and validated to 2015 observed roadway and transit count data. Two additional horizons for the year 2025 and 2040 were also available for use in project analysis and were included in the full set of model files delivered to the consultant.

Based on the near-term analysis requirements of the project, the year 2025 model files provided by C/CAG formed the basis for the project analysis. Bentley CUBE version 6.5.1 CE was used for the project. The C/CAG model scripts and catalogue files are compatible with this version and should be installed prior to application of the model files. Later versions of Bentley CUBE using the Open Roads installations are not compatible with the C/CAG model scripts and would require significant updates to the model files as well as not produce results consistent with this analysis. CUBE version 6.5.1 CE operates under both Windows 10 and Windows 11 environments.

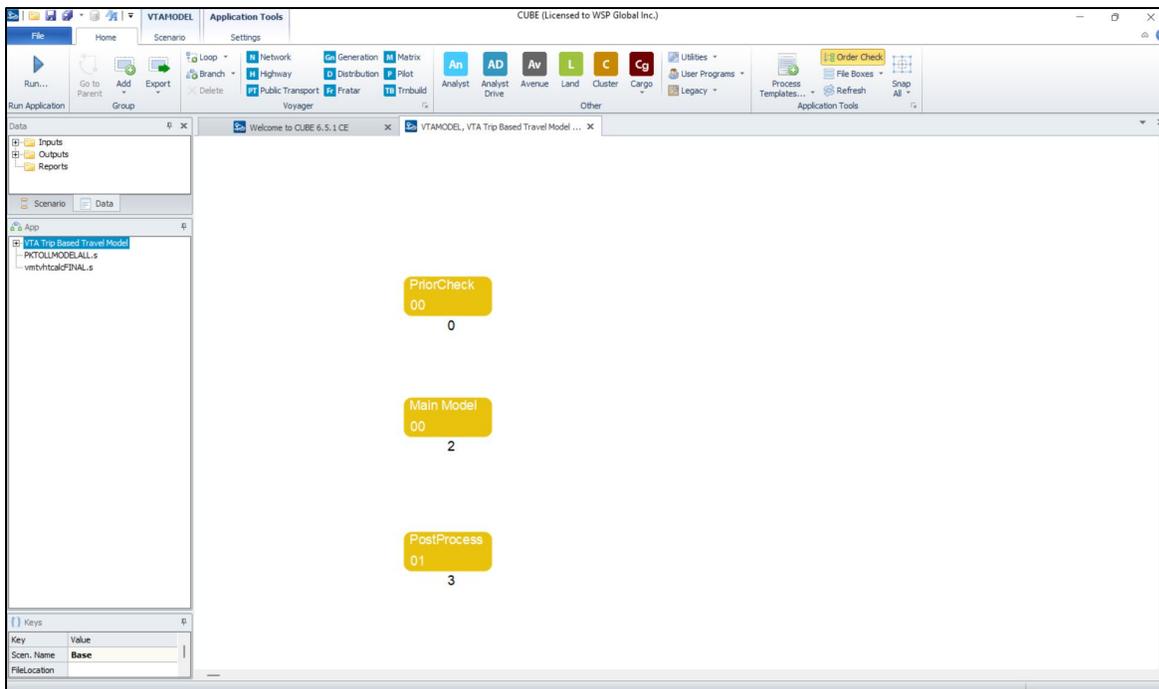
### **INPUT AND OUTPUT DATA SUBDIRECTORY STRUCTURE**

The four project alternatives have been implemented for the year 2025. All model input and output files were saved on the project Sharepoint site and should be downloaded onto the users' computing facilities. A large set of model input files are required to implement the C/CAG model, and these files are stored in a particular subdirectory structure, as follows:

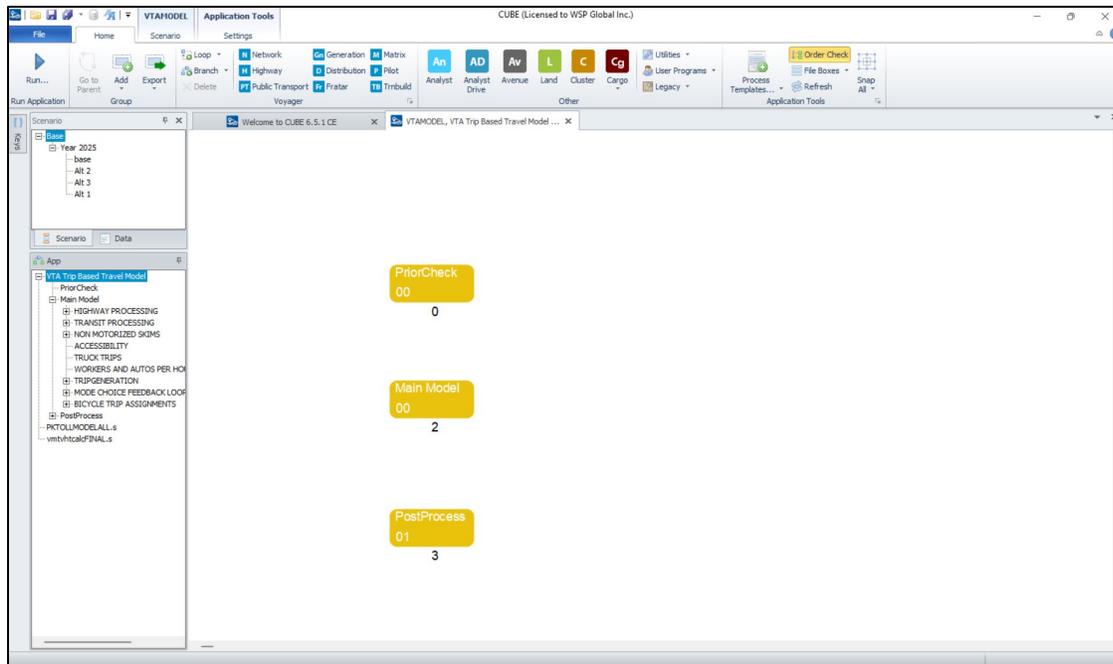
1. C:\VTA - this is the root directory where all model input and output files are saved.
2. C:\VTA\MODEL – this is the subdirectory where the VTAMODEL.CAT CUBE catalogue file resides.
3. C:\VTA\2025 – this is the subdirectory that contains the input and output data files for the four project alternatives.
4. C:\VTA\2025\Base – This subdirectory contains the Base year 2025 validation files. This alternative corresponds to existing year 2025 corridor conditions.
5. C:\VTA\2025\Alt1 – This subdirectory contains Alternative 1 input and output files. This alternative corresponds to the 6-lane cross-section with standard bicycle lanes.
6. C:\VTA\2025\Alt2 – This subdirectory contains Alternative 2 input and output files. This alternative corresponds to the 4-lane cross-section with buffered/separated bicycle lanes.
7. C:\VTA\2025\Alt3 – This subdirectory contains Alternative 3 input and output files. This alternative corresponds to the 5/6 lane cross-section with buffered/separated bicycle lanes.

## APPLICATION PROCEDURES

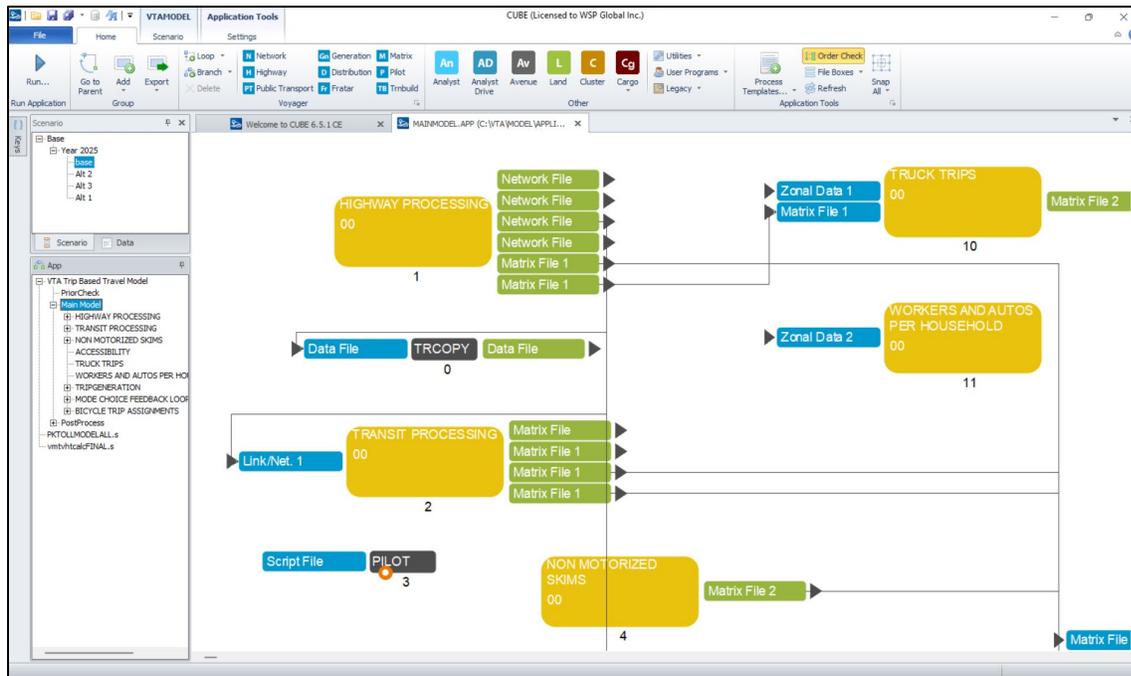
The model scripts and files can be accessed by installing and applying CUBE version 6.5.1 CE. To start, the analyst should open the VTA catalogue file (VTAMODEL.CAT) stored in the C:\VTA\MODEL subdirectory. Once the catalogue file is opened, the following screen appears:



To access the base and project alternative files, the Scenarios tab should be selected, which will result in the following screen:



From this screen, the user can select the alternative of interest (Base, Alt 1, Alt 2 or Alt 3) and then open the full Model script, shown on the following screen. The user can then run the full C/CAG model, or any model subcomponent, for the selected alternative.



# El Camino Real Complete Streets Corridor Plan

SMCTA ON-CALL TRANSPORTATION,  
PLANNING, MANAGEMENT AND SUPPORT SERVICES

CONTRACT NO. 20-T-P-008A  
WDR NO. 993

## Final Task 4 – Existing Conditions & Mobility Profile Analysis Technical Memorandum

Version 2

July 15<sup>th</sup>, 2024



PREPARED BY WSP USA

# FINAL

## VERSION CONTROL

VERSION	PURPOSE/CHANGE DESCRIPTION	AUTHOR	REVIEWER	SUBMITTAL DATE
1.0	Internal Release	Parin Patel	Kay Cheng, Brady Nadell, and Steven Usling	7/9/24
2.0	Release to Client	Parin Patel	Douglas Kim, Carolyn Mamaradlo, and Robert Ovadia	7/15/24

## QAQC DOCUMENTATION

No.	Description	Req'd	OR	CH
1.	SCOPE—OBJECTIVE(S) OF THE WORK IS DEFINED AND CONFORMS TO CONTRACTUAL WORK SCOPE AND LEVEL OF COMPLETENESS AS MENTIONED IN TASK	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.	SCOPE—AS MENTIONED IN TASK 4.2, DOES THIS MEMO INCLUDE A SUMMARY OF THE EXISTING CONDITIONS DATA USING A COMBINATION OF NARRATIVE, GRAPHICS, AND DATA VISUALIZATIONS TO UNDERSTAND THE TRAVEL MARKETS, WHO IS USING THE TRANSPORTATION NETWORK, AND WHERE THE EXISTING INFRASTRUCTURE MIGHT NOT BE MEETING LOCAL AND COUNTYWIDE TRAVEL NEEDS FOR THE CORRIDOR	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3.	ACCURACY—CALCULATION(S) HAVE BEEN CHECKED IN ACCORDANCE WITH QP-04	No	<input type="checkbox"/>	<input type="checkbox"/>
4.	STYLE—REPORT FORMATTING, GRAMMAR, SYNTAX, AND WRITING STYLE IS CONSISTENT WITH THE PROGRAM/PROJECT GUIDELINES	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6.	DRAWINGS AND GRAPHICS (EXHIBITS OR REFERENCES) HAVE BEEN CHECKED AND REVIEWED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.	CLIENT/STAKEHOLDER COMMENTS BEEN ADDRESSED AND INCORPORATED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8.	REVISIONS HAVE BEEN ADEQUATELY IDENTIFIED, IF REQUIRED FOR UPDATED DELIVERABLE	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

KEY: OR—Originator; CH—Checker

**COMMENTS** (e.g., for draft versions, explain if checklist items are required but not "checked")

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3. Demographics and Disadvantaged Communities.....	11
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## 1. INTRODUCTION

This memo summarizes the work completed for Task 4 – Existing Conditions & Mobility Profile Analysis as part of the San Mateo County Transportation Authority’s (TA) El Camino Real (ECR) Complete Streets Corridor Plan. Task 4 builds off the work completed for Task 2 – Data Collection and Mapping to identify the existing conditions of the 1.5-mile-long project corridor from a larger perspective by analyzing existing multimodal travel markets and future transportation plans for the ECR corridor, the Town of Atherton, and San Mateo County. The goal is to understand who is using the transportation network and where the existing infrastructure might not be meeting people’s local and countywide travel needs.

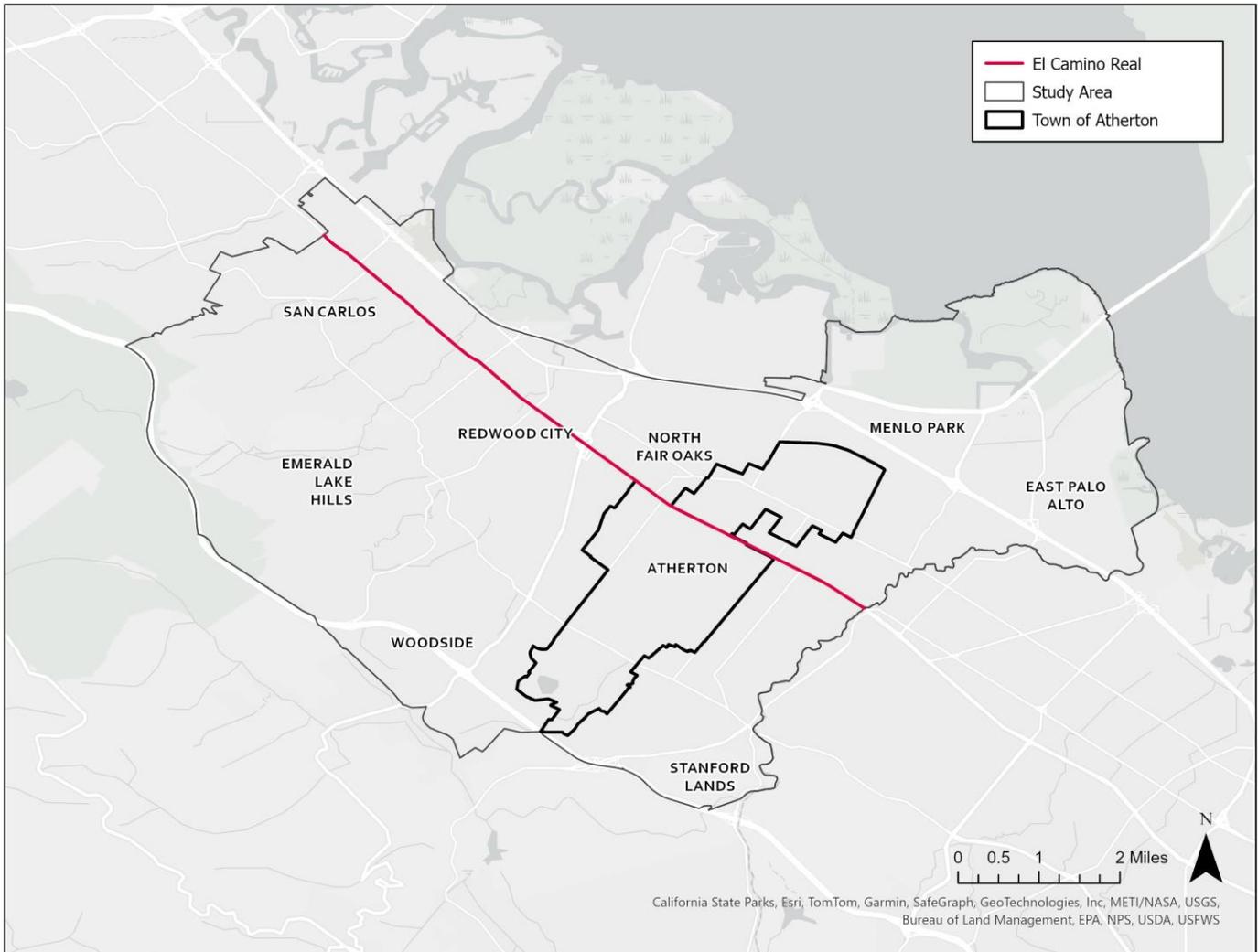
This memo is organized into four main sections. The first section provides an overview of the project corridor. The next section details the demographics of the identified study area. The following section describes the land use and zoning conditions along the project corridor and study area. The last section details the mobility profile analysis of the corridor.

## 2. ECR OVERVIEW

ECR, formally known as State Route 82, is a roughly 43-mile-long State Highway which runs from Interstate (I-) 880 in San Jose to I-280 in San Francisco, serving communities along the San Francisco Peninsula. This route serves as the main north-south non-freeway corridor in San Mateo County. ECR's name is part of the historic trail connecting Spanish missions in California. The California Department of Transportation (Caltrans) is the owner and operator of ECR and has full jurisdictional authority over project planning, design, and implementation of all State Highways.

The specific portion of ECR that's being studied as part of this project includes the 1.5-mile-long segment beginning at the north and ending at Valparaiso Avenue in the south. Similarly, this memo analyzes the existing conditions of a defined study area as shown in Figure 1. 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 better understand the mobility needs of the surrounding communities who use ECR.

Figure 1: Study Area



## RELEVANT PLANS AND PROGRAMS

This section reviews recent plans and programs near ECR in San Mateo County, as shown in Table 1 and **Error! Reference source not found.** and how they can support the development of the project. The tables are separated by completed and in progress programs and plans.

Table 1: Completed Programs and Plans

Program/Plan	Sponsor	Status	Description	Relevance to ECR Corridor Plan
Peninsula Bikeway Initiative	City of Redwood City, City/County of San Mateo Council of Governments (C/CAG), and TA	Interim bikeway completed in 2018	Sixteen-mile-long bike route from Redwood City to Sunnyvale	The route runs adjacent to ECR, providing a safer interim bicycle path connecting

Program/Plan	Sponsor	Status	Description	Relevance to ECR Corridor Plan
				cities across the Peninsula.
ECR Bus Speed and Reliability Study	SamTrans	Completed Fall 2022	Identifies the Capital Improvement Plans by city, including bus priority treatments	Some of the proposed improvements in Atherton and in the study include far-side bus stop placements, bus bulbs, queue jumps, and other pedestrian improvements.
El Camino Real Transit Signal Priority Project	SamTrans	Completed Fall 2021	Transit Signal Priority (TSP) will help reduce travel times by allowing green lights to be extended for buses running behind schedule.	TSP have been installed at every signalized intersection on El Camino Real in San Mateo County (125 intersections).
Bus Stop Improvement Plan	SamTrans	Completed Spring 2024	Provides guidance to improving bus stop conditions for SamTrans customers	This plan highlights the existing conditions for the 24 bus stops in Atherton, noting their existing conditions and the operational factors as well as recommendations for improvements (Atherton stops are listed as Medium or Low priority).
2021 C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP)	C/CAG	Completed 2021	Provides a framework to help C/CAG improve walking and bicycling conditions in San Mateo County	Includes a list of corridors in Atherton along or intersecting with ECR which require bicycle lane upgrades, transit

Program/Plan	Sponsor	Status	Description	Relevance to ECR Corridor Plan
				access improvements, and complete streets aspects.

Table 2: In Progress Programs and Plans

Plan/Program	Sponsor	Description	Relevance to ECR Corridor Plan
Local Roadway Safety Plan	Town of Atherton	Technical analysis including input from stakeholders and the public to improve roadway conditions in Atherton	Includes public comments for ECR bicycle and pedestrian improvements, of which nine of the top ten priority locations for improvements are located at an intersection with ECR.
Town of Atherton Bicycle and Pedestrian Master Plan	Town of Atherton	The 2014 report provides recommendations for improving travel safety and encouraging active transportation modes within the Town.	<p>Recommends the following improvements as priority projects to the ECR corridor:</p> <ul style="list-style-type: none"> <li>• Class 1 trail along ECR, between Selby Ln and Fifth Ave and Atherton Ave and Encinal Ave to improve walkability</li> <li>• Class 2 bikeway along Valparaiso Ave, from N Lemon Ave to ECR as part of the Valparaiso Ave Safe Routes to School project</li> <li>• Bay to Ridge Corridor Feasibility Study for a trail/pathway feasibility study from ECR to Bay Road</li> </ul>
Grand Boulevard Initiative	San Mateo County Transit District (SamTrans), C/CAG, VTA, the San Mateo County Health System, the Santa Clara County Health Department, the	The 2013 report provides a summary on the progress of programs and projects to revitalize the Grand Boulevard Initiative Vision	<ul style="list-style-type: none"> <li>• San Carlos El Camino Real Lighting and Landscaping Project (2014): Construction of street trees and pedestrian lighting on the west side of ECR between Oak Street and Olive Street.</li> </ul>

Plan/ Program	Sponsor	Description	Relevance to ECR Corridor Plan
	City of Redwood City, and		<ul style="list-style-type: none"> <li>• Connect, Redwood City! (2014): Implemented car share, short-distance vanpools, and a telework program for county employees to address traffic impacts along ECR.</li> <li>• Highlights the Awards and Achievements by sponsors for Housing, Transit, and Land-Use Plans and Projects.</li> </ul>
ECR Corridor Plan & Projects	TA, Caltrans, and City of Redwood City	Adopted in December 2017, this plan lists all the transportation projects and plans within the study area	<ul style="list-style-type: none"> <li>• Northbound bike lane on three blocks of ECR between Maple Street and Wilson Street (design phase completed by mid-2024).</li> <li>• Install a bicycle boulevard on Vera Avenue from ECR to Alameda de las Pulgas (design phase completed by early 2024).</li> <li>• Through ECR Corridor Safety Project with Caltrans, install buffered bike lanes southbound on ECR from Brewster Avenue to Vera Avenue (design phase completed in 2018).</li> <li>• Establish both Class II and Class IV bicycle facilities and pedestrian safety improvements, such as high-visibility crosswalks and pedestrian hybrid beacons along ECR from Brewster Avenue to Selby Lane in Atherton (construction starts 2028).</li> <li>• Metropolitan Transportation Commission (MTC) Program</li> </ul>

Plan/ Program	Sponsor	Description	Relevance to ECR Corridor Plan
			<p>for Arterial System Synchronization did a signal timing study for 13 traffic signals along ECR from Hopkins Avenue to Oakwood Drive/Dumbarton Avenue (recommended updated timing implemented May 2023).</p> <ul style="list-style-type: none"> <li>• Installed Accessible Pedestrian Signal systems, Countdown Pedestrian Signals, and upgraded crosswalks to Continental ladder style along 13 intersections on ECR from Whipple Avenue to Oakwood Drive/Dumbarton Avenue within the City of Redwood City.</li> <li>• ECR and James Avenue Traffic Signal Analysis study is proposed to identify potential traffic signal safety improvements (funding needed to continue).</li> </ul>

## KEY TAKEWAYS

The plans and programs outlined in this section detail projects along ECR that are intended to improve the surrounding transportation network. By examining where projects have been implemented or proposed, this study will integrate and build on the momentum from a wealth of data and prior efforts for the corridor. More information on specific elements of the corridor can be found in Section 5.

### 3. DEMOGRAPHICS AND DISADVANTAGED COMMUNITIES

This section is split into two portions. The first portion analyzes data from the United States (U.S.) Census Bureau to characterize the demographics of the study area. The second portion focuses on locations of disadvantaged communities within the study area.

#### **DEMOGRAPHICS<sup>1</sup>**

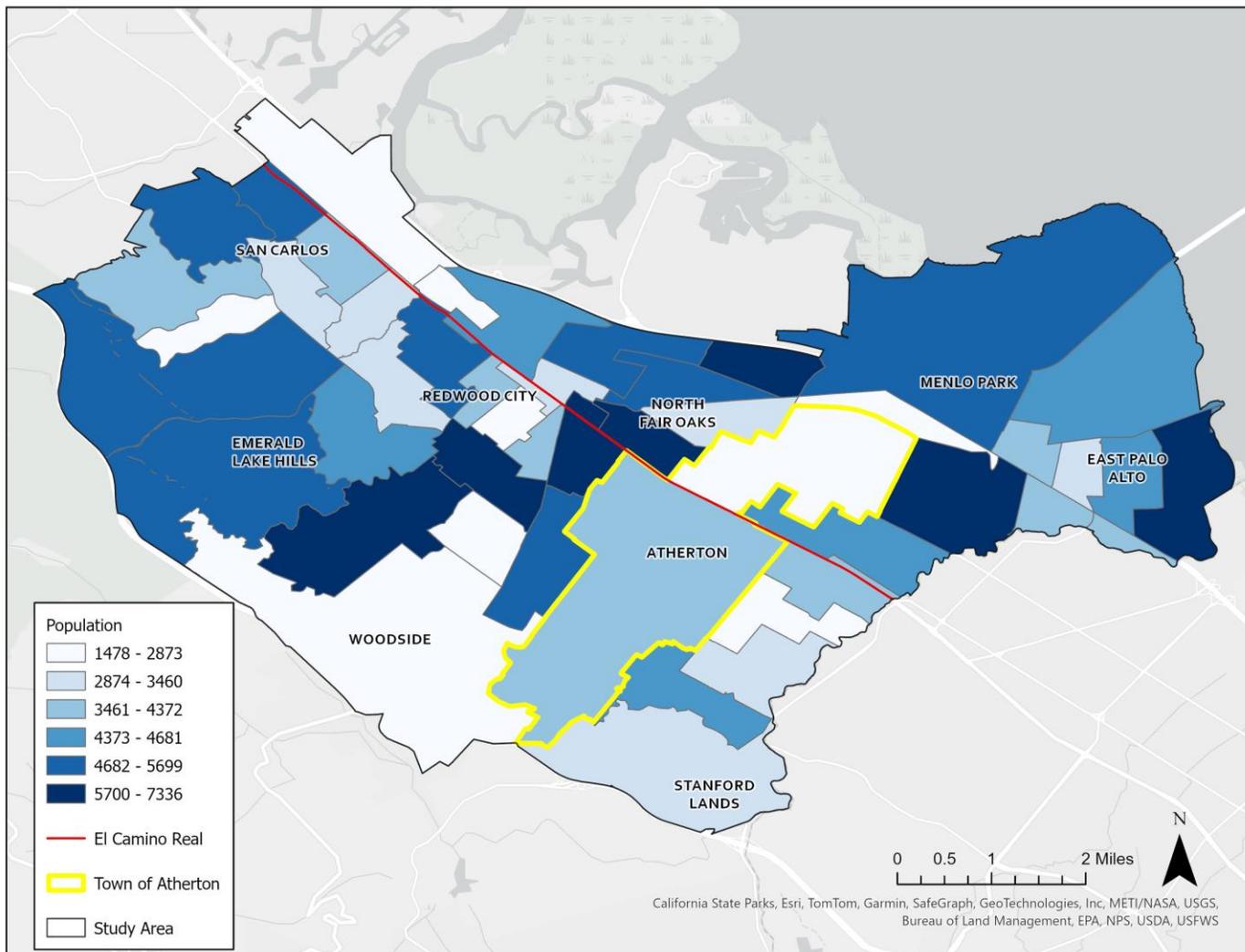
##### AGE, RACE, AND POPULATION

According to the U.S. Census Bureau's 2022 American Community Survey (ACS) five-year estimates, the study area's population includes 232,677 residents. Comparatively, the 2019 population of the study area was 204,677, indicating an increase of 13.68% over that time. As of 2022, the majority of the population lives in Redwood City, East Palo Alto, and Menlo Park, as shown in Figure 2.

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<sup>1</sup> Source: "Explore Census Data", U.S. Census Bureau, 2024, <https://data.census.gov/>.

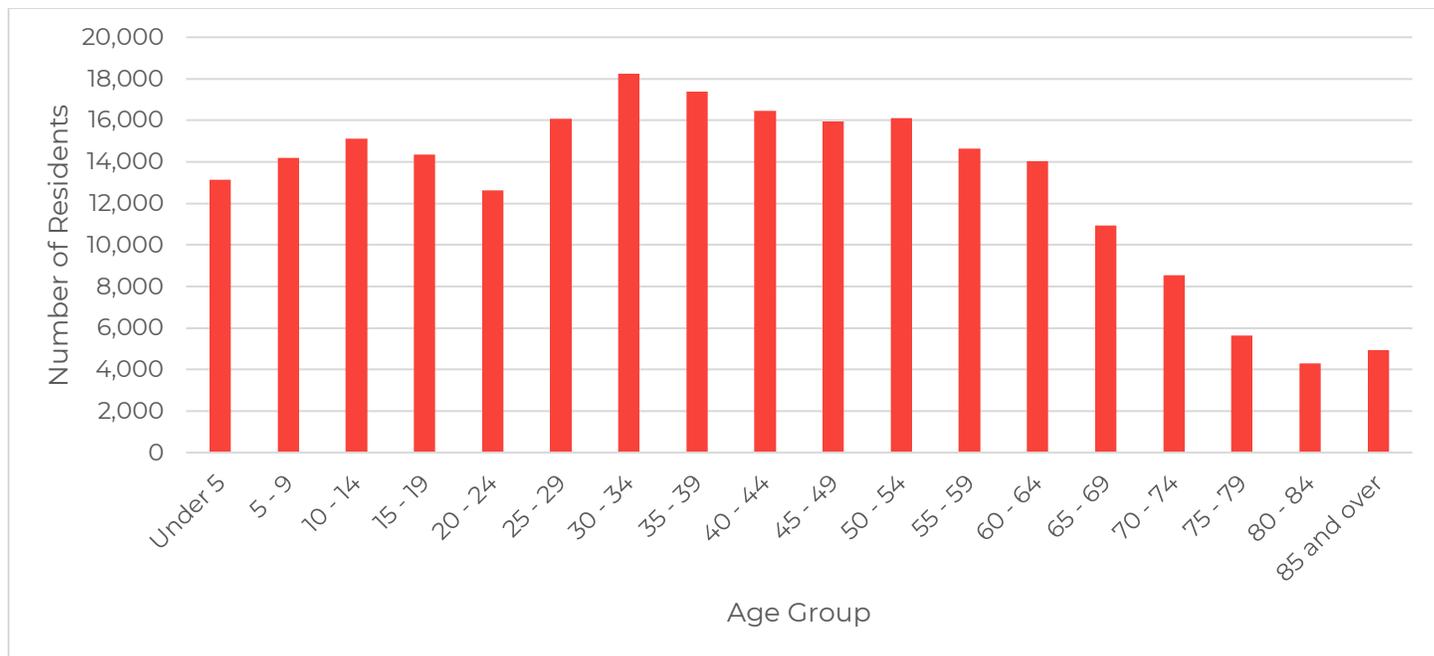
Figure 2: Population of Study Area



Source: U.S. Census Bureau, 2024.

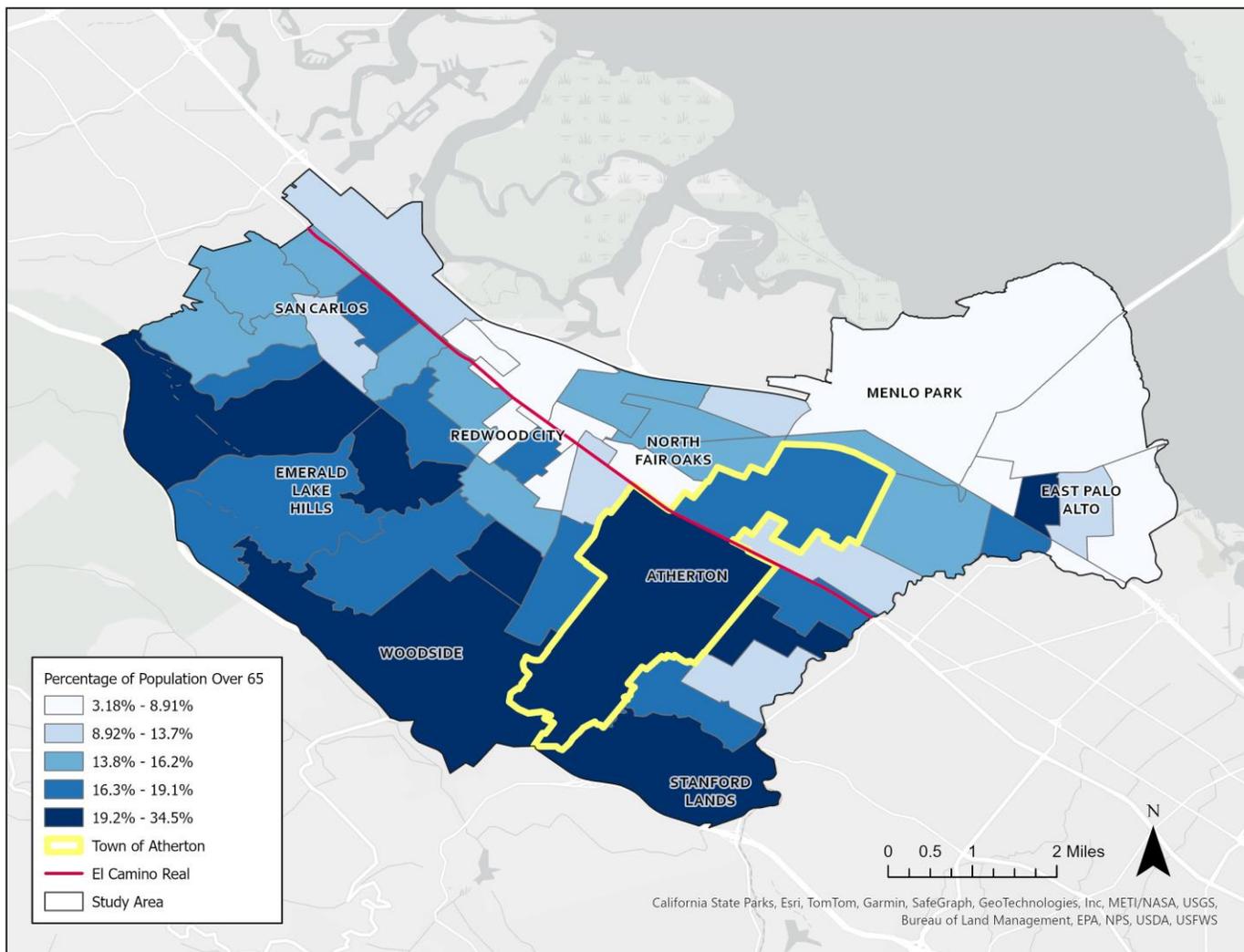
The average median age of the study area is 40 years old with eight percent of the population comprised of seniors (residents over the age of 65) and ten percent comprised of youths (residents between the ages of five and 19). Figure 3, Figure 4, and Figure 5 displays the age range of the study area and locations of senior and youth populations. Most of the senior population lives west of ECR and the youth population varies by city. There is a higher youth population in Atherton, East Palo Alto, Redwood City, and San Carlos.

Figure 3: Age of Study Area



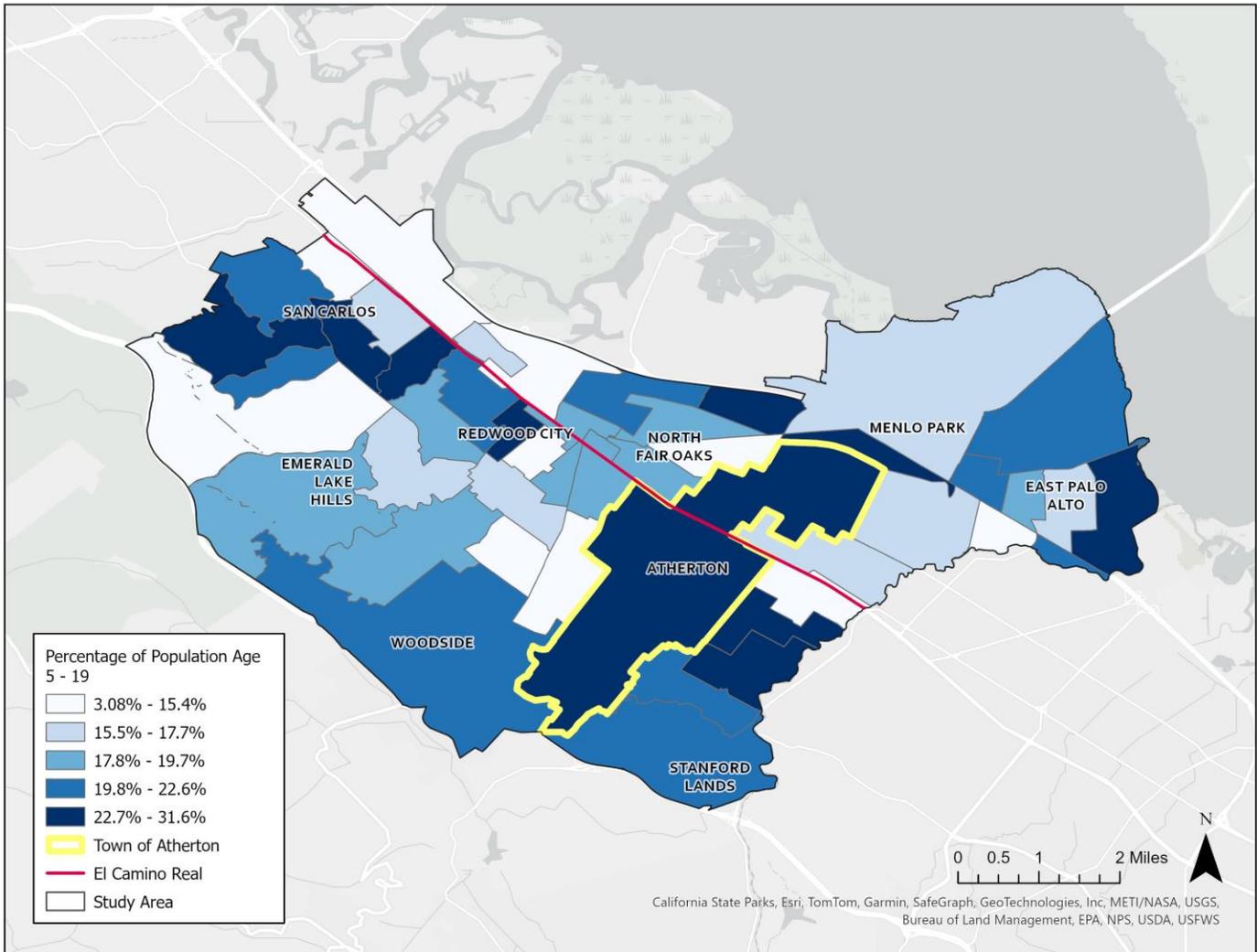
Source: U.S. Census Bureau, 2024.

Figure 4: Percentage of Population Over Age of 65



Source: U.S. Census Bureau, 2024.

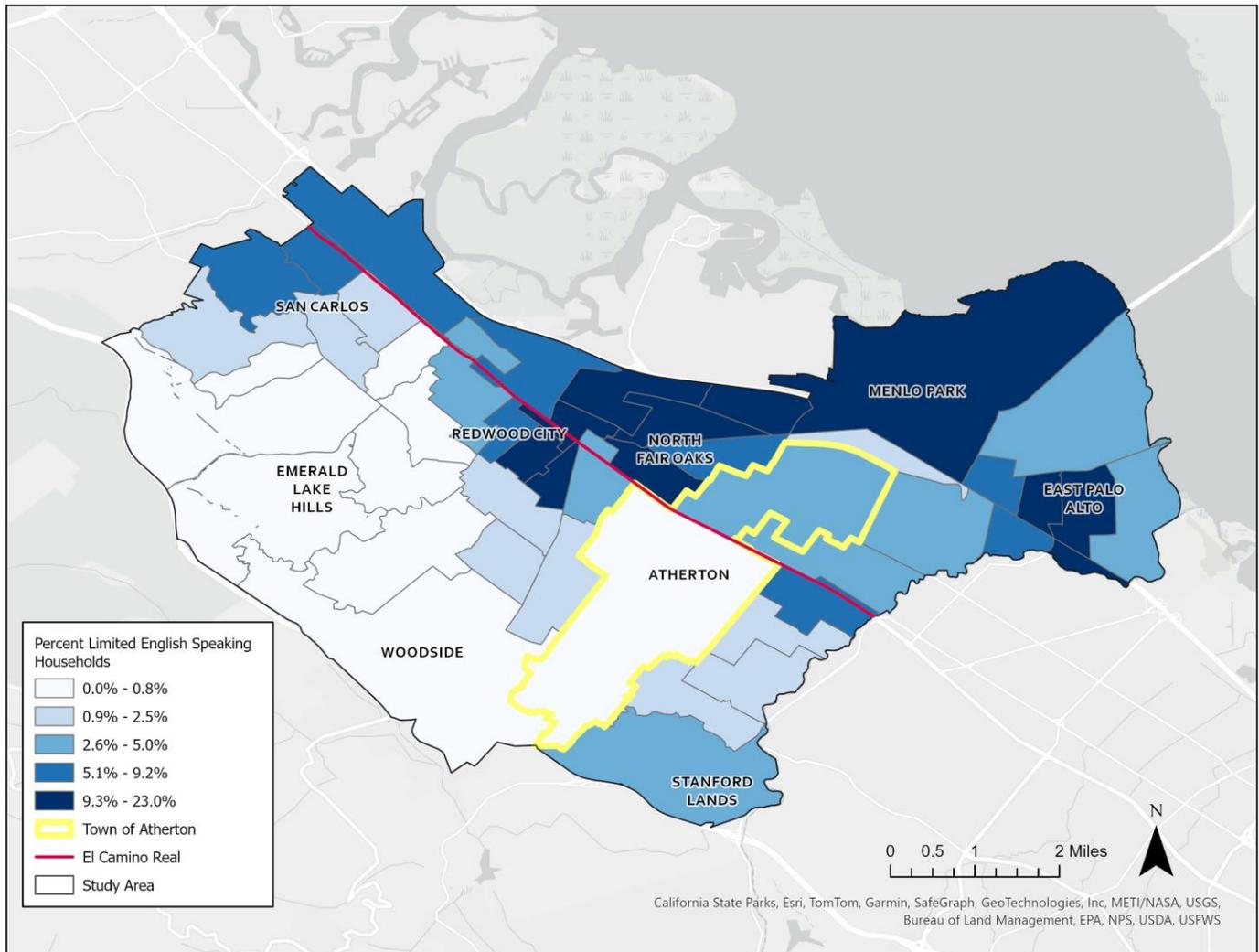
Figure 5: Percentage of Population Age 5 to 19



Source: U.S. Census Bureau, 2024.

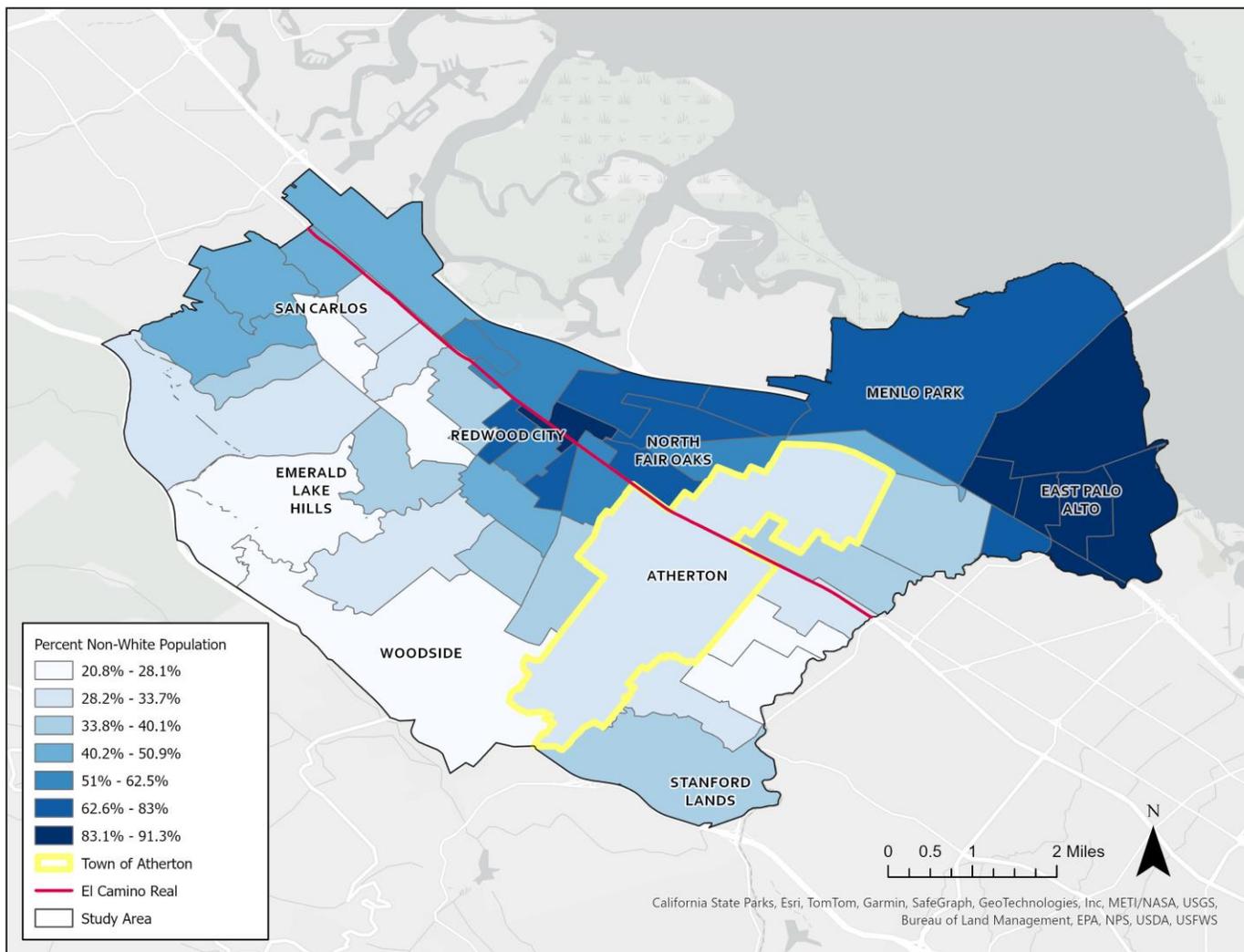
Within the study area, 34% of households are limited English-speaking. As shown in Figure 6, a higher percentage of these households are along and east of ECR. As shown in Figure 7, more people of color live in cities and towns east of ECR, including East Palo Alto, Menlo Park, and Redwood City. These neighborhoods also have a higher percentage of people who do not have a college degree, as shown in Figure 8. The percentage of residents with a disability varies across the study area. As shown in Figure 9, there are higher percentages of these residents along ECR and in the western neighborhoods of the study area where there are more seniors, and in East Palo Alto and Menlo Park and East Palo Alto.

Figure 6: Limited English-Speaking Homes



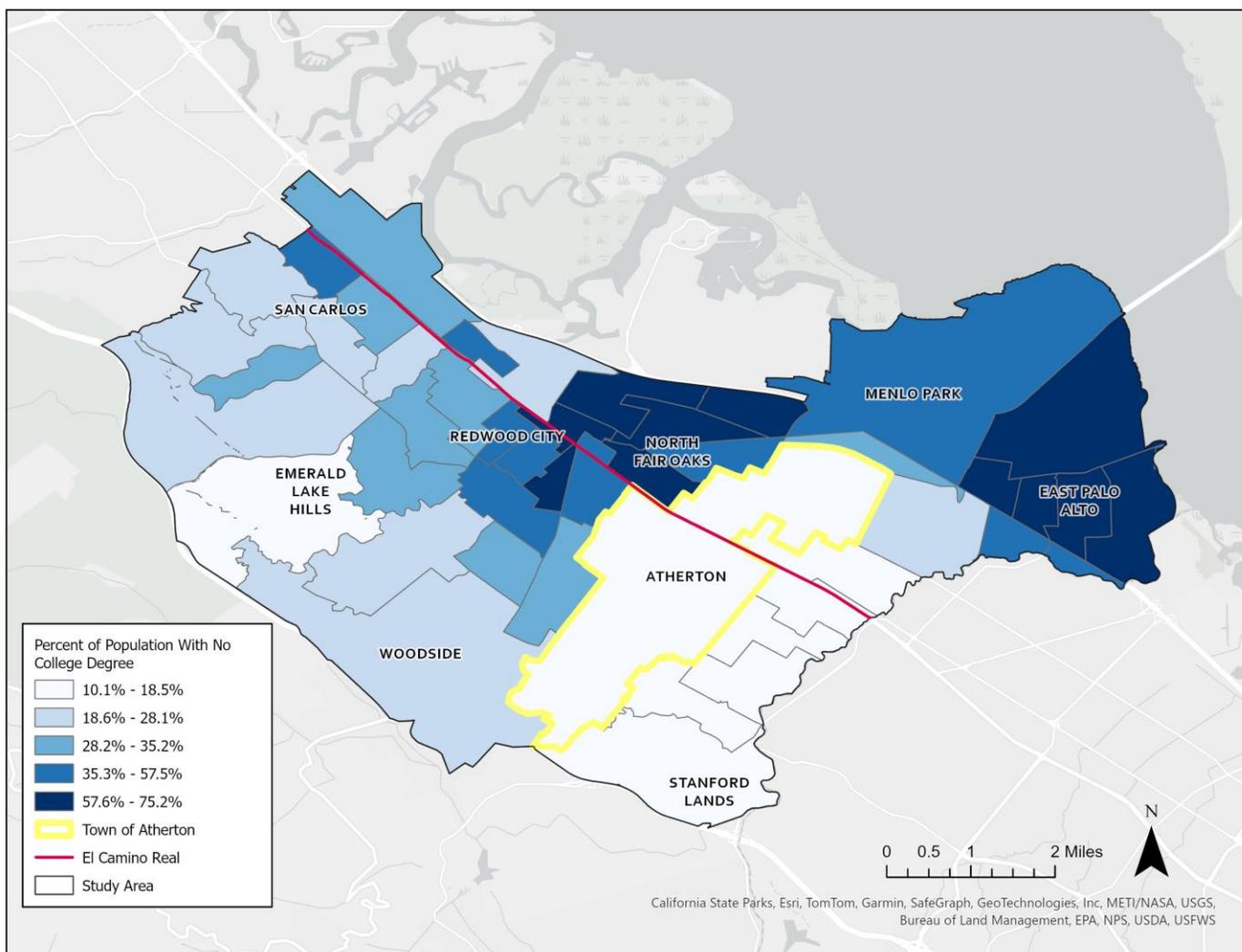
Source: U.S. Census Bureau, 2024.

Figure 7: Non-White Population Percentage



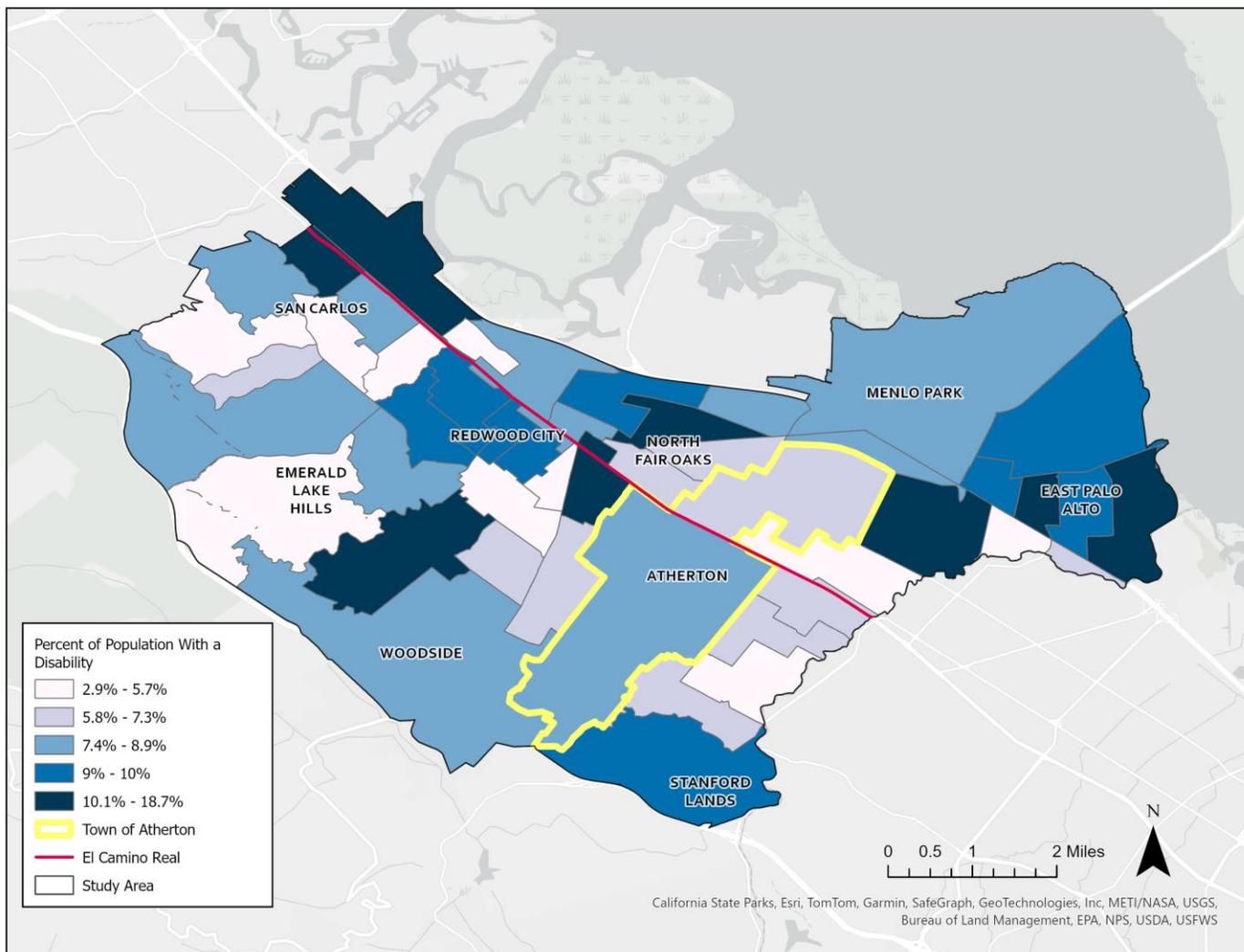
Source: U.S. Census Bureau, 2024.

Figure 8: Residents with No College Degree



Source: U.S. Census Bureau, 2024.

Figure 9: Residents with Disabilities



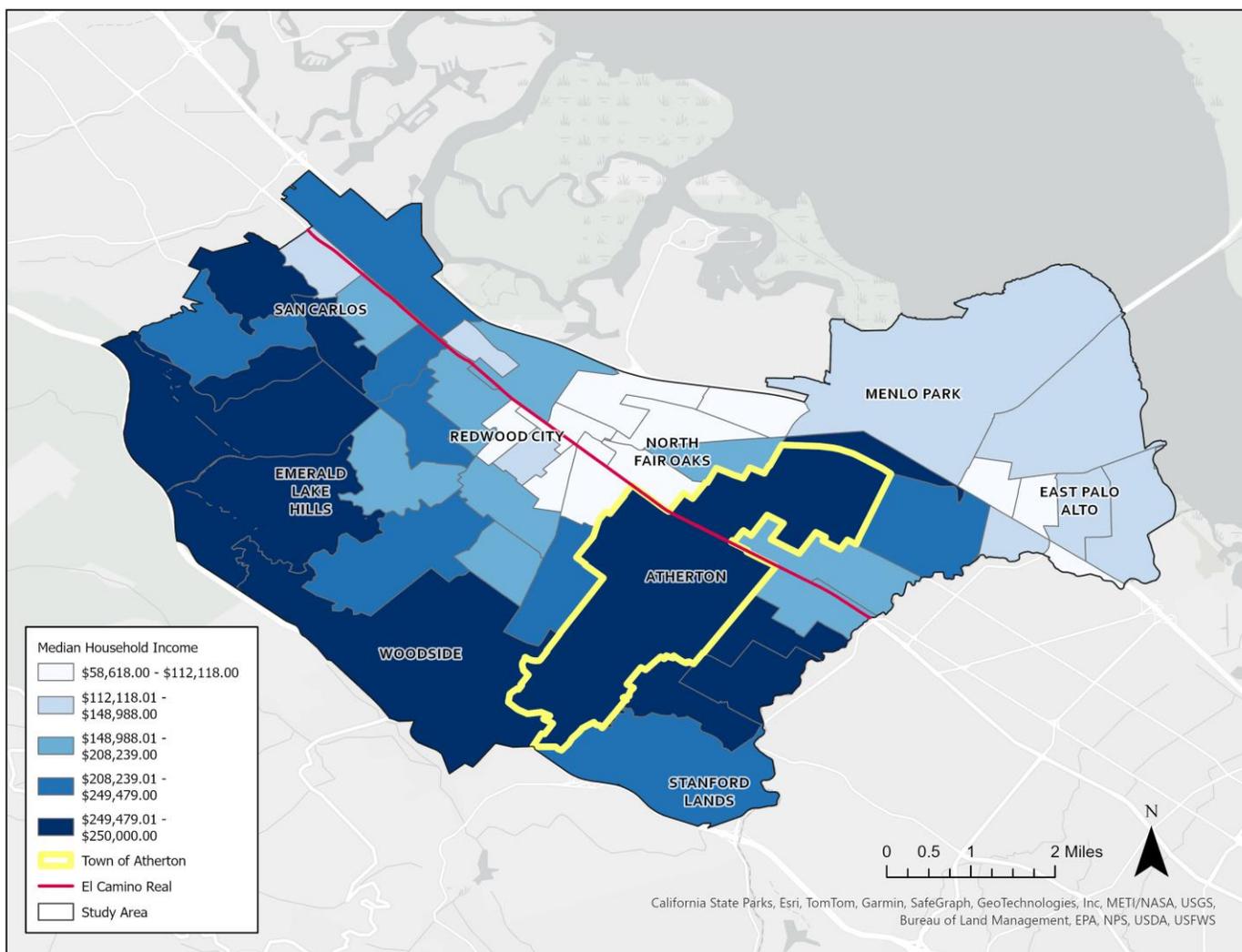
Source: U.S. Census Bureau, 2024.

## INCOME AND COMMUTE PATTERNS

The median household income of the study area is \$176,012.09, with higher income households in Atherton and the western region of the study area, as shown in Figure 10. East Palo Alto and North Fair Oaks are the neighborhoods with the highest percentages of families living below poverty, as shown in Figure 11.

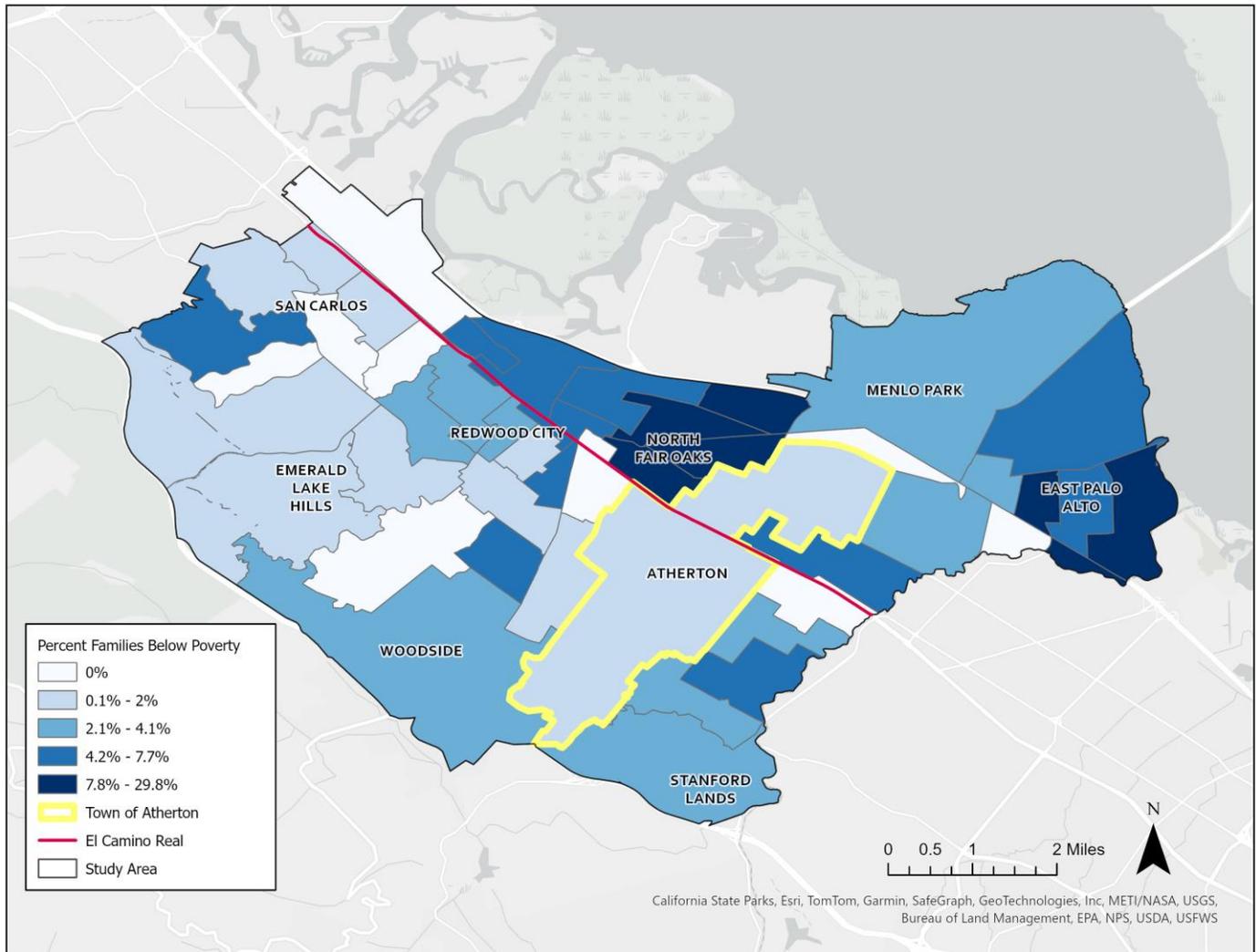
There is a higher percentage of people in the service industry in Redwood City along ECR, in North Fair Oaks, the eastern area of Menlo Park, and in East Palo Alto, as shown in Figure 12. There is a higher percentage of households that do not have a vehicle along ECR, and in Menlo Park, North Fair Oaks, and Redwood City, as shown in Figure 13. Most service workers may not follow the standard Monday to Friday, 9:00 AM to 5:00 PM workday and may report to work on weekends and varying hours of the day. The southside of East Palo Alto, Menlo Park, and San Carlos have longer commutes, as shown in Figure 14. As shown in Table 3, over half the study area population drives alone to work, with the next highest percentage being people working from home.

*Figure 10: Median Household Income*



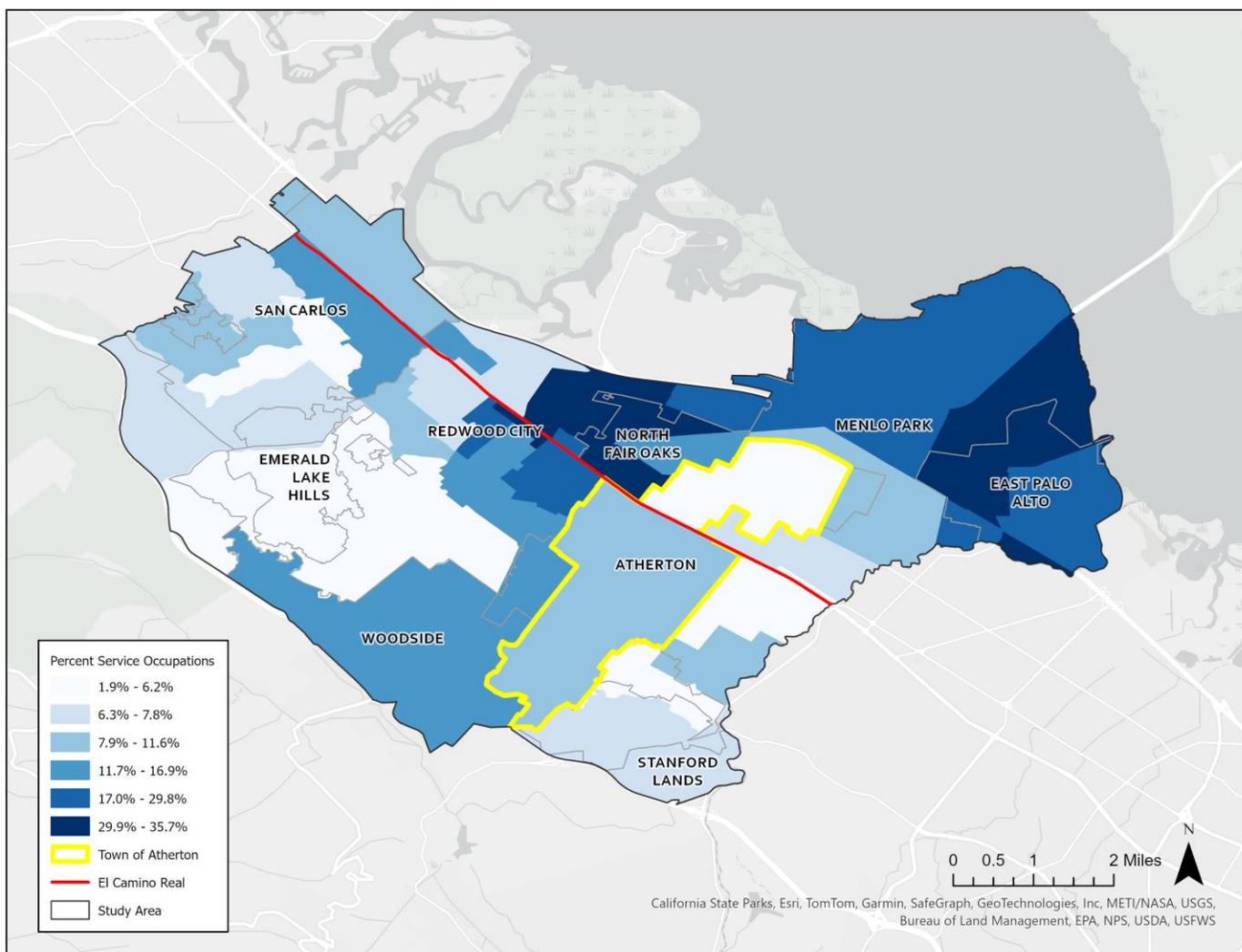
Source: U.S. Census Bureau, 2024.

Figure 11: Families Below the Poverty Line



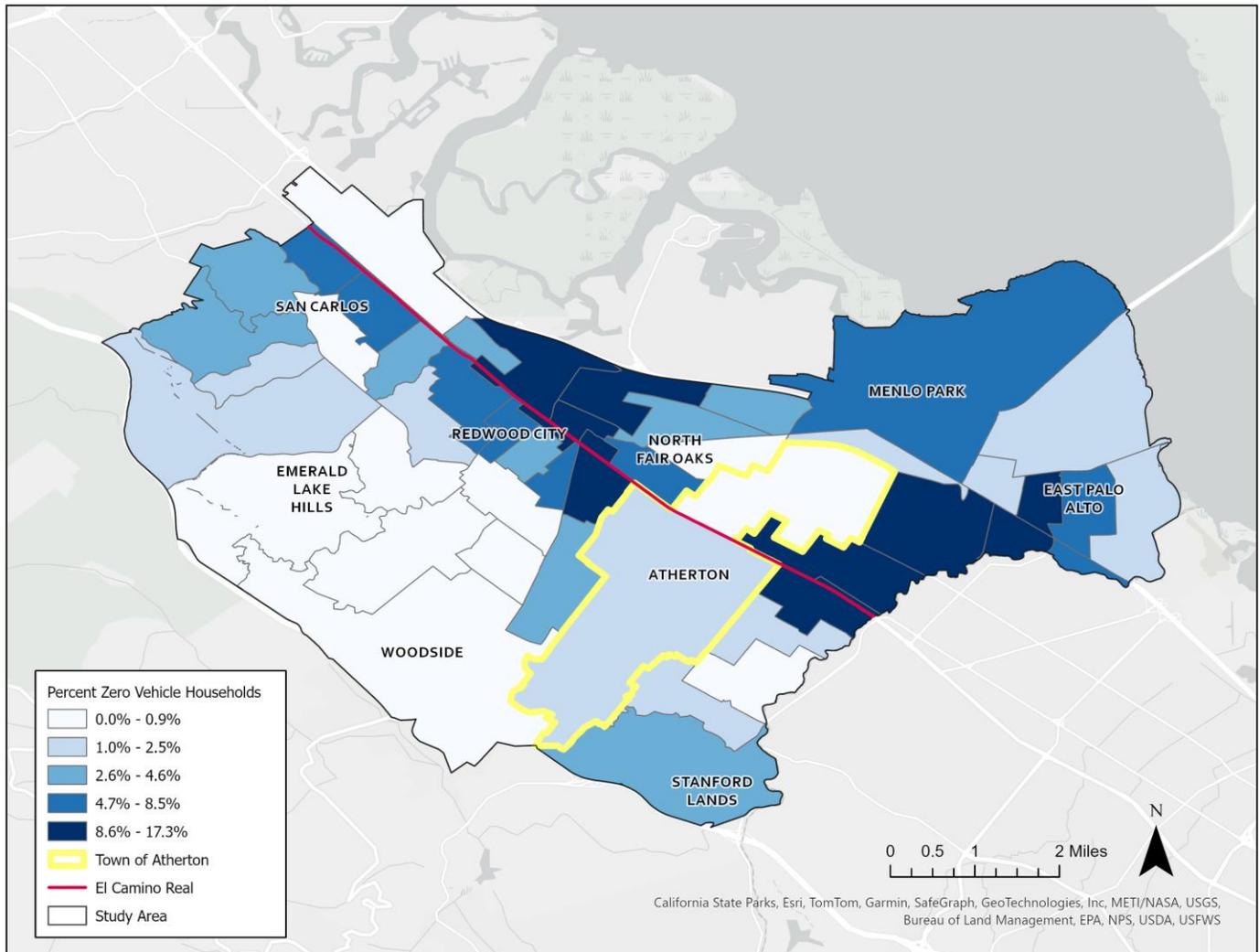
Source: U.S. Census Bureau, 2024.

Figure 12: Percent Service Occupations



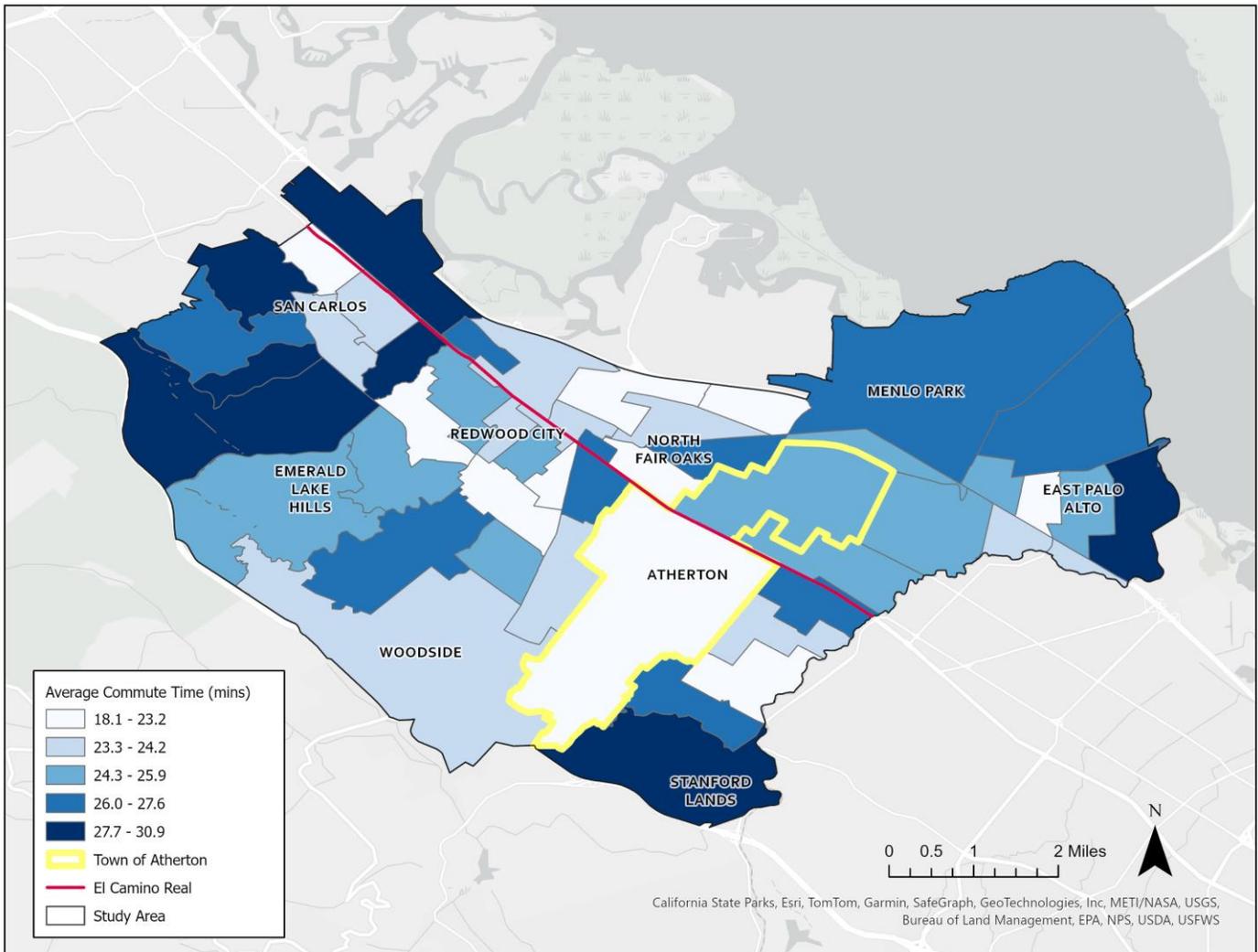
Source: U.S. Census Bureau, 2024.

Figure 13: Zero-Vehicle Households



Source: U.S. Census Bureau, 2024.

Figure 14: Average Commute Time



Source: U.S. Census Bureau, 2024.

Table 3: Commute Mode Split

Drove Alone	Carpool	Public Transport	Walked	Biked	Taxicab	Work from Home
58.20%	7.43%	3.46%	2.33%	2.66%	1.90%	24.01%

Source: U.S. Census Bureau, 2024.

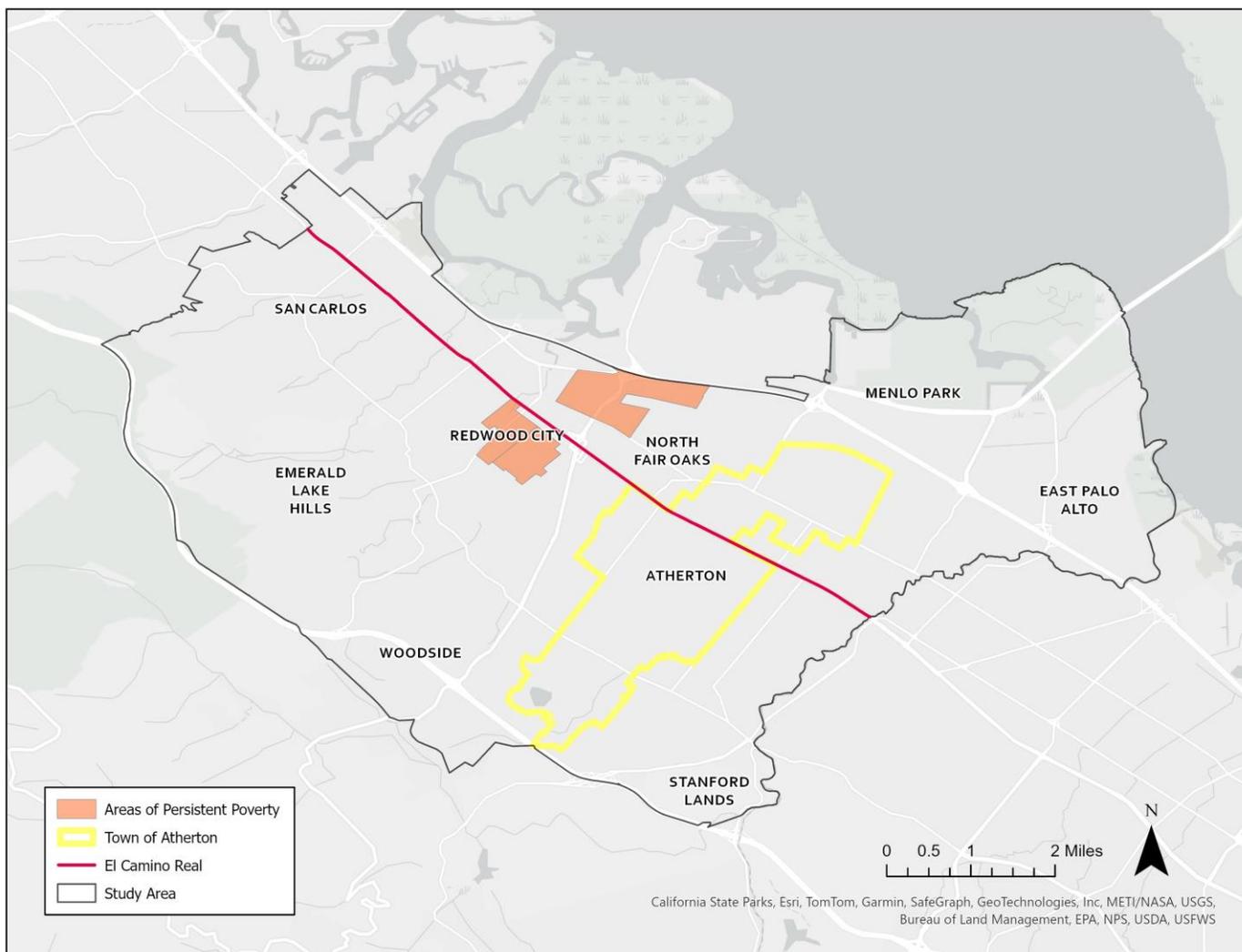
## EQUITY

The following section shows the locations of various disadvantaged communities within the study area.

### AREAS OF PERSISTENT POVERTY AND HISTORICALLY DISADVANTAGED COMMUNITIES<sup>2</sup>

Areas of Persistent Poverty are defined by the U.S. Department of Transportation (USDOT) as census tracts that has a poverty rate of at least 20% as measured by the 2014 to 2018 ACS five-year estimates. These census tracts are in Redwood City and North Fair Oaks, as shown in Figure 15.

Figure 15: Areas of Persistent Poverty

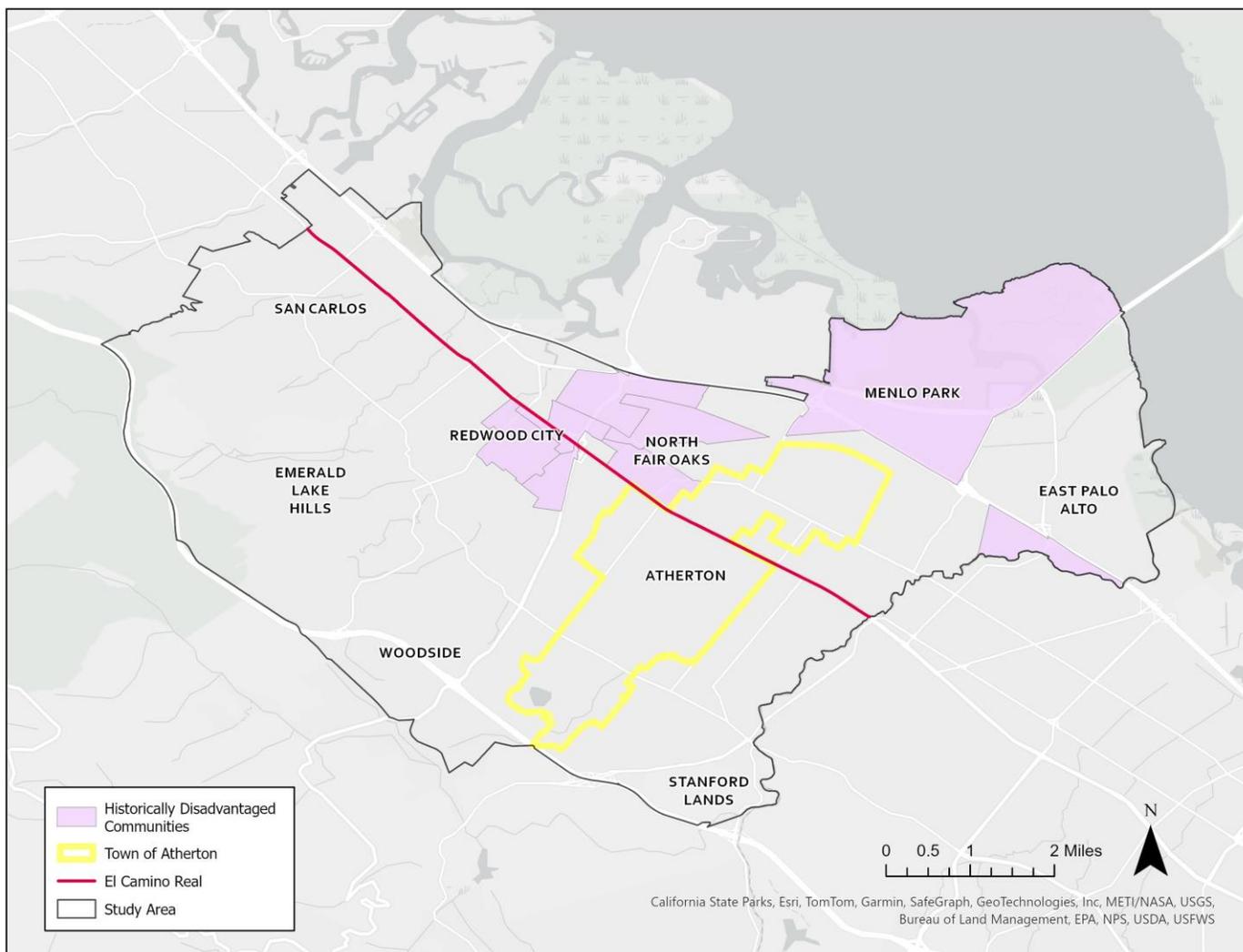


Source: USDOT, 2023.

<sup>2</sup> Source: “Areas of Persistent Poverty & Historically Disadvantage Communities”, USDOT, 2023, <https://www.transportation.gov/RAISEgrants/raise-app-hdc>.

Similarly, Historically Disadvantaged Communities include census tracts that are identified as disadvantaged in the Climate & Economic Justice Screening Tool created by the Council on Environmental Quality. These census tracts are located in East Palo Alto, Menlo Park, North Fair Oaks, and Redwood City, as shown in Figure 16.

*Figure 16: Historically Disadvantaged Communities*

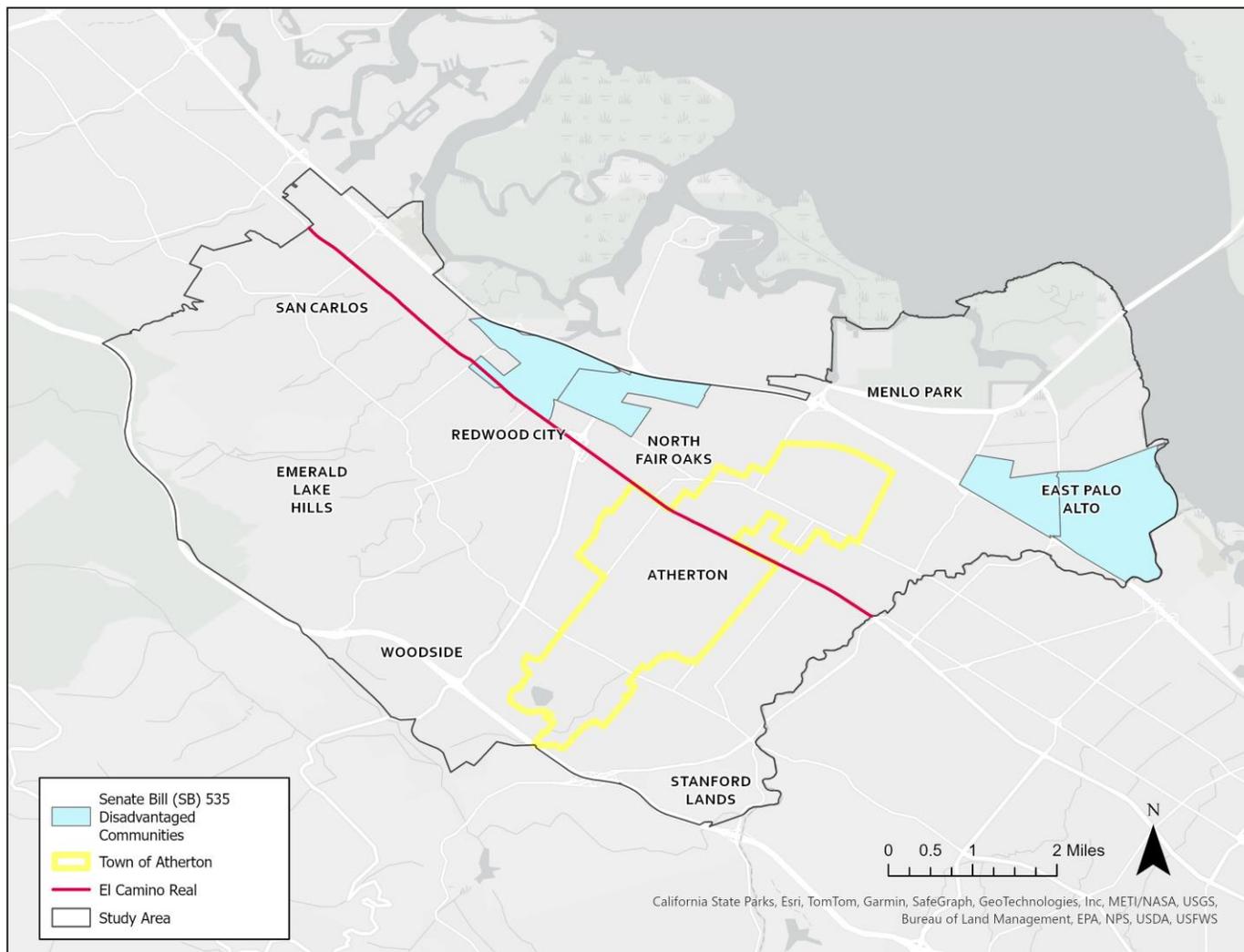


Source: USDOT, 2023.

## SENATE BILL (SB) 535 DISADVANTAGED COMMUNITIES<sup>3</sup>

In 2012, SB 535 was passed to set up minimum funding levels to disadvantaged communities. Many of the census tracts selected were those that received the highest 25% of overall scores from the CalEnviroScreen 4.0 tool, which identifies communities burdened by high levels of pollution. These disadvantaged communities are located in East Palo Alto and North Fair Oaks, as shown in Figure 17.

*Figure 17: SB 535 Disadvantaged Communities*



Source: California Office of Environmental Health Hazard Association (OEHHA), 2022.

<sup>3</sup> Source: "SB 535 Disadvantaged Communities", OEHHA, 2022, <https://oehha.ca.gov/calenviroscreen/sb535>.

## MTC EQUITY PRIORITY COMMUNITIES<sup>4</sup>

MTC identifies Equity Priority Communities based off the following eight demographic variables:

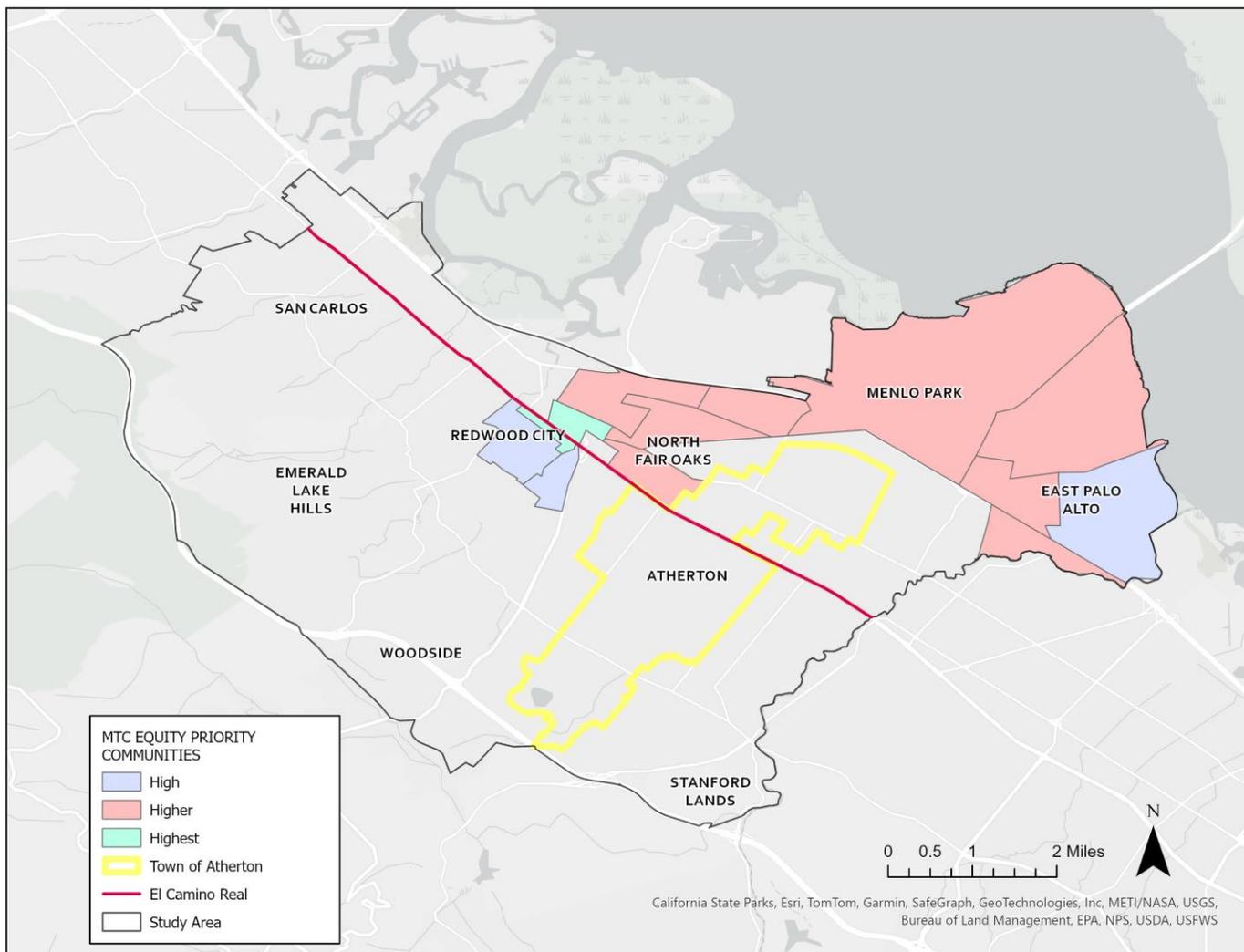
- People of Color (70% threshold)
- Low-Income (28% threshold)
- Limited English Proficiency (12% threshold)
- Seniors 75 Years and Over (eight percent threshold)
- Zero-Vehicle Households (15% threshold)
- Single Parent Families (18% threshold)
- People with a Disability (12% threshold)
- Rent-Burdened Households (14% threshold)

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 (number three to number eight in the list above), it is an Equity Priority Community. The census tracts along ECR, between North Fair Oaks and Redwood City, are considered Equity Priority Communities within the study area, with parts of East Palo Alto, Menlo Park, North Fair Oaks, and Redwood City also considered Equity Priority Communities, as shown in Figure 18.

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<sup>4</sup> Source: "Equity Priority Communities", MTC, 2024, <https://mtc.ca.gov/planning/transportation/access-equity-mobility/equity-priority-communities>.

Figure 18: MTC Equity Priority Communities

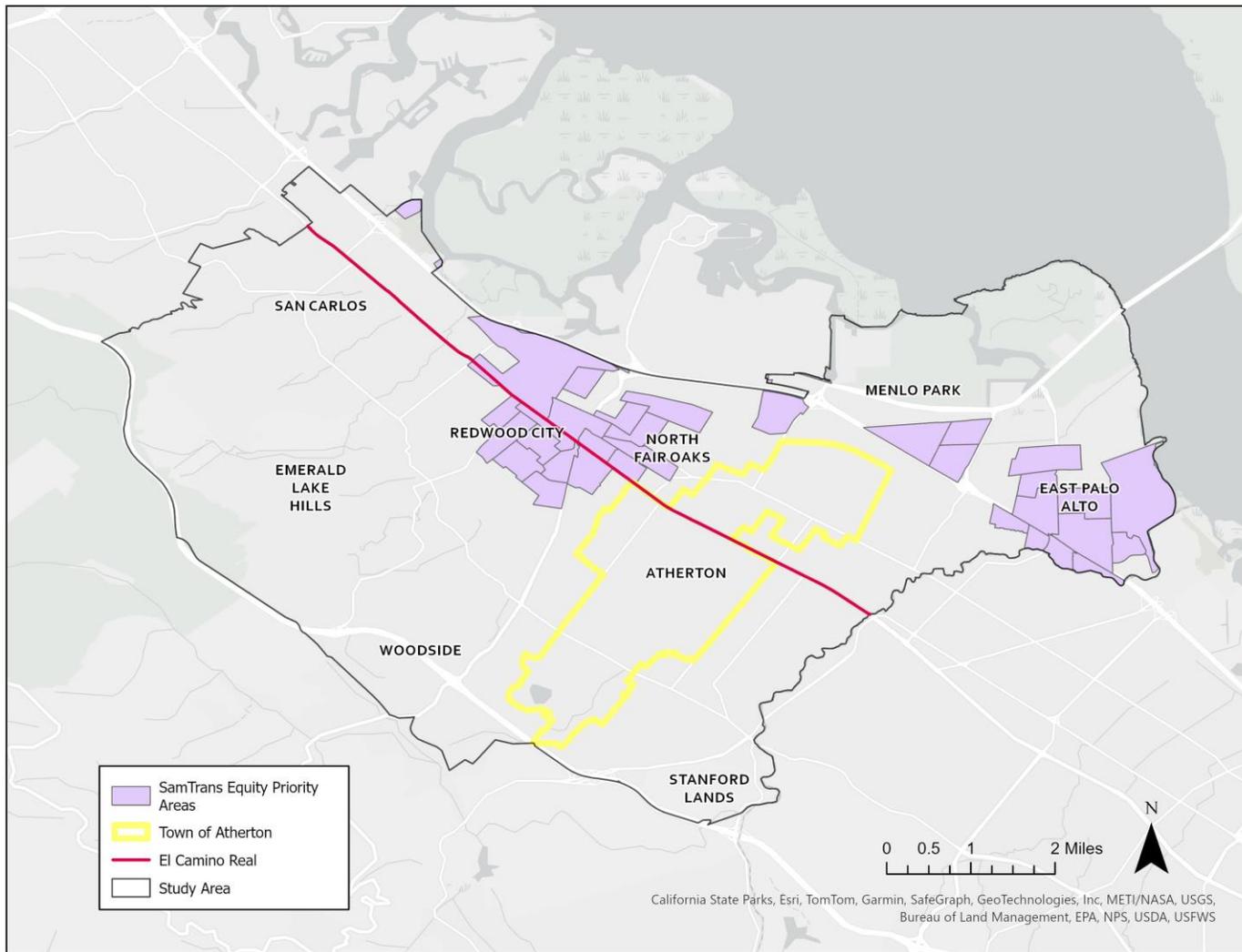


Source: MTC, 2024.

## SAMTRANS EQUITY PRIORITY AREAS<sup>5</sup>

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. These communities are located in East Palo Alto, North Fair Oaks, and Redwood City, as shown in Figure 19.

Figure 19: SamTrans Equity Priority Areas



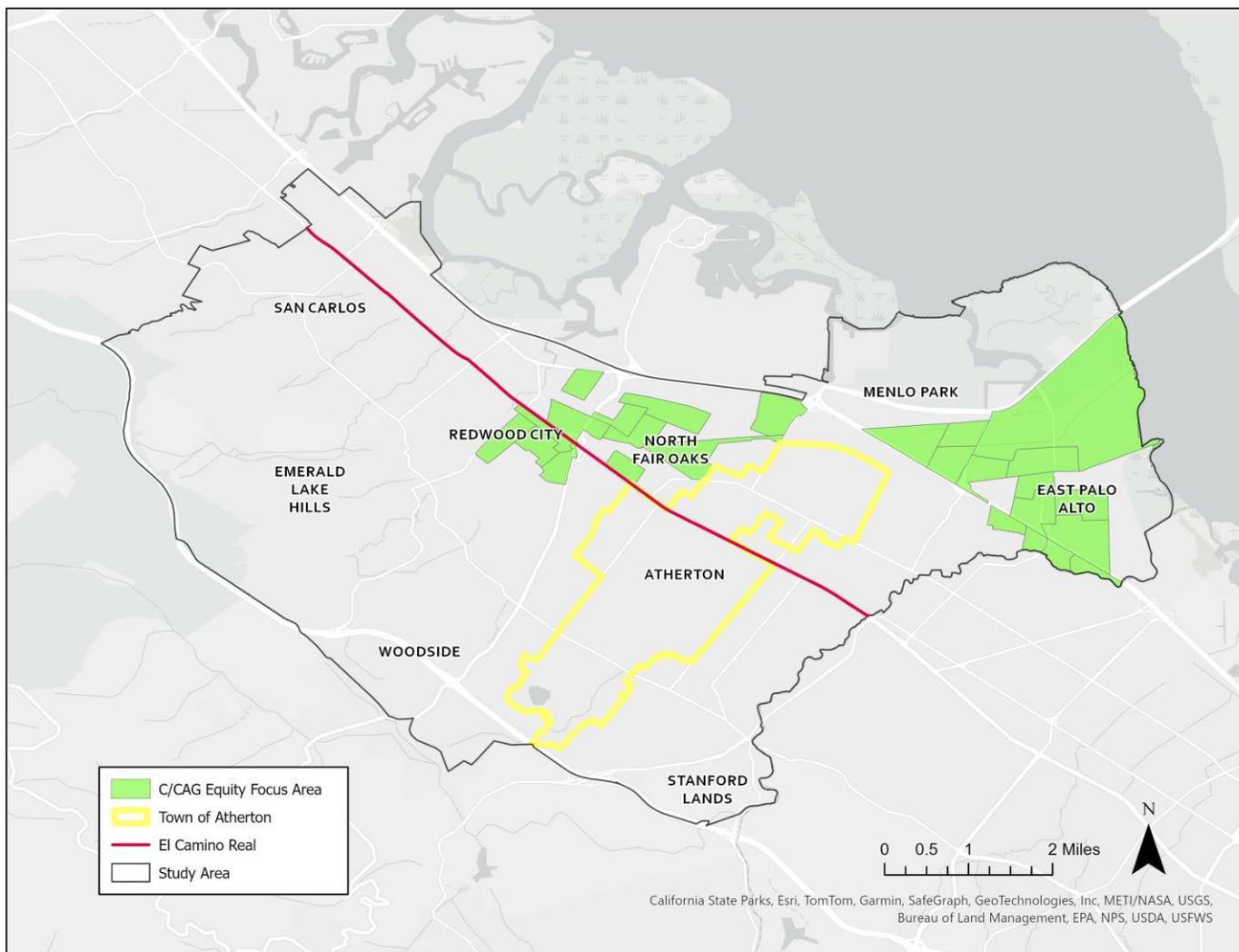
Source: SamTrans, 2022.

<sup>5</sup> Source: “ReImagine SamTrans Final Report”, SamTrans, 2022, <https://www.samtrans.com/media/19711/>.

## C/CAG EQUITY FOCUS AREAS<sup>6</sup>

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. Equity Focus Areas are located in East Palo Alto, North Fair Oaks, and Redwood City, as shown in Figure 20.

Figure 20: C/CAG Equity Focus Areas



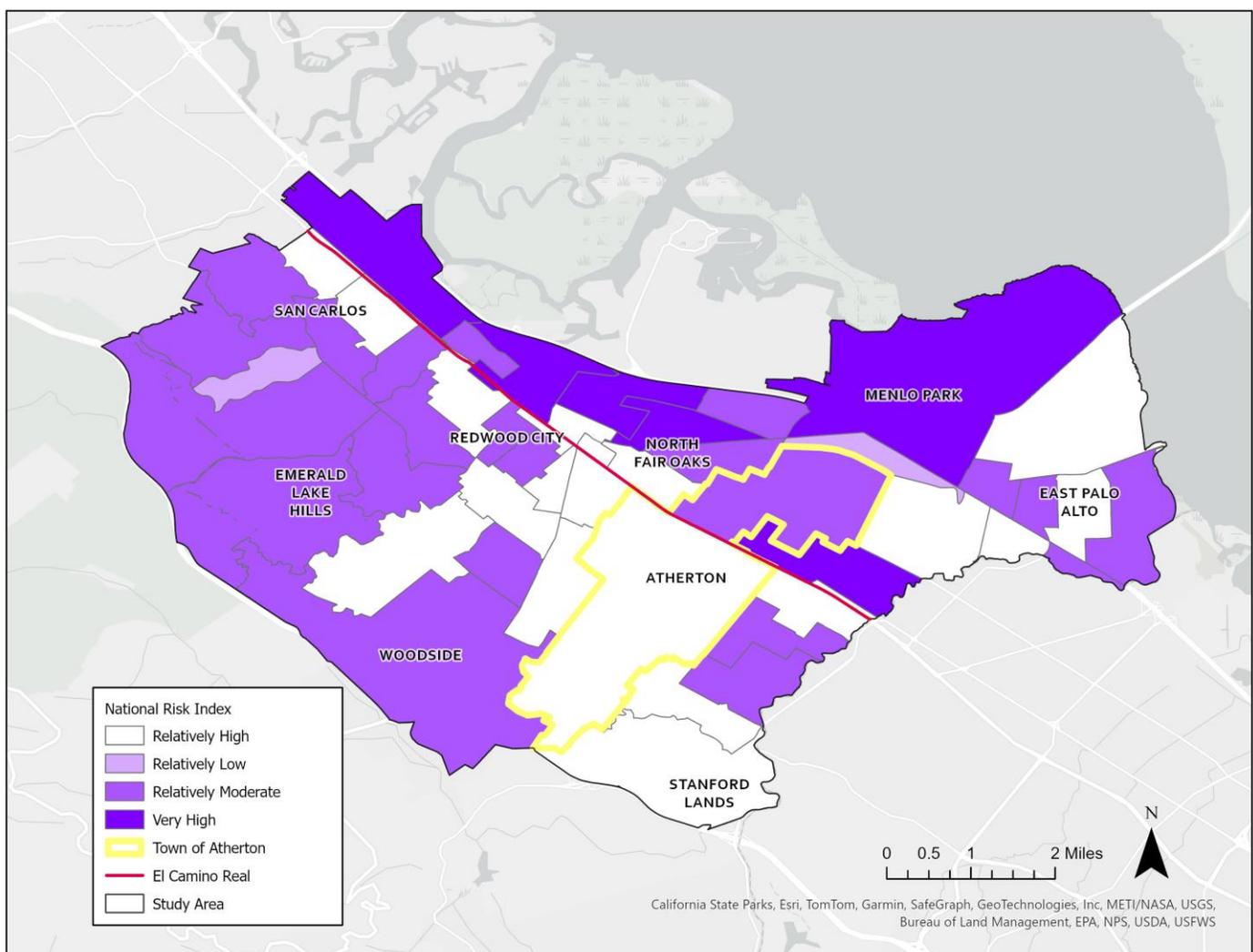
Source: C/CAG, 2023.

<sup>6</sup> Source: "C/CAG San Mateo County Equity Framework Report", C/CAG, 2023, <https://ccag.ca.gov/plansreportslibrary-2/equity-framework/>.

## FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) NATIONAL RISK INDEX<sup>7</sup>

FEMA built the National Risk Index to determine how communities are at risk from 18 natural hazards. Natural hazards that may affect San Mateo County include earthquakes, wildfire, weather (intense heat), coastal and river flooding, drought, and landslides. This framework allows communities to plan and develop mitigation efforts. Within the study area, Menlo Park, Redwood City, and San Carlos east of ECR fall within this risk index, as shown in Figure 21. According to the Town of Atherton’s Storm Drainage Master Plan, the town’s drainage system is only prepared for a 10-year storm event, and the study area could be prone to flooding.<sup>8</sup> These conditions will need to be reviewed prior to any redevelopment along ECR.

Figure 21: FEMA National Risk Index



Source: FEMA, 2024.

<sup>7</sup> Source: “The National Risk Index”, FEMA, 2024, <https://hazards.fema.gov/nri/>.

<sup>8</sup> Source; “Town of Atherton Storm Drainage Master Plan”, Town of Atherton, 2014, [Slide 1 \(atherton.ca.us\)](https://www.atherton.ca.us)

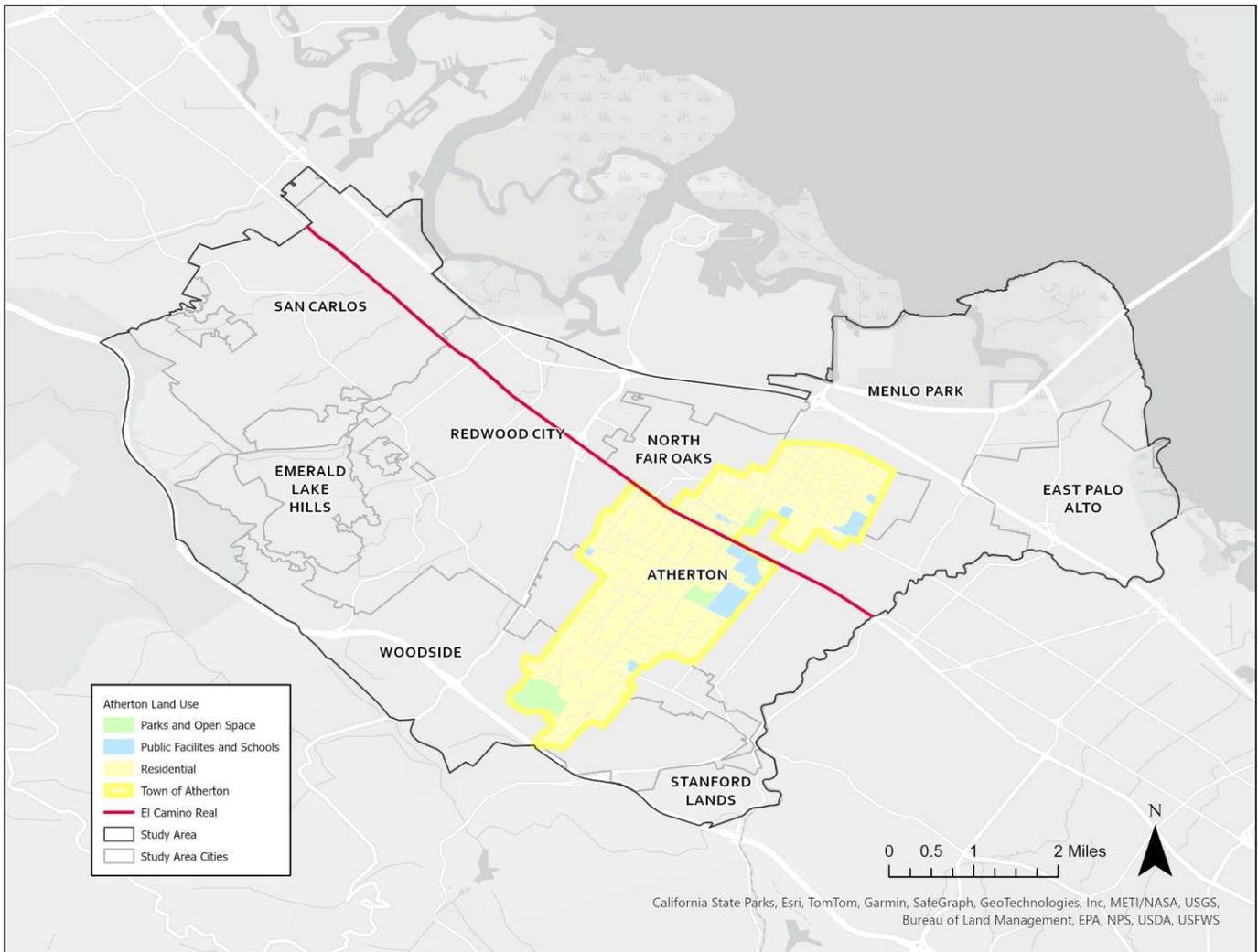
## **KEY TAKEWAYS**

Within the study area, underserved populations are located roughly along ECR and to the east into East Palo Alto and North Fair Oaks. These communities also have higher percentages of zero-vehicle (transit dependent) households. There are also a number of service industry employees within the study area that may use the project corridor outside of traditional commute times. This data can inform future tasks by identifying locations where transportation infrastructure can be improved to better serve these communities.

## 4. LAND USE AND ZONING

The following sections summarize the land use and zoning conditions within the study area. Figure 22, Figure 23, Figure 24, Figure 25, and Figure 26 shows the existing land uses for the Town of Atherton, City of Redwood City, City of Menlo Park, City of East Alto, and unincorporated parts of San Mateo County. Land uses for San Carlos and Woodside are not shown as the data is not publicly available for download. The Town of Atherton consists primarily of low-density residential units. The City of Redwood City has varying levels of housing densities, with more mixed-use and commercial developments along ECR. East Palo Alto and the unincorporated areas of the county are also primarily comprised of low-density and single-family housing, with some commercial and mixed-use developments along ECR in North Fair Oaks and along University Avenue in East Palo Alto.

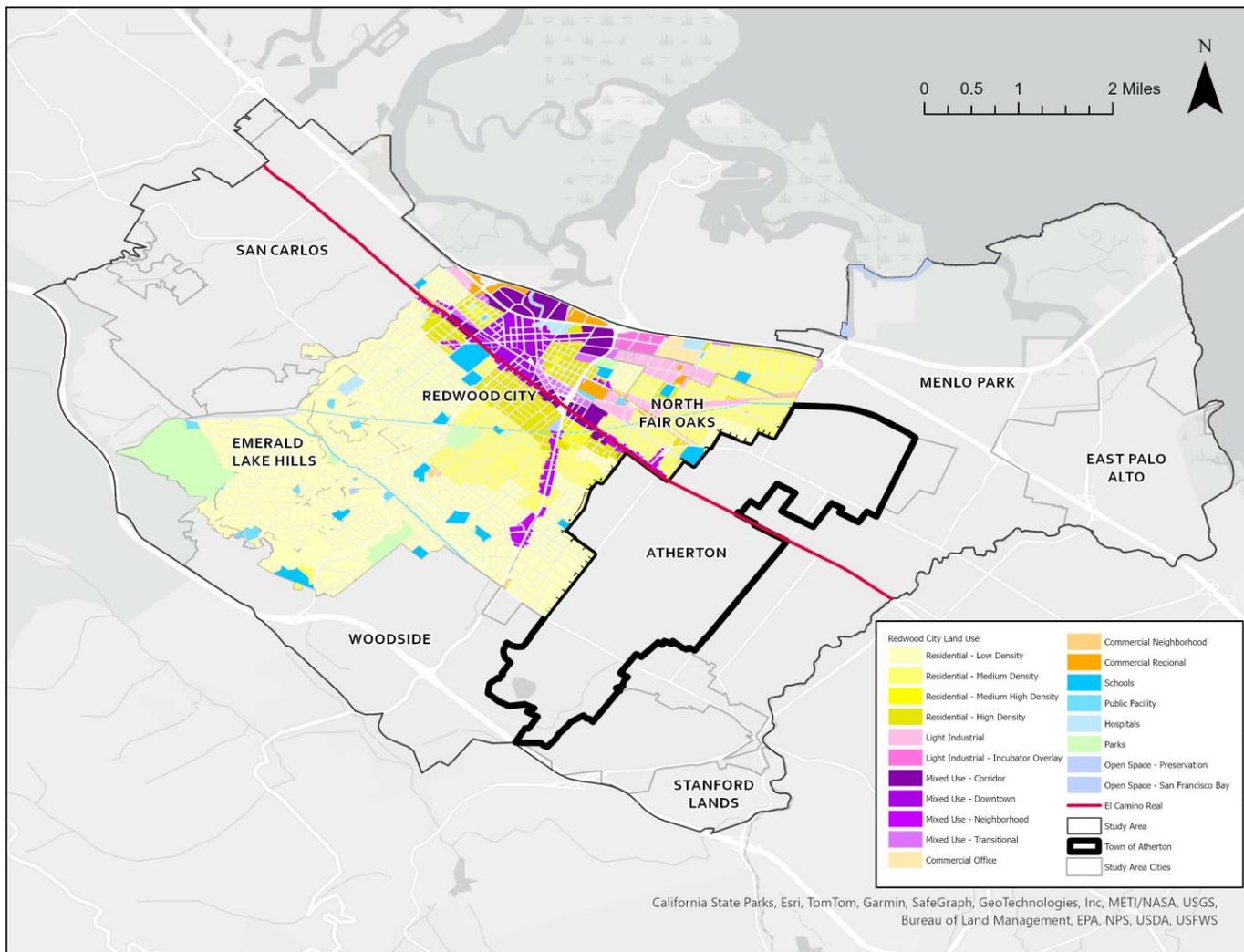
Figure 22: Town of Atherton Land Use<sup>9</sup>



Source: Town of Atherton, 2019.

<sup>9</sup> Source: "General Plan", Town of Atherton, 2019, <https://www.ci.atherton.ca.us/208/General-Plan>.

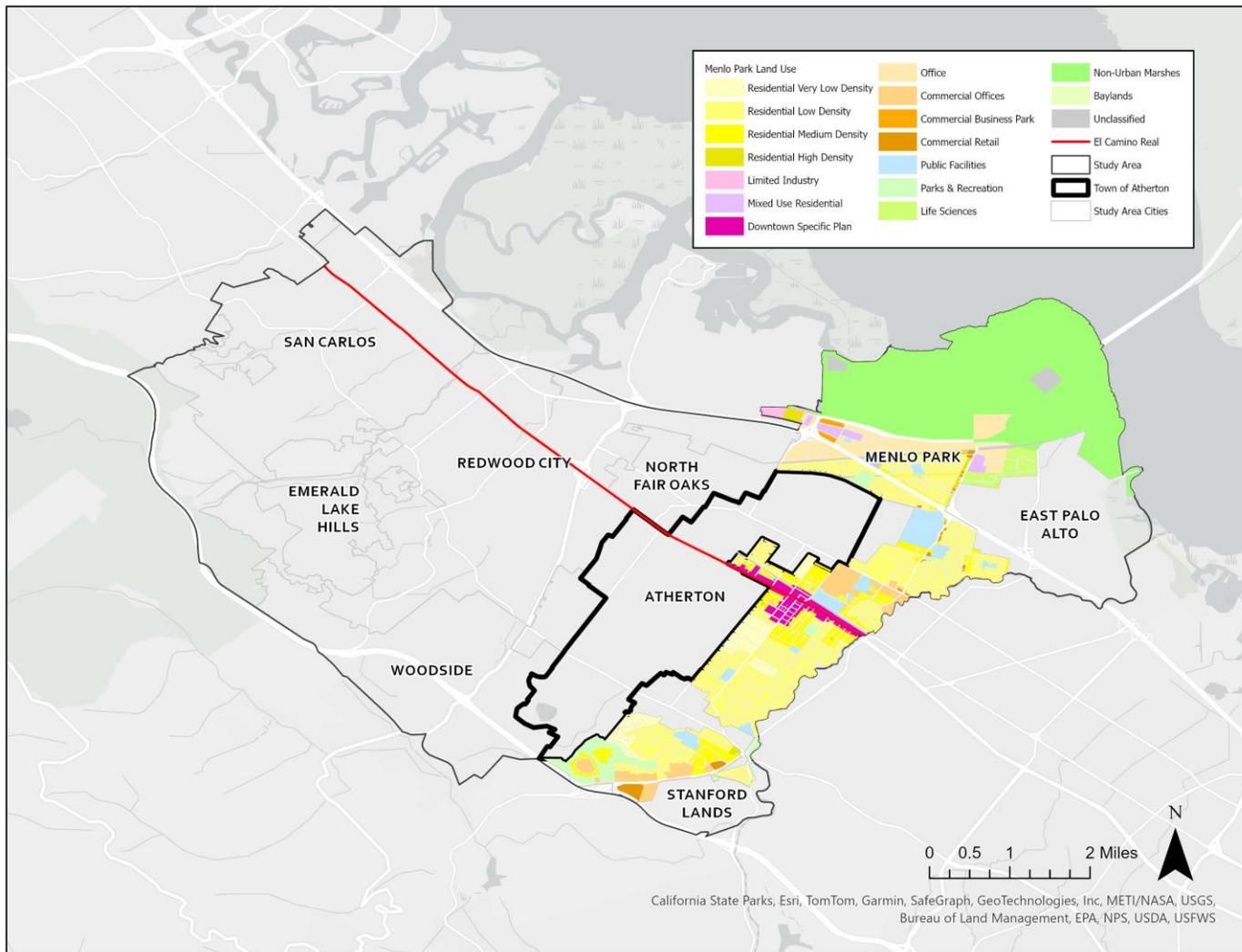
Figure 23: City of Redwood City Land Use<sup>10</sup>



Source: City of Redwood City, 2024.

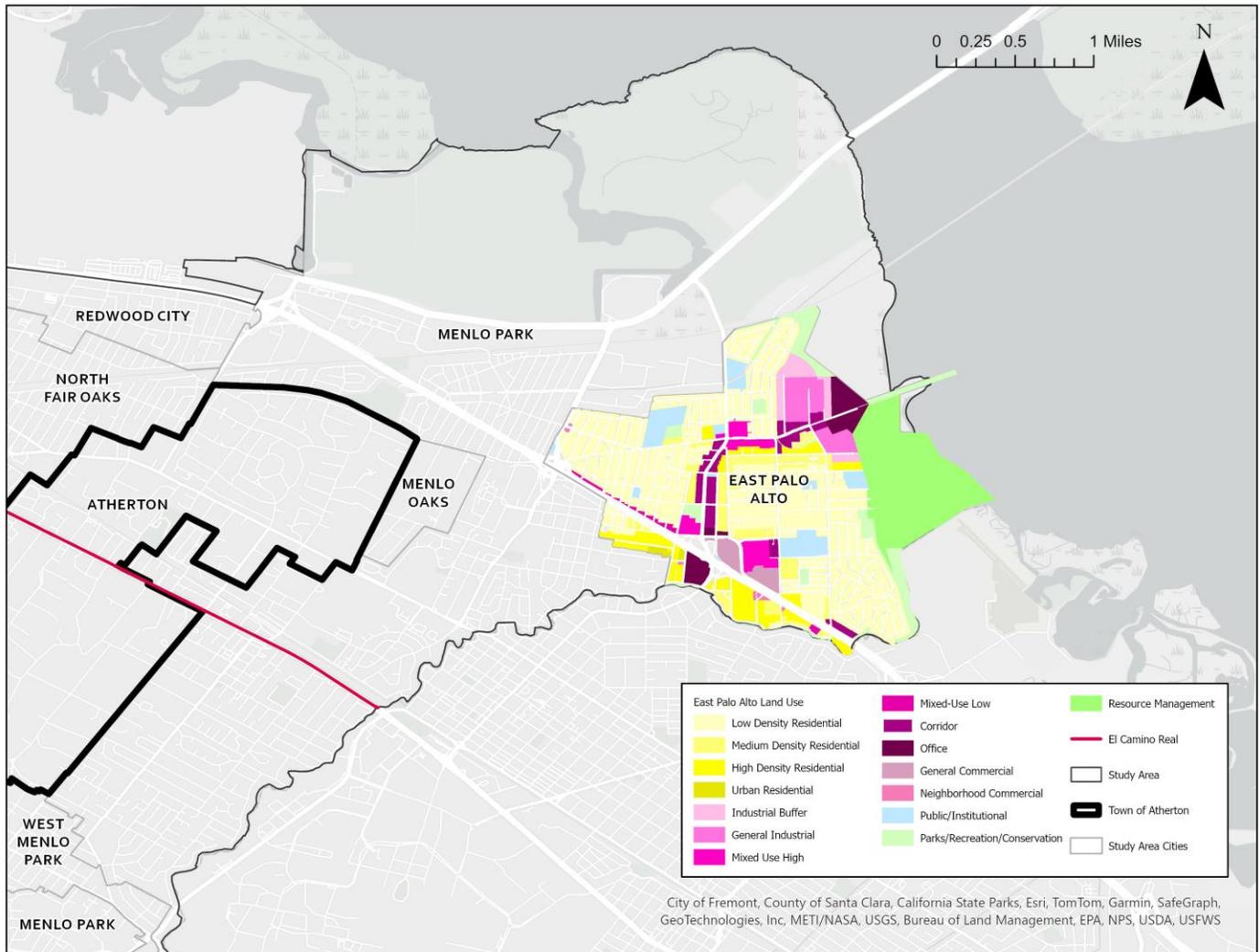
<sup>10</sup> Source: "Redwood City GIS Geographic Information System", City of Redwood City, 2024, <https://www.redwoodcity.org/departments/community-development-department/maps-gis-property-research>.

Figure 24: City of Menlo Park Land Use



Source: City of Menlo Park, 2024.

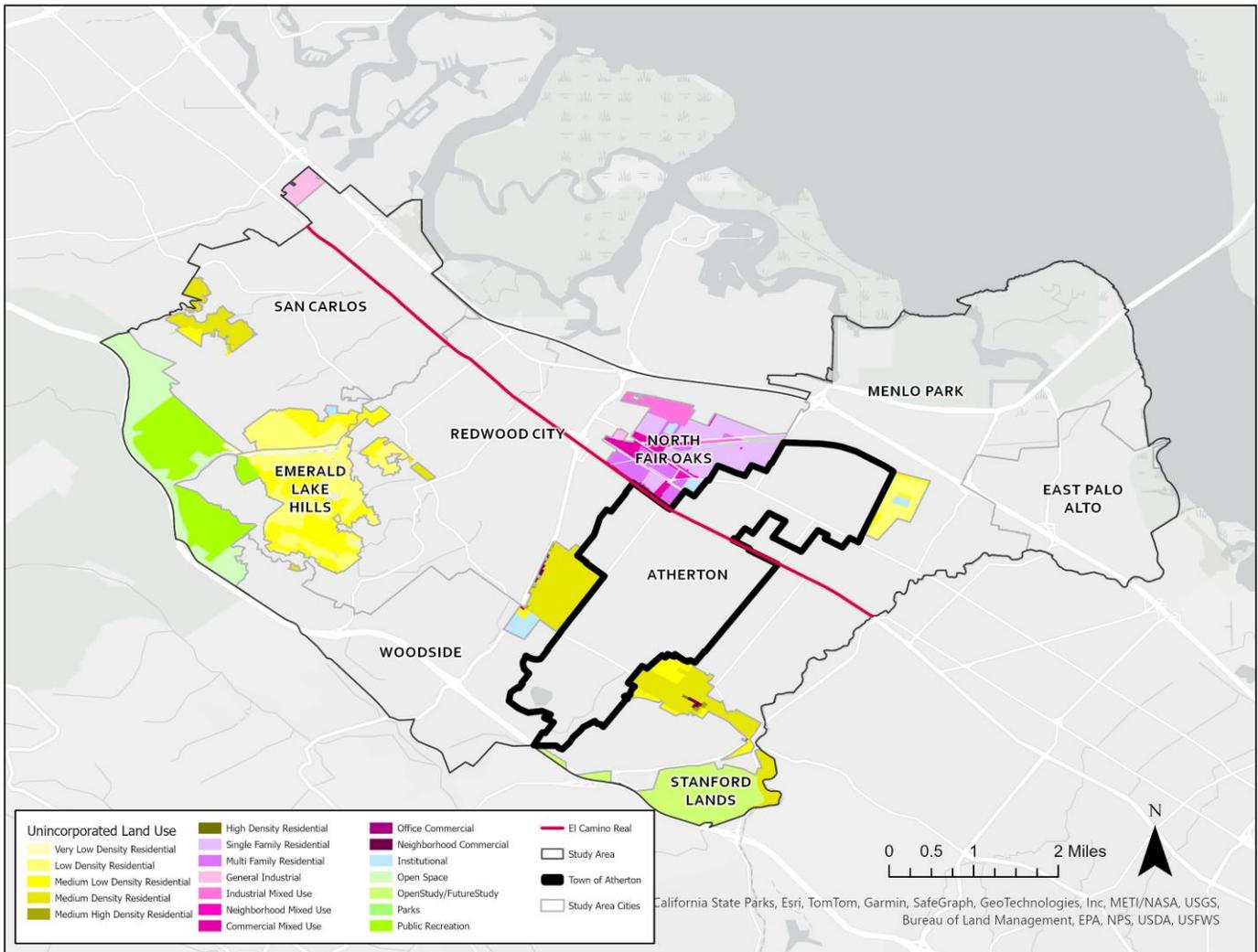
Figure 25: City of East Palo Alto Land Use<sup>11</sup>



Source: City of East Palo Alto, 2017.

<sup>11</sup> Source: "Vista 2035 East Palo Alto General Plan", City of East Palo Alto, 2017, [https://www.cityofepa.org/sites/default/files/fileattachments/community\\_amp\\_economic\\_development/page/2731/epa\\_full\\_final\\_general\\_plan\\_reduced\\_201807271727020784.pdf](https://www.cityofepa.org/sites/default/files/fileattachments/community_amp_economic_development/page/2731/epa_full_final_general_plan_reduced_201807271727020784.pdf).

Figure 26: Unincorporated San Mateo County Land Use<sup>12</sup>



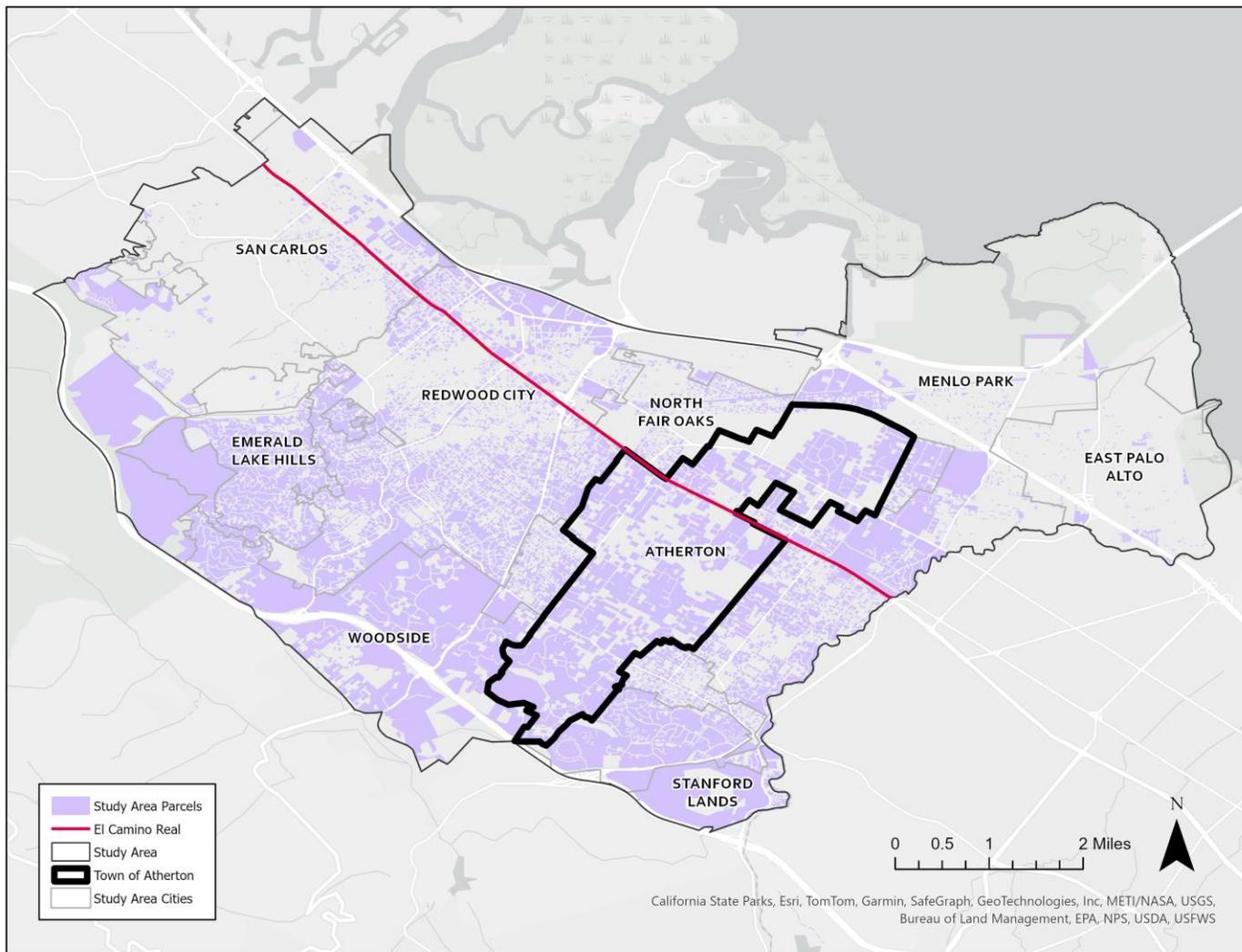
Source: San Mateo County, 2024.

<sup>12</sup> Source: "County of San Mateo Planning and Building Map Viewer", San Mateo County, 2024, [https://gis.smcgov.org/Html5Viewer/Index.html?configBase=https://gis.smcgov.org/Geocortex/Essentials/REST/sites/PubPlanViewer\\_13/viewers/HTML52110/virtualdirectory/Resources/Config/Default](https://gis.smcgov.org/Html5Viewer/Index.html?configBase=https://gis.smcgov.org/Geocortex/Essentials/REST/sites/PubPlanViewer_13/viewers/HTML52110/virtualdirectory/Resources/Config/Default).

## EXISTING PARCEL BOUNDARIES

Figure 27 highlights the parcel boundaries in the study area.

*Figure 27: San Mateo County Parcel Boundaries*

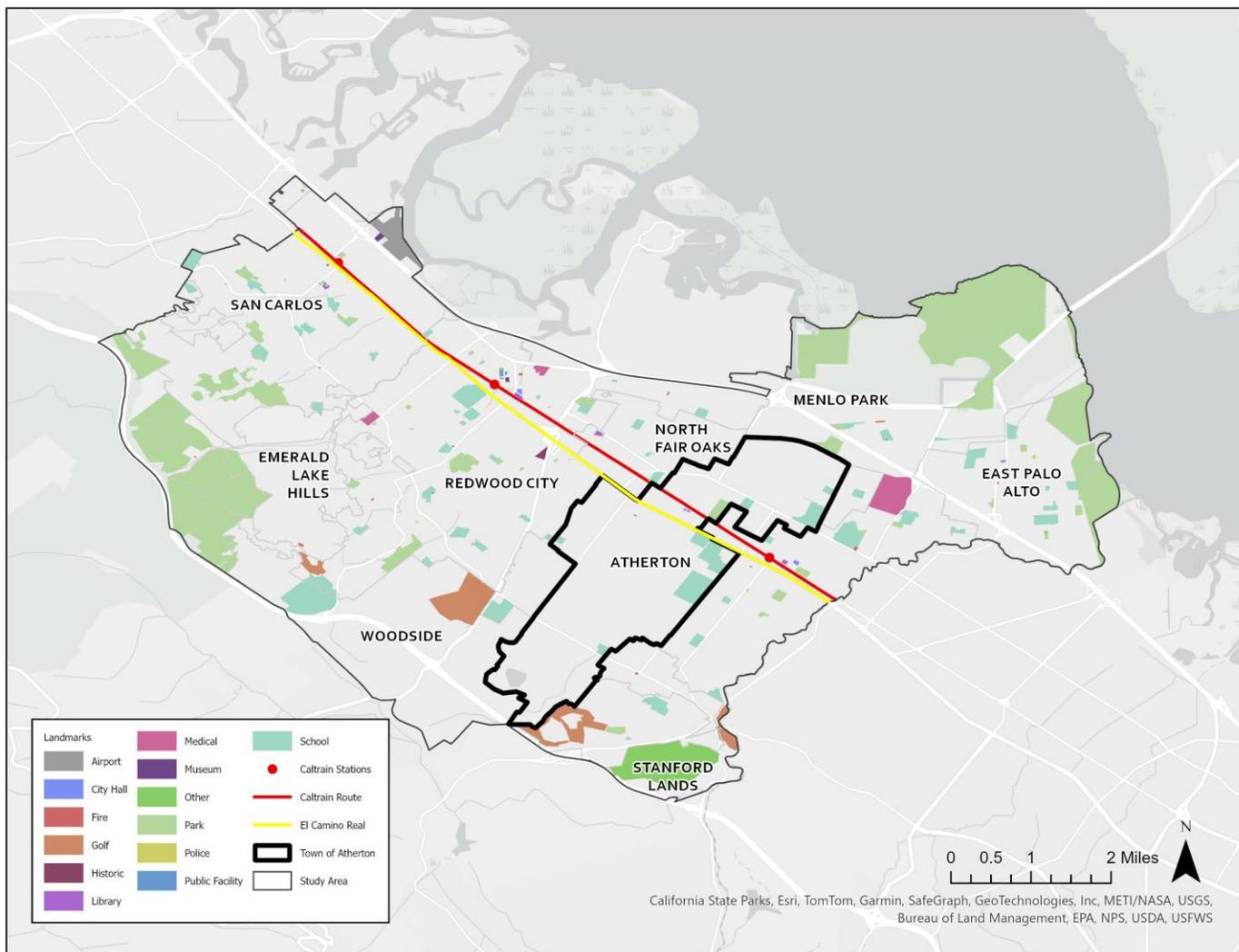


*Source: San Mateo County, 2024.*

## LANDMARKS

Figure 28 shows all the landmarks in the study area. Landmarks in the Town of Atherton include City Hall, the library, police station and fire station, along with seven schools and a park.

Figure 28: San Mateo County Landmarks

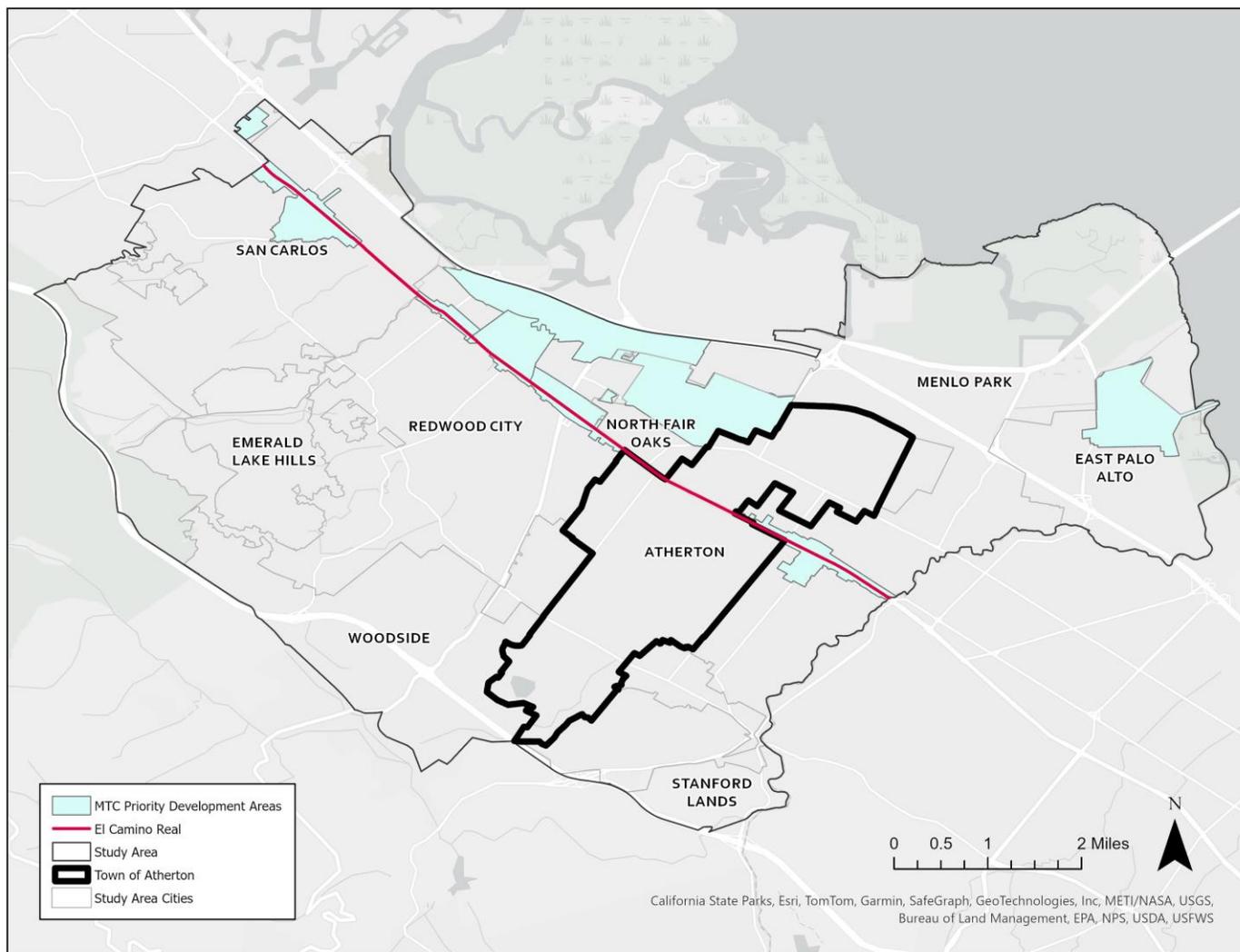


Source: San Mateo County, 2024.

## PRIORITY DEVELOPMENT AREAS (PDA)<sup>13</sup>

MTC's PDAs are places near public transit that are planned for new homes, jobs, and community amenities. PDAs are located along ECR in Menlo Park, North Fair Oaks, Redwood City, and San Carlos, as shown in Figure 29.

Figure 29: MTC PDAs



Source: MTC, 2024.

<sup>13</sup> Source: "Priority Development Areas (PDAs)", MTC, 2024, <https://mtc.ca.gov/planning/land-use/priority-development-areas-pdas>.

## KEY TAKEAWAYS

The developments along ECR are mixed-use developments. Compared to the other cities in the study area, Atherton is primarily low-density residential. Within the study area, there are many landmarks such as parks, schools, and government facilities along ECR. Lastly, MTC is promoting PDAs within the study area along ECR and the Caltrain corridor to coordinate land use and transportation planning.

## 5. MOBILITY PROFILE

This section details the existing and planned conditions of the bicycle, pedestrian, roadway, and transit network. Current plans and studies that highlight areas of improvements along ECR in Atherton and the surrounding neighborhoods are also summarized.

### TRANSIT PLANS AND STUDIES

#### SAMTRANS BUS STOP IMPROVEMENT PLAN<sup>14</sup>

The Bus Stop Improvement Plan was completed by SamTrans to identify bus stops and amenities that riders, local governments, and community members value and provide a program for improving these locations. For the Town of Atherton, none of the 24 stops within the Town were selected for near-term improvements. SamTrans recommended the following low priority improvements, with all stops needing at least one improvement, as shown in Figure 30.

*Figure 30: Atherton Bus Stop Recommendations*

Jurisdiction	Standard Pole & Sign	Shelter	Shade Structure	Bench	System Map	Route Schedule	Bus Bulb or Boarding Island	Real-Time (Digital)	Real-Time (QR)
Atherton	1	7	4	4	11	12	0	12	24

Source: SamTrans, 2024.

#### SAMTRANS ECR BUS SPEED AND RELIABILITY STUDY<sup>15</sup>

The ECR Bus Speed and Reliability Study reviewed SamTrans bus service on ECR and provided recommendations on ways to improve the reliability of transit service.

<sup>14</sup> Source: “Bus Stop Improvement Plan”, SamTrans, 2024, <https://www.samtrans.com/projects/bus-stop-improvement-plan>.

<sup>15</sup> Source: “El Camino Real Bus Speed and Reliability Study”, SamTrans, 2022, <https://www.samtrans.com/ECRStudy>.

Table 4 lists the recommended improvements along ECR for Atherton and North Fair Oaks. For SamTrans to prioritize curbside bus lanes, three factors were considered: (1) segments with low bus speeds and high ridership, (2) roadway segments with at least three lanes per direction, and (3) segments were reviewed to ensure compatibility with local plans and policies and overall viability. After review, SamTrans noted that North Fair Oaks and Atherton do not fit the prioritization criteria for bus lanes, but the cities may determine if bus lanes fit their criteria for ECR improvements.

Table 4: Recommended Improvements Along ECR in Atherton and North Fair Oaks

Direction	Street	Bus Stop Balancing and Placement	Bus Bulbs	Pedestrian Improvements
North	Center Street			X
	Dumbarton Avenue		X	X
	Columbia Avenue	X	X	
	Fair Oaks Lane			X
	Encinal Avenue		X	
South	Center Street	X	X	X
	Oakwood Drive	X		X
	5 <sup>th</sup> Avenue	X		X
	Fair Oaks Lane			X
	Encinal Avenue			X

Source: SamTrans, 2022.

### SAMTRANS TRIENNIAL CUSTOMER SURVEY<sup>16</sup>

The SamTrans triennial survey was published in 2021 and provides information on who their riders are and why they ride the bus. The survey was collected in person, with 2,369 completed surveys. From the survey, 79% of riders are very or satisfied overall with SamTrans and 66% very or somewhat satisfied with on-time performance. For the reason for riding SamTrans, 80% of riders do so because they do not own or drive a car. Most riders (51%), take SamTrans to work, and 21% to school. Lastly, most riders get to the bus stop where they board their bus by walking (75%), as well as walk to their final destination once they get off the bus (73%).

Additionally, demographics of riders from the survey include:

- Forty-one percent are Hispanic/Latino, followed by Filipino (21%) and white/Caucasian (19%)
- Forty-nine percent are male
- The age group with the highest percentage is 13 to 18 years old (25%)
- Eighty-three percent speak primarily English
- Twenty percent earn less than \$10,000 per year

### C/CAG COUNTYWIDE LOCAL ROADWAY SAFETY PLAN (LRSP)<sup>17</sup>

The LRSP provides a framework for analyzing, identifying, and prioritizing roadway safety improvements to reduce severe injury and fatal collisions on local roadways. The Atherton chapter of this plan is still in progress but notes crash history, public comments, and intersection recommendations. These emphasis areas are defined by using crash history, social equity, and systemic factors. Table 5 lists the locations along ECR that

<sup>16</sup> Source: "2021 SamTrans Triennial Customer Survey Systemwide On-Board Bus Survey Summary Report", SamTrans, 2021, <https://www.samtrans.com/media/22336/download?inline>.

<sup>17</sup> Source: "Countywide Local Roadway Safety Plan", C/CAG, 2024, <https://ccag.ca.gov/plansreportslibrary-2/transportation/countywide-local-roadway-safety-plan/>.

need bicycle, pedestrian, and vehicle improvements. The Atherton chapter of the LRSP highlights the following themes that were heard through community engagement:<sup>16</sup>

- Pedestrian
  - Pedestrian facilities to make walking safer and comfortable, especially along ECR
  - Better pedestrian crossings over the Caltrain rail tracks
  - Concerns that drivers are running stop signs and red signals, specifically along ECR
- Bicycle
  - Not enough separation between bicyclists and drivers along ECR
  - Concerns of poor visibility due to lack of lighting, curved roads, and parked cars at corners
- Motor Vehicles
  - Improve visibility by adding lighting
  - Traffic and congestion concerns in Atherton
  - Concerns over blind corners and site lines along ECR
- Countermeasures Comments
  - Desire for road narrowing along ECR to improve safety
  - Bike lane improvements are dangerous to drivers

*Table 5: Recommended Improvements Along ECR in Atherton and North Fair Oaks*

Location	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
El Camino Real and Columbia Avenue	X	X	X
Loyola Avenue and El Camino Real	X	X	X
El Camino Real and 5th Avenue	X	X	X
Amherst Avenue and El Camino Real	X	X	X
El Camino Real and Berkshire Avenue	X	X	
El Camino Real and Stockbridge Avenue	X	X	X
Selby Lane and El Camino Real	X	X	X
Wilburn Avenue and El Camino Real	X	X	
El Camino Real and Almendral Avenue	X		
El Camino Real and Spruce Avenue	X		
El Camino Real and Isabella Avenue		X	
El Camino Real and Ashfield Road		X	
Maple Avenue and El Camino Real		X	
El Camino Real and Walnut Avenue		X	
El Camino Real and Tuscaloosa Avenue		X	

Location	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
El Camino Real and Redwood Way		X	
El Camino Real and Lloyd Drive		X	
El Camino Real and Berkshire Avenue to Spruce Avenue	X	X	X

Source: C/CAG, 2024.

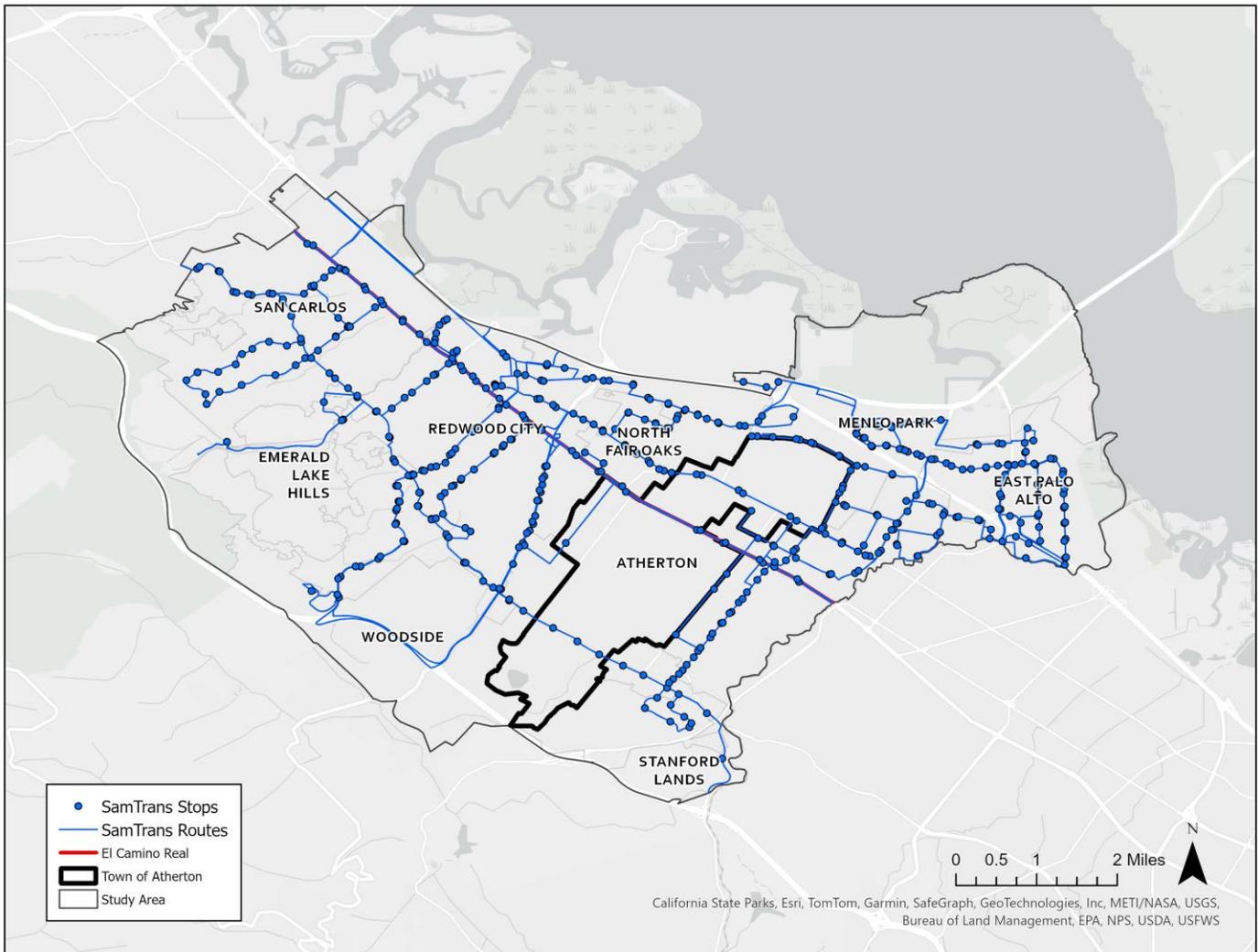
## TRANSIT NETWORK

The following sections include maps of the existing and planned (where applicable) transit networks in the study. The study area is serviced by SamTrans buses, commuter shuttles, and Caltrain.

### SAMTRANS

This section highlights the SamTrans routes and stops in the study area, as shown in Figure 31. Within the Town of Atherton, there are 24 bus stops, and six stops along ECR, as shown in Figure 32 and Figure 33. There are ten bus routes that run through Atherton. SamTrans has noted that there are no planned changes to stops or routes. Table 6 shows the average weekday ridership at bus stops in Atherton, comparing October 2019 and October 2023. The data shows that ridership in Atherton has increased compared to pre-COVID-19 ridership. Table 7 shows the average bus travel speed and average predicted deviation for all bus routes in Atherton from May 2024. On average, SamTrans buses travel at an average speed of 11 miles per hour.<sup>14</sup> The table shows that Route 81 (east and west), Route 82 (east and west), Route 83 (east and west), and Route 86 (west) are travelling under the average speed of 11 miles per hour. The average predicted deviation for the bus routes in the study area are within four minutes early or late along stops in the study area. The data shows that SamTrans ridership in the study area has increased, and buses are generally on time.

Figure 31: SamTrans Stops and Routes



Source: SamTrans, 2024.

Figure 32: Bus Stop at Southbound ECR and Isabella Avenue



Source: Google Maps, 2024.

Figure 33: Bus Stop at Northbound ECR and Encinal Avenue



Source: Google Maps, 2024.

Table 6: Average Weekday Ridership at Bus Stops in Atherton\*

Stop Name	Stop ID	October 2019			October 2023		
		Ons	Offs	Total	Ons	Offs	Total
Alameda De Las Pulgas & Valparaiso Ave	345002	0	0	0	1	0	1
Alameda De Las Pulgas & Fletcher Dr	345003	0	0	0	0	0	0
El Camino Real & Isabella Ave	345016	1	4	6	2	4	5
El Camino Real & Watkins Ave	345022	6	3	9	3	4	6
Middlefield Rd & Oak Grove	345025	27	3	30	29	12	41
Middlefield Rd & Fair Oaks Ln	345026	2	2	4	4	1	5
Middlefield Rd & James Ave	345027	1	2	2	2	2	4
Middlefield Rd & Lane Pl	345028	2	2	3	1	2	3
Middlefield Rd & San Benito Ave	345030	1	3	4	1	3	4
Selby Ln & Serrano Dr-Selby Lane Sc	345037	27	11	38	38	8	46
El Camino Real & 5th Ave	345400	39	55	93	41	58	99
Middlefield Rd & Oak Grove Ave	345600	89	24	113	106	41	146
Alameda de las Pulgas & Walsh Rd	346011	0	0	0	0	0	0
Encinal Ave & Middlefield Rd	346054	24	1	25	12	1	13
Ringwood Ave & Middlefield Rd	346134	0	0	0	25	1	26
Total		220	108	327	263	135	398

\*Ridership data is pulled from Automatic Passenger Counter data, not SamTrans official ridership data.

Source: SamTrans, 2024.

Table 7: Average Bus Route Predicted Deviation and Speed in Atherton

Bus Route	Direction	Average Bus Speed (Miles Per Hour)	Average Predicted Deviation (Minutes)
81	East	7.38	-0.02
	West	0	3
82	East	9.44	-2.22
	West	7.04	0.47
83	East	9.17	-0.60
	West	8.05	-0.003
86	East	13.07	-1.48
	West	8.71	-0.51
87	West	25.85	-0.26

Bus Route	Direction	Average Bus Speed (Miles Per Hour)	Average Predicted Deviation (Minutes)
88	East	14.18	-1.56
269	North	15.17	-2.59
	South	17.87	-3.14
397	North	28.21	-3.55
	South	25.53	-2.21
296 Owl	North	24.35	-1.52
	South	22.57	-1.88
ECR	North	26.12	-1.27
	South	21.72	-2.49

Source: SamTrans, 2024.

### SAMTRANS STOP AMENITIES - EXISTING

Currently, many of the transit stops within the Town of Atherton are not Americans with Disabilities Act (ADA) accessible. Table 8 notes the existing bus stop conditions. Almost all of 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. Along the southbound side, there are no sidewalks to safely access the bus stops, as shown in Figure 34. On the northbound side, there is one stop that is not ADA accessible, as shown in Figure 35.

Table 8: Existing Bus Stop Amenities in Atherton

Stop Name	Routes Serviced	Standard Bus Stop Pole & Sign	Shelter	Bench	System Map	System Schedule
Alameda de las Pulgas & Atherton Ave	87	X				
Alameda de las Pulgas & Fletcher Dr	87	X				
Bay Rd & Del Norte Ave	82 and 83	X				
Bay Rd & Greenwood Dr	82 and 83					
Bay Rd & Hedge Rd	82 and 83	X				

Stop Name	Routes Serviced	Standard Bus Stop Pole & Sign	Shelter	Bench	System Map	System Schedule
El Camino Real & Almendral Ave	ECR	X				
El Camino Real & Almendral Ave	ECR	X				
El Camino Real & Isabella Ave	ECR	X				
1000 El Camino Real-Menlo College	ECR	X		X		
El Camino Real & Winchester Dr	ECR	X				
Middlefield Rd & Oak Grove	296, 296, and 397	X		X		
Middlefield Rd & Fair Oaks Ln	296, 296, and 397	X				
Middlefield Rd & James Ave	296, 296, and 397	X				
Middlefield Rd & Lane Pl	296, 296, and 397	X				
Middlefield Rd & San Benito Ave	296, 296, and 397	X				
Ringwood Ave & Atree Ct	82	X				
Ringwood Ave & Edge Rd	82	X				
Ringwood Ave & Frederick Ave	82	X				
Selby Ln & Serrano Dr-Selby Lane School	72	X				
El Camino Real & 5th Ave	ECR	X	X		X	

Stop Name	Routes Serviced	Standard Bus Stop Pole & Sign	Shelter	Bench	System Map	System Schedule
Middlefield Rd & Oak Grove Ave	296, 296, 397, 81, and 86	X		X		
Alameda de las Pulgas & Walsh Rd	87	X				
Encinal Ave & Middlefield Rd	88	X				
Ringwood Ave & Middlefield Rd	86	X				

Source: SamTrans, 2024.

Figure 34: Bus Stop on ECR - Southbound at Isabella Avenue



Source: Google Maps, 2024.

Figure 35: Bus Stop on ECR - Northbound at Watkins Avenue



Source: Google Maps, 2024.

### **SAMTRANS STOP AMENITIES - RECOMMENDED**

Through SamTrans's Bus Stop Improvement Plan, Table 9 lists the recommended improvements for each bus stop in Atherton. Two stops in Atherton, Encinal Ave & Middlefield Rd and Ringwood Ave & Middlefield Rd, are considered under near-term improvements. Within the next five years, these two stops will have a QR Code added to the signage that will direct riders to real-time information. The rest of the bus stops improvements are on the long-term improvement timeline which will be considered once all SamTrans near-term projects are completed.

Table 9: Recommended Bus Stop Amenities in Atherton

Stop Name	Routes Served	Standard Bus Stop Pole & Sign	Shelter	Shade Structure	Bench	System Map	System Schedule	Bus Bulb/Boarding Island	Full Color Real-time Display	Marquee Real-time Display	Papercast Real-Time Display	Adding QR Code to Sign
Alameda de las Pulgas & Atherton Ave	87											X
Alameda de las Pulgas & Fletcher Dr	87											X
Bay Rd & Del Norte Ave	82 and 83											X
Bay Rd & Greenwood Dr	82 and 83	X										X
Bay Rd & Hedge Rd	82 and 83											X
El Camino Real & Almendral Ave	ECR		X			X	X			X		X
El Camino Real & Almendral Ave	ECR		X			X	X			X		X
El Camino Real & Isabella Ave	ECR		X			X	X			X		X
1000 El Camino Real-Menlo College	ECR		X			X	X			X		X
El Camino Real & Winchester Dr	ECR		X			X	X			X		X
Middlefield Rd & Oak Grove	296, 296, and 397		X			X	X					X
Middlefield Rd & Fair Oaks Ln	296, 296, and 397			X	X	X	X					X
Middlefield Rd & James Ave	296, 296, and 397			X	X	X	X					X
Middlefield Rd & Lane Pl	296, 296, and 397			X	X	X	X					X

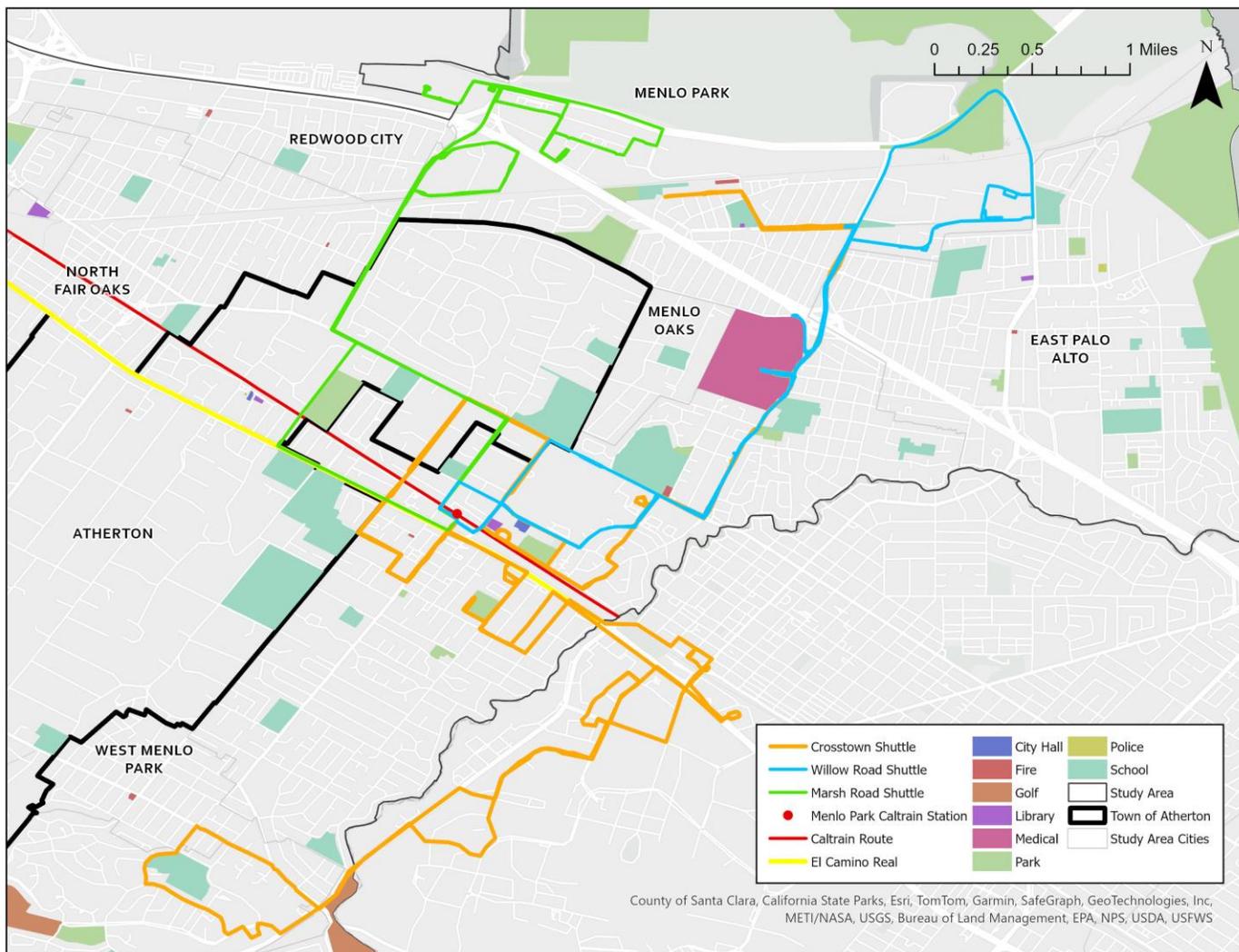
Stop Name	Routes Served	Standard Bus Stop Pole & Sign	Shelter	Shade Structure	Bench	System Map	System Schedule	Bus Bulb/ Boarding Island	Full Color Real-time Display	Marquee Real-time Display	Papercast Real-Time Display	Adding QR Code to Sign
Middlefield Rd & San Benito Ave	296, 296, and 397			X	X	X	X					X
Ringwood Ave & Altree Ct	82											X
Ringwood Ave & Edge Rd	82											X
Ringwood Ave & Frederick Ave	82											X
Selby Ln & Serrano Dr-Selby Lane School	72											X
El Camino Real & 5th Ave	ECR						X			X		X
Middlefield Rd & Oak Grove Ave	296, 296, 397, 81, and 86		X			X	X					X
Alameda de las Pulgas & Walsh Rd	87											X
Encinal Ave & Middlefield Rd	88											X
Ringwood Ave & Middlefield Rd	86											X

Source: SamTrans, 2024.

## SHUTTLES

There are three shuttle routes which currently run in the study area, as shown in Figure 36. These shuttles serve as a first/last-mile shuttle from the Palo Alto Caltrain station and Menlo Park Caltrain station to business parks and other destinations in the study area. The Crosstown Shuttle is a free community shuttle funded by C/CAG, MTC Lifeline Program, and the City of Menlo Park. The shuttle 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. The Willow Road Shuttle, operated by Commute.org, is a free commuter shuttle open to the public which runs between the Menlo Park Caltrain station and the Willow Road area business parks. Destinations also include the Menlo Medical Clinic, VA Medical Center, and business parks along O'Brien Drive and Adams Drive. The Marsh Road Shuttle, also operated by Commute.org, is a free commuter shuttle open to the public which runs between the Menlo Park Caltrain station and the Marsh Road area business parks.

Figure 36: Shuttle Routes in Study Area

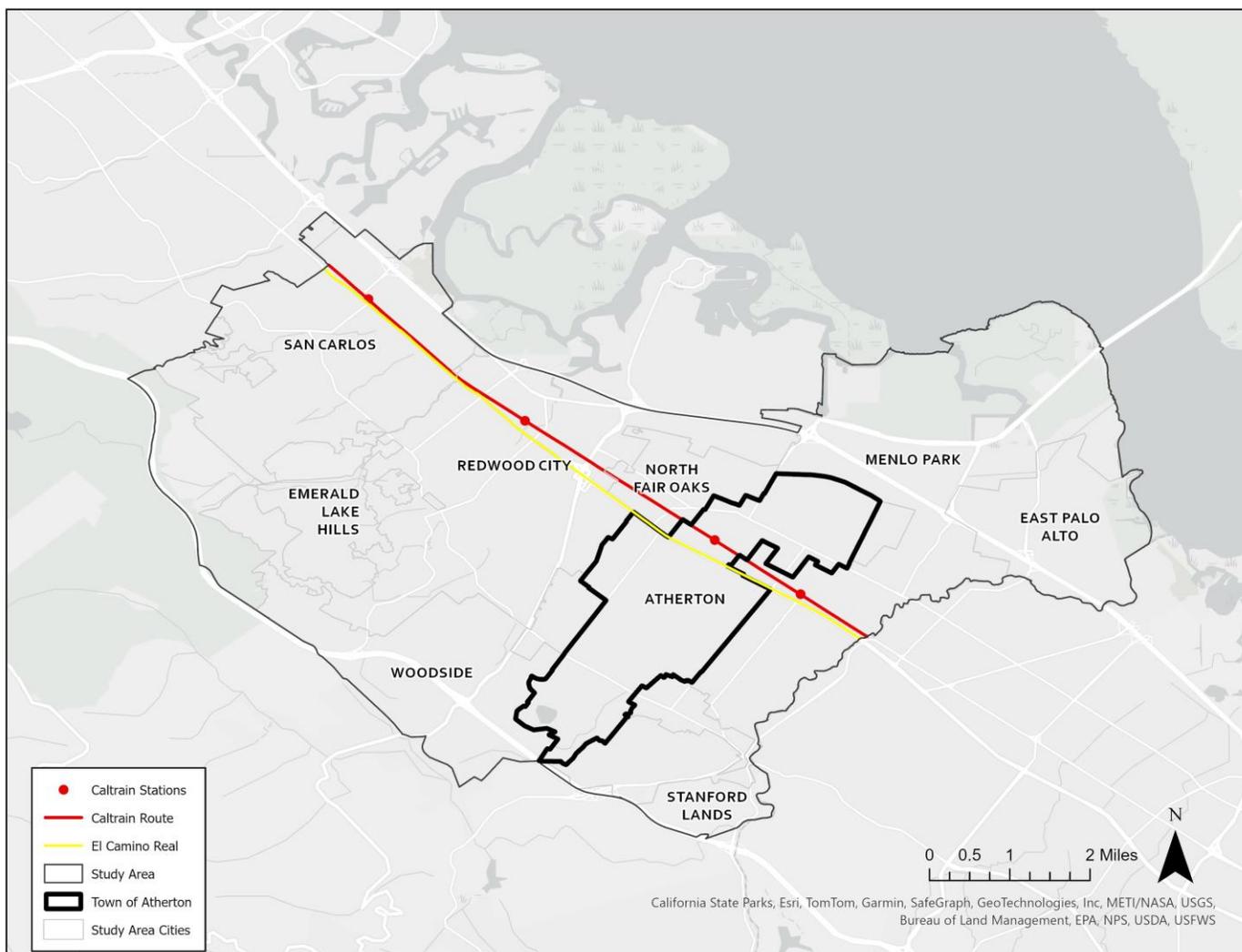


Source: Commute.org, San Mateo County, and Caltrain, 2024.

## CALTRAIN

There are three Caltrain stations in the study area: Menlo Park, Redwood City, and San Carlos, as shown in Figure 37. The Atherton station was closed in 2020 due to low ridership and inadequate platform configurations. Caltrain Baby Bullet express trains only stop at the Redwood City station on weekdays, while there are some Limited trains stopping at least at one of the stations in the study area throughout weekday service.

*Figure 37: Caltrain Route and Stops in Study Area*



*Source: Caltrain, 2024.*

## CALTRAIN MODERNIZATION PROGRAM<sup>18</sup>

Caltrain’s Modernization Program aims to improve train performance, increase service, and increase capacity from the 4th and King Station to Diridon Station. Electric trains will also improve regional air quality as Caltrain transitions from diesel trains and will reduce train engine noise. The project is currently on track to launch by Fall 2024. Table 10 shows how the electrification project will improve service to the three stations.

*Table 10: Caltrain Electrification Project Updates Within the Study Area*

Station	Station Stops	Current Service	Electrified Service
San Carlos	Stops per Weekday	61	75
	Weekday Stops per Peak Hour	2	2
	Weekday Stops per Off Peak Hour	1	2
	Weekend Stops per Hour	1	2
Redwood City	Stops per Weekday	104	104
	Weekday Stops per Peak Hour	4	4
	Weekday Stops per Off Peak Hour	2	2
	Weekend Stops per Hour	1	2
Menlo Park	Stops per Weekday	77	90
	Weekday Stops per Peak Hour	2	3
	Weekday Stops per Off Peak Hour	2	2
	Weekend Stops per Hour	1	2

Source: Caltrain, 2024.

## TRANSIT ACCESS IMPROVEMENTS - RECOMMENDED

As shown in Table 11, the CBPP notes the following transit hubs in the study area which are candidates for funding:

*Table 11: Recommended Transit Access Improvements*

Location	Jurisdiction	Existing Studies/Plan
SamTrans Route (ECR in Atherton)	Atherton	N/A
SamTrans Route (University Avenue)	East Palo Alto	N/A
Menlo Park Caltrain Station	Menlo Park	El Camino Real Corridor Study for the City of Menlo Park
Redwood City Caltrain Station and Transit Center (SamTrans hub)	Redwood City	Downtown Precise Plan (2012), Transit Center Redesign Study (2019), Transit District Plan (ongoing)
San Carlos Caltrain Station	San Carlos	Holly Interchange Improvements

<sup>18</sup> Source: “Program Overview”, Caltrain, 2024, <https://www.caltrain.com/projects/electrification>.

Source: C/CAG, 2021.

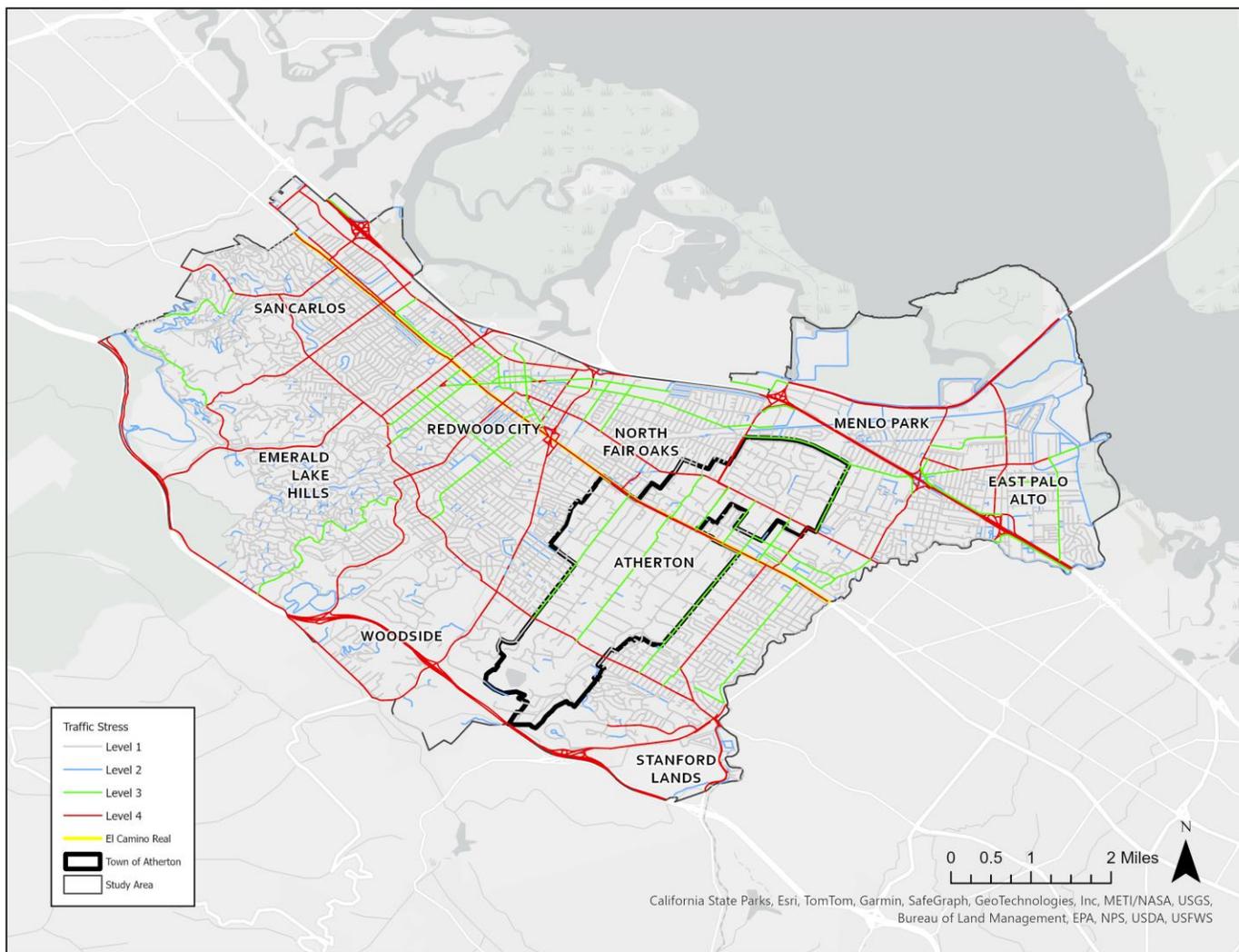
## ACTIVE TRANSPORTATION NETWORK

The following sections include maps of the existing and planned (where applicable) pedestrian and bicycle networks in the study.

### LEVEL OF TRAFFIC STRESS

The CBPP looks at the existing bicycle facilities in the county to determine the level of traffic stress experienced along major corridors. 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 report notes that bicycle-involved collisions are likely to occur along corridors with higher traffic stress rating of 3 or 4. Figure 38 displays the levels of traffic stress within the study area.

Figure 38: Level of Traffic Stress



Source: C/CAG, 2021.

## EXISTING BICYCLE NETWORK

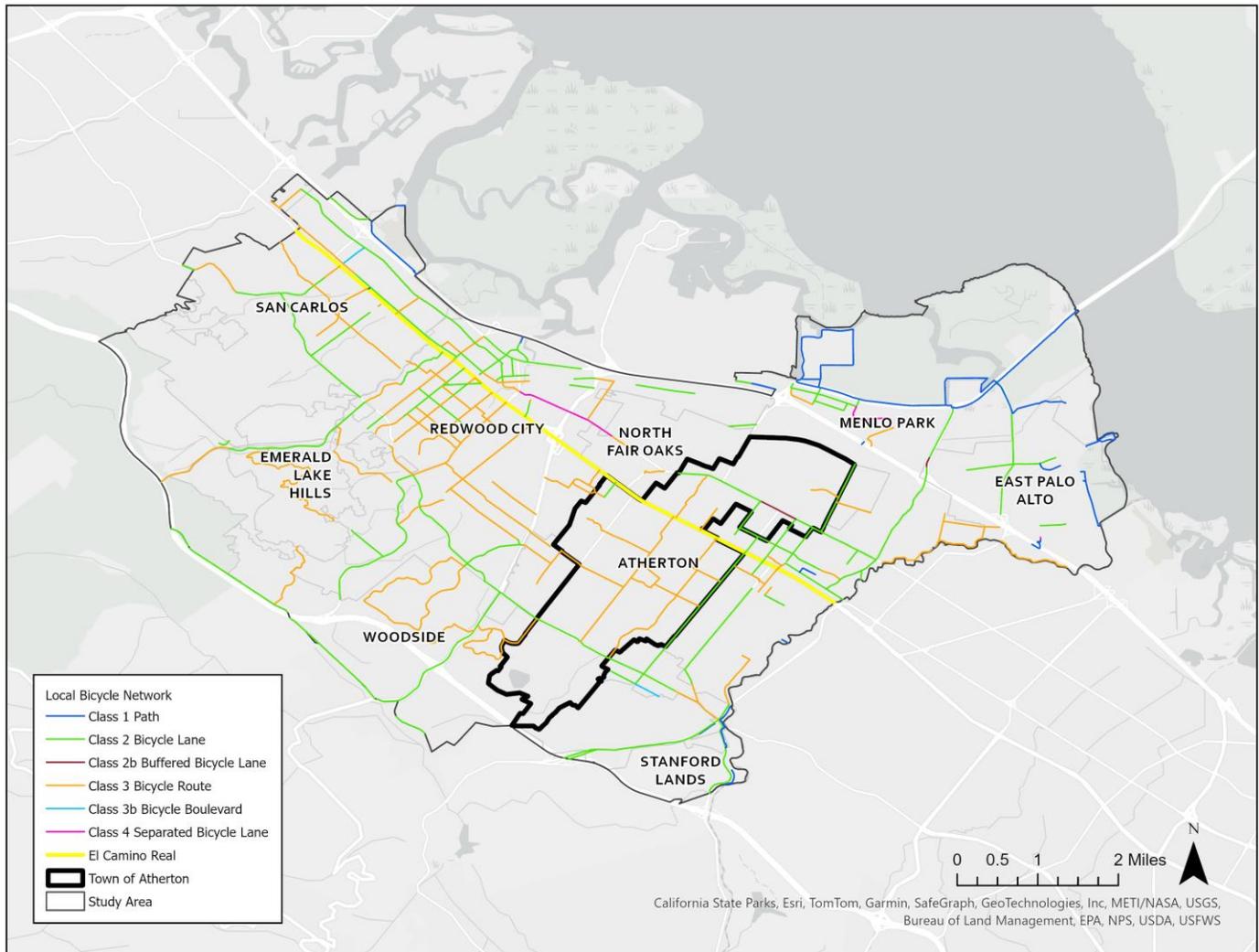
The study area has a variety of bicycle facility types as shown in Figure 39. Within Atherton, the bicycle facilities are either Class 2, Class 2b, or Class 3 bicycle lanes. Table 12 defines each class.

*Table 12: Bicycle Facility Class Types*

Class	Facility Type	Description
Class 1	Multi-Use Path (Path)	A bikeway separated from vehicular traffic.
Class 2	Bike Lane	A bikeway striped by a solid white line or by a larger hatched buffer space adjacent to vehicle travel lanes.
Class 2b	Buffered Bike Lane	A bike lane with a designated buffer space separating the bicycle lane from vehicle travel lanes.
Class 3	Bicycle Routes	A shared travel lane with motor vehicles which may include wayfinding signage for bicyclists.
Class 3b	Bicycle Boulevards	Low-speed, low-volume neighborhood streets with traffic calming enhancements generally run adjacent to high-speed and high-volume roadways.
Class 4	Separated Bicycle Lanes	Lanes exclusively for bicyclists running adjacent to vehicular traffic with physical separation from motor vehicles.

Source: C/CAG, 2021.

Figure 39: Existing Bicycle Network



Source: C/CAG, 2021.

## PLANNED BICYCLE NETWORK

The 2014 Town of Atherton Bicycle and Pedestrian Master Plan recommends the following improvements to the ECR corridor:<sup>19</sup>

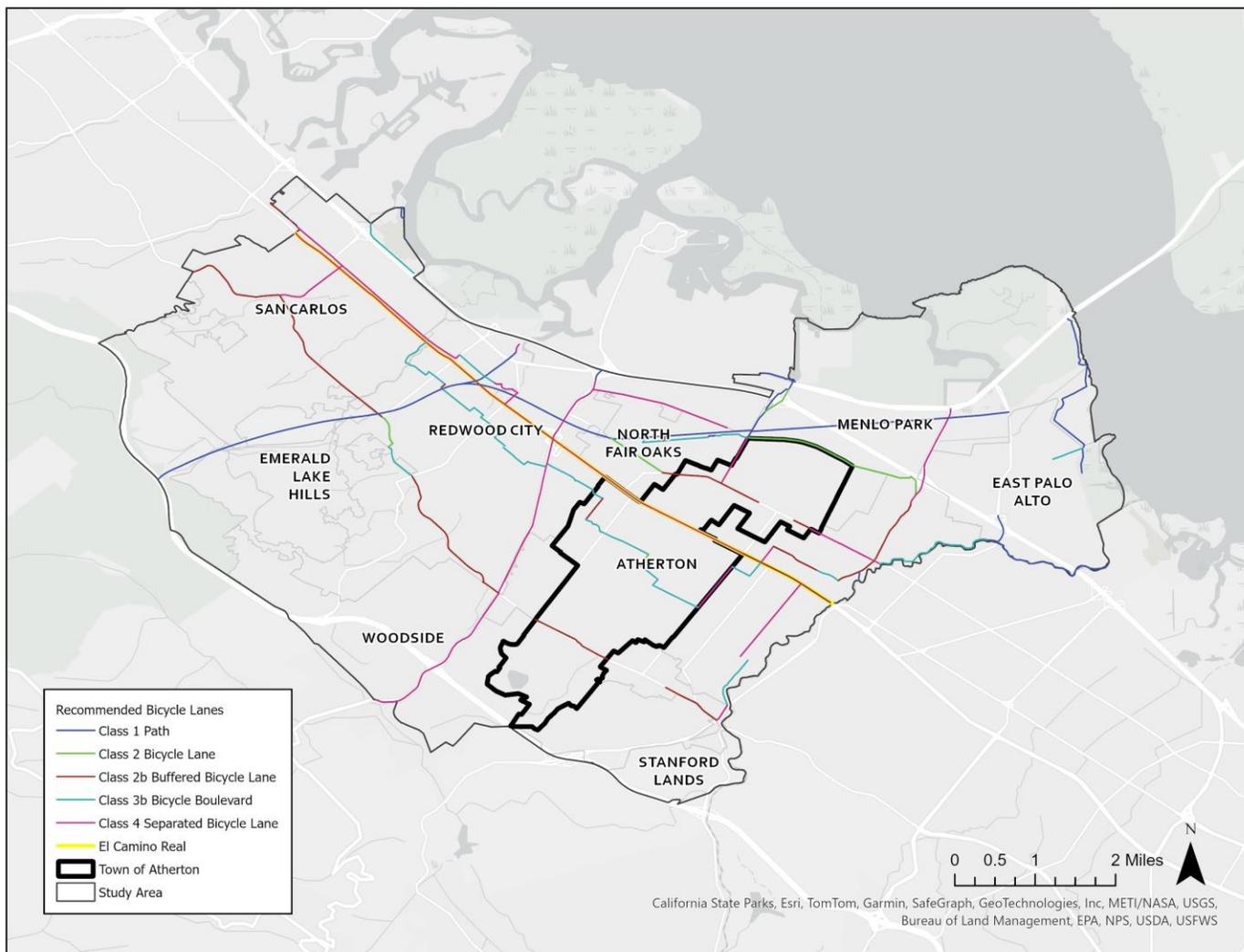
- Converting the westernmost southbound lane on ECR to a Class 1 trail with landscaping and pedestrian crossing improvements
- Install Class II bike lanes on Selby Lane between ECR and West Selby Lane
- Fund a traffic study to determine the feasibility of removing one or both outside travel lanes for a dedicated pedestrian and bicycle facility
- Locations for potential bicycle parking to include bus stops along ECR

Figure 44 shows the recommended bicycle lanes within the study area. There are some lanes that are new, and others that will be updated to a higher class. For example, ECR in the study area is recommended to be a Class 2b buffered bicycle lane.

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<sup>19</sup> Source: "Town of Atherton Bicycle and Pedestrian Master Plan", Town of Atherton, 2014, [Atherton-BPMP\\_Proposed-Final-July-2014](#).

Figure 40: Planned Bicycle Network



Source: C/CAG, 2021.

## EXISTING PEDESTRIAN NETWORK

This section looks at the intersections within the project corridor. For the southbound section from Selby Lane to Valparaiso Avenue there are no sidewalks, as shown in Figure 41. There are signalized intersections at Valparaiso Avenue, Encinal Avenue, Atherton Avenue, and 5<sup>th</sup> Avenue, and each intersection has at least one marked crosswalk in the north and/or south direction, as shown in Figure 42. There are flashing call signals at Alejandra Avenue, Isabella Avenue, and Almendral Avenue and these intersections only have a marked crosswalk on the east side of the intersection, as shown in Figure 43. There is a marked crosswalk but no signals at Stockbridge Avenue, as shown in Figure 44. The CBPP identifies areas of North Fair Oaks, San Carlos, Redwood City, and Menlo Park along ECR as Pedestrian Focus Areas, which are noted to have high walking activity. C/CAG recommends prioritizing these areas for active transportation developments. Throughout ECR, C/CAG notes that there are pedestrian gaps to adjacent jurisdictions as well as gaps to transit at the Redwood City Caltrain station.

*Figure 41: Southbound ECR*



*Source: Google Maps, 2024.*

Figure 42: Northbound ECR at Encinal Avenue



Source: Google Maps, 2024.

Figure 43: Northbound El Camino Real at Alejandra Avenue



Source: Google Maps, 2024.

Figure 44: Northbound El Camino Real at Stockbridge Avenue



Source: Google Maps, 2024.

## PLANNED PEDESTRIAN NETWORK

The 2014 Town of Atherton Bicycle and Pedestrian Master Plan recommends the following improvements to the ECR corridor:<sup>20</sup>

- Converting the westernmost southbound lane on ECR to a Class 1 trail with landscaping and pedestrian crossing improvements
- Review with Caltrans optimal locations for new traffic signals, pedestrian hybrid signals, and other crossing improvements
- Fund a traffic study to determine the feasibility of removing one or both outside travel lanes for a dedicated pedestrian and bicycle facility

Table 13 notes the following corridors from the CBPP in the study area that would improve the pedestrian network:

*Table 13: Recommended Pedestrian Improvements*

Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
Middlefield Road	Encinal Avenue	Oak Grove Avenue	North Fair Oaks Study	Atherton
Marsh Road	Fair Oaks Avenue	Middlefield Road	N/A	Atherton
Alameda de las Pulgas	Atherton Jurisdiction	Atherton Jurisdiction	N/A	Atherton
El Camino Real	Menlo Park Jurisdiction	Redwood City Jurisdiction Line	Grand Boulevard Greenway, Caltrans D4 Bicycle and Pedestrian Plans	Atherton
Bay Road	Ralmar Avenue	Pulgas Avenue	N/A	East Palo Alto
Woodland Avenue	University Avenue	Newell Road	N/A	East Palo Alto
University Ave	Donohoe St	Woodland Ave	N/A	East Palo Alto
Valparaiso Avenue	Johnson Street	Crane Street	N/A	Menlo Park
Crane Street	Valparaiso Avenue	Oak Grove Avenue	N/A	Multiple jurisdictions (Daly City, Colma, South San Francisco, San

<sup>20</sup> Source: "Town of Atherton Bicycle and Pedestrian Master Plan", Town of Atherton, 2014, [Atherton-BPMP\\_Proposed-Final-July-2014](#).

Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
				Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, North Fair Oaks, Menlo Park)
Oak Grove Avenue	Crane Street	El Camino Real	Caltrans D4 Bicycle and Pedestrian Plans	Menlo Park
Middle Avenue	University Drive	El Camino Real	Caltrans D4 Bicycle and Pedestrian Plans	Menlo Park
El Camino Real/Mission Street/San Jose Avenue	Daly City	Menlo Park	El Camino Real Grand Boulevard Initiative, Belmont Comprehensive Pedestrian and Bicycle Plan (2016), South San Francisco Pedestrian Master Plan (2014), San Mateo Pedestrian Master Plan (2012), San Mateo Pedestrian Access Plan (TBD), San Mateo El Camino Real Master Plan (2001), Redwood City El Camino Real Corridor Plan (2017), Redwood City Pedestrian and Bicycle Safety Improvement Study (2019)	Multiple jurisdictions (Daly City, Colma, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, North Fair Oaks, Menlo Park)

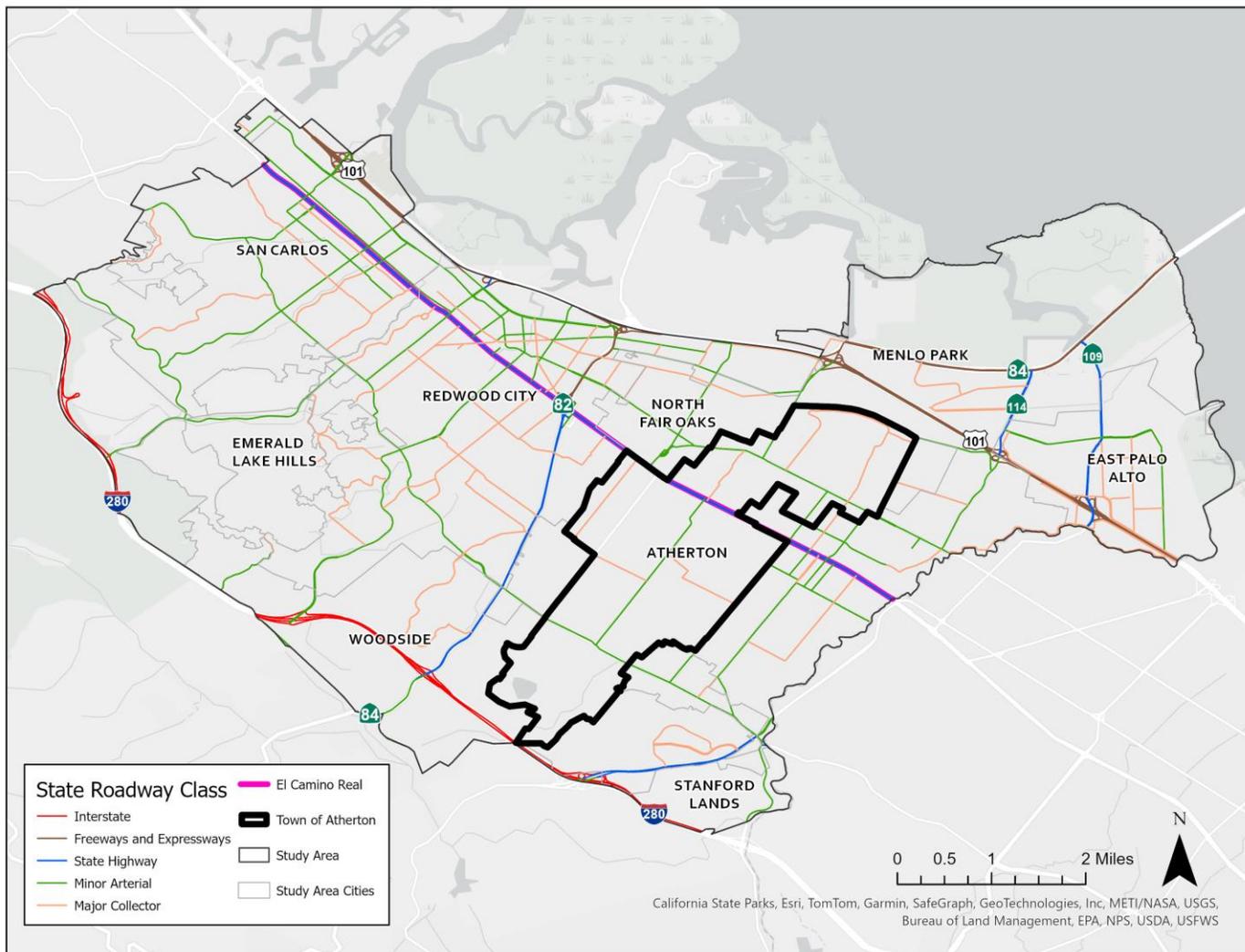
Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
Bay Road/ Florence Street	Woodside Road	Marsh Road	Stanford in Redwood City Precise Plan (2013)	Multiple jurisdictions (includes Redwood City, North Fair Oaks)
Middlefield Road	Broadway	Encinal Avenue	Redwood City Moves (2018)	Multiple jurisdictions (includes Redwood City, North Fair Oaks)
Pacific Boulevard/ Old County Road/ Stafford Street	Franklin Parkway	Whipple Avenue	N/A	Multiple jurisdictions (includes San Mateo, Belmont, San Carlos, Redwood City)
Arguello Street	Whipple Avenue	Winslow Street	Redwood City Moves (2018)	Redwood City
Fuller Street	Arch Street	Main Street	N/A	Redwood City
Woodside Road	Central Avenue	Bayshore Freeway	Redwood City Moves (2018)	Redwood City
San Carlos Avenue	Cordilleras Avenue	El Camino Real	N/A	San Carlos
Warwick Street/ Arlington Road/ Oakdale Street	Eaton Avenue	Whipple Avenue	N/A	San Carlos, Redwood City

Source: C/CAG, 2021.

## ROADWAY NETWORK

The following section details the roadway conditions within the study area, as shown in Figure 45. ECR is defined as a State Highway and is the only at-grade state route or freeway in the Town of Atherton.

Figure 45: Study Area Roadway Classification<sup>21</sup>



Source: Caltrans, 2024.

<sup>21</sup> Source: "Functional Classification (FC)", Caltrans, 2024, <https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance/functional-classification>.

## C/CAG COUNTYWIDE LRSP CRASH DATA

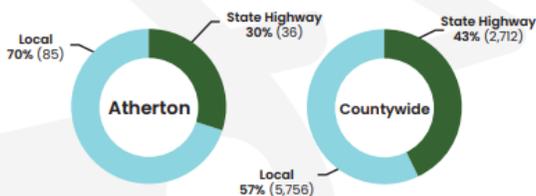
The LRSP details the injury/fatal crashes of all modes in Atherton that are non-freeway crashes from 2018 to 2022. During this timeframe, there were 121 crashes with 36 on State Highways and 85 on Local Roadways.<sup>16</sup> Figure 46 and Figure 47 from the LRSP provides additional details on the crash history in Atherton.

Figure 46: Atherton Crash History

# Atherton—Crash History

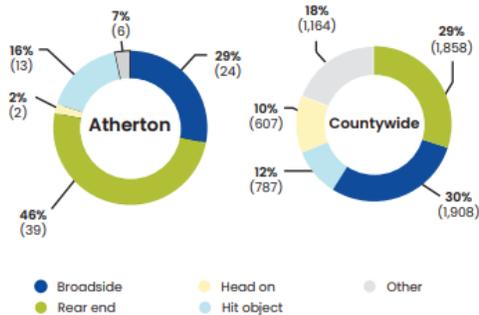
### Total Crashes

In Atherton, 121 fatal and injury crashes were reported on at-grade facilities between 2018 – 2022, where:



### Most Frequent Collision Types

Broadside, rear-end, head-on, and hit-object crashes were the most common crash types in the region. Here is how Atherton compares:



### Mode Involvement

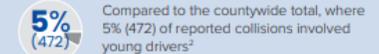
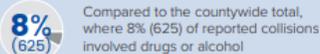
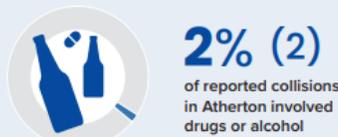
#### Pedestrian Crashes (12)



#### Bicycle Crashes (25)



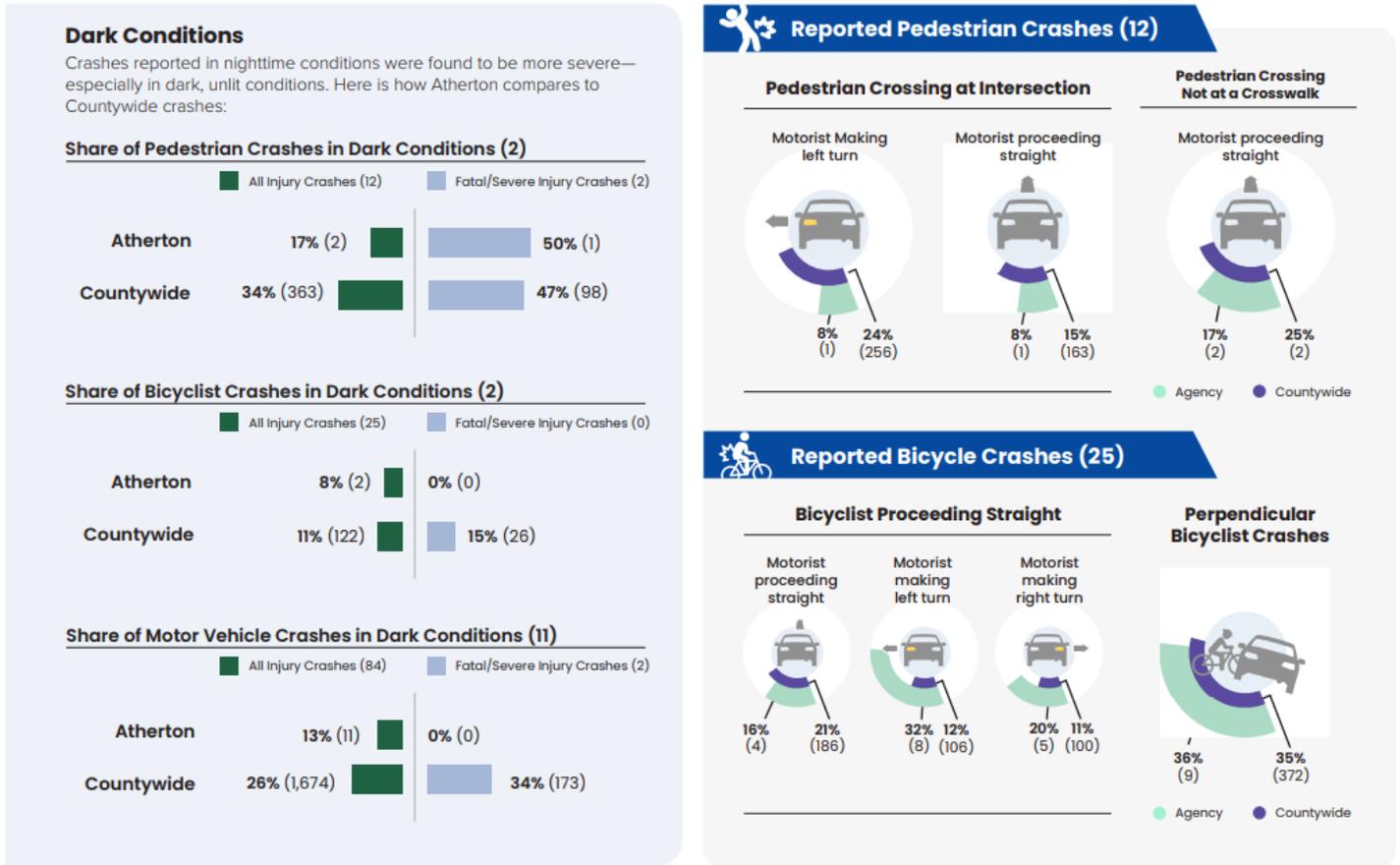
#### Motor Vehicle<sup>1</sup> Crashes (84)



<sup>1</sup> Motor crashes include motor vehicles and motorcyclists.  
<sup>2</sup> Young driver crashes are crashes that involve at-fault drivers who are under 30 years old.

Source: C/CAG, 2024

Figure 47: Atherton Crash History (Continued)



Source: C/CAG, 2024

## HIGH INJURY NETWORK (HIN)

The LRSP identifies the HIN segments in Atherton. Table 14 shows the roadways and mode of the HIN. ECR in Atherton and throughout the study area is identified as a priority to reduce crashes for all modes. Figure 48, Figure 49, and Figure 50 shows the Motor Vehicle HIN, Pedestrian HIN, and Bicycle HIN within the study area.

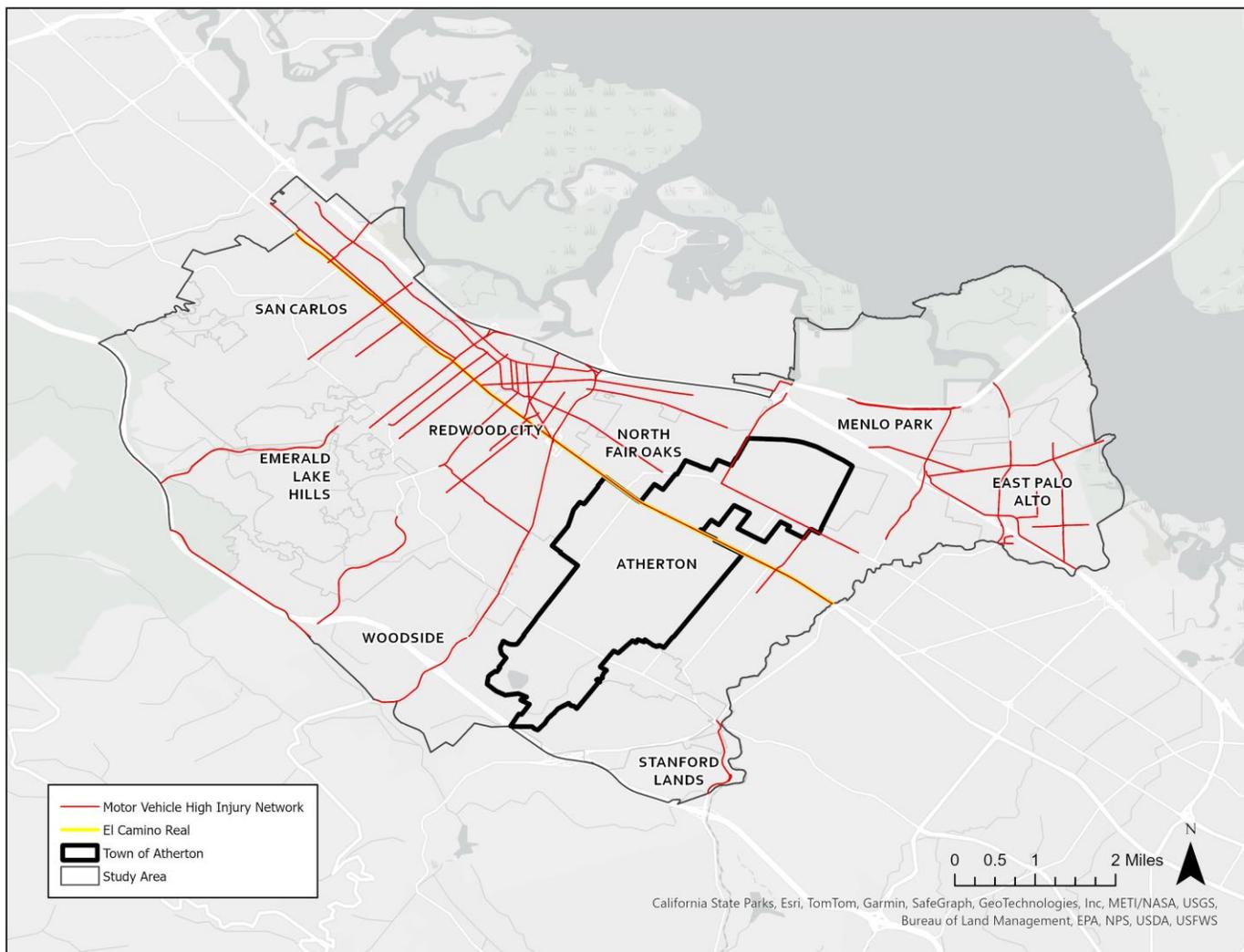
Table 14: Atherton HIN Segments

Roadway	Jurisdictions	Total Length (miles)	Motor Vehicle HIN	Bicycle HIN	Pedestrian HIN
Oak Grove Avenue	Atherton and Menlo Park	1.2		X	X
Ravenwood Avenue	Atherton and Menlo Park	0.6	X	X	X
Middlefield Road	Atherton, Menlo Park, Redwood	3.8	X	X	X

Roadway	Jurisdictions	Total Length (miles)	Motor Vehicle HIN	Bicycle HIN	Pedestrian HIN
	City, Unincorporated				
Marsh Road	Atherton, Menlo Park, and Unincorporated San Mateo County	1.3	X		
ECR	San Carlos, Atherton, Menlo Park, Redwood City, Millbrae, San Bruno, Belmont, San Mateo, Burlingame, South San Francisco, Colma, and Unincorporated San Mateo County	23.5	X	X	X
Alameda de las Pulgas	San Carlos, Atherton, Redwood City, Belmont, San Mateo, And Unincorporated San Mateo County	6.7	X	X	X

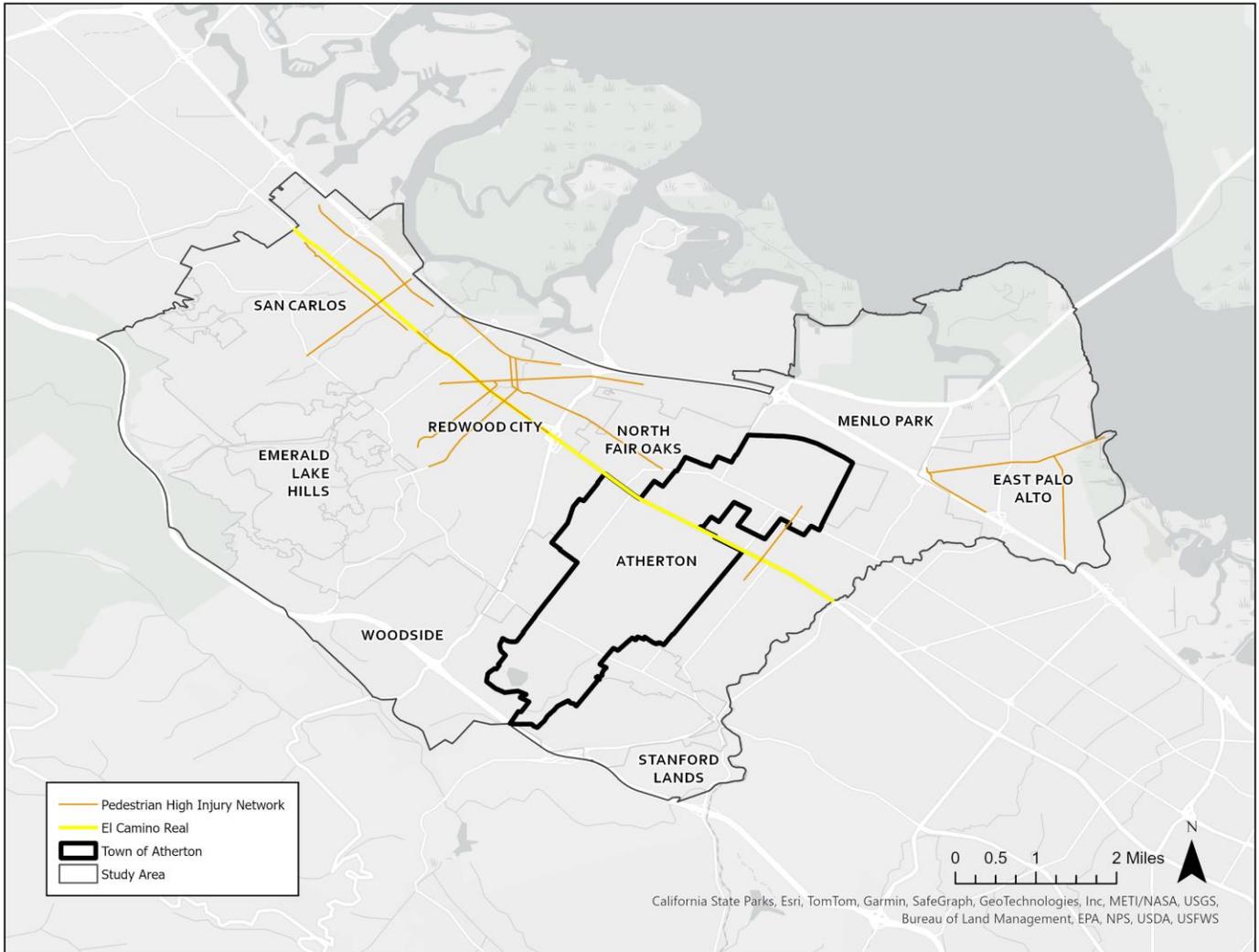
Source: C/CAG, 2024.

Figure 48: Motor Vehicle HIN



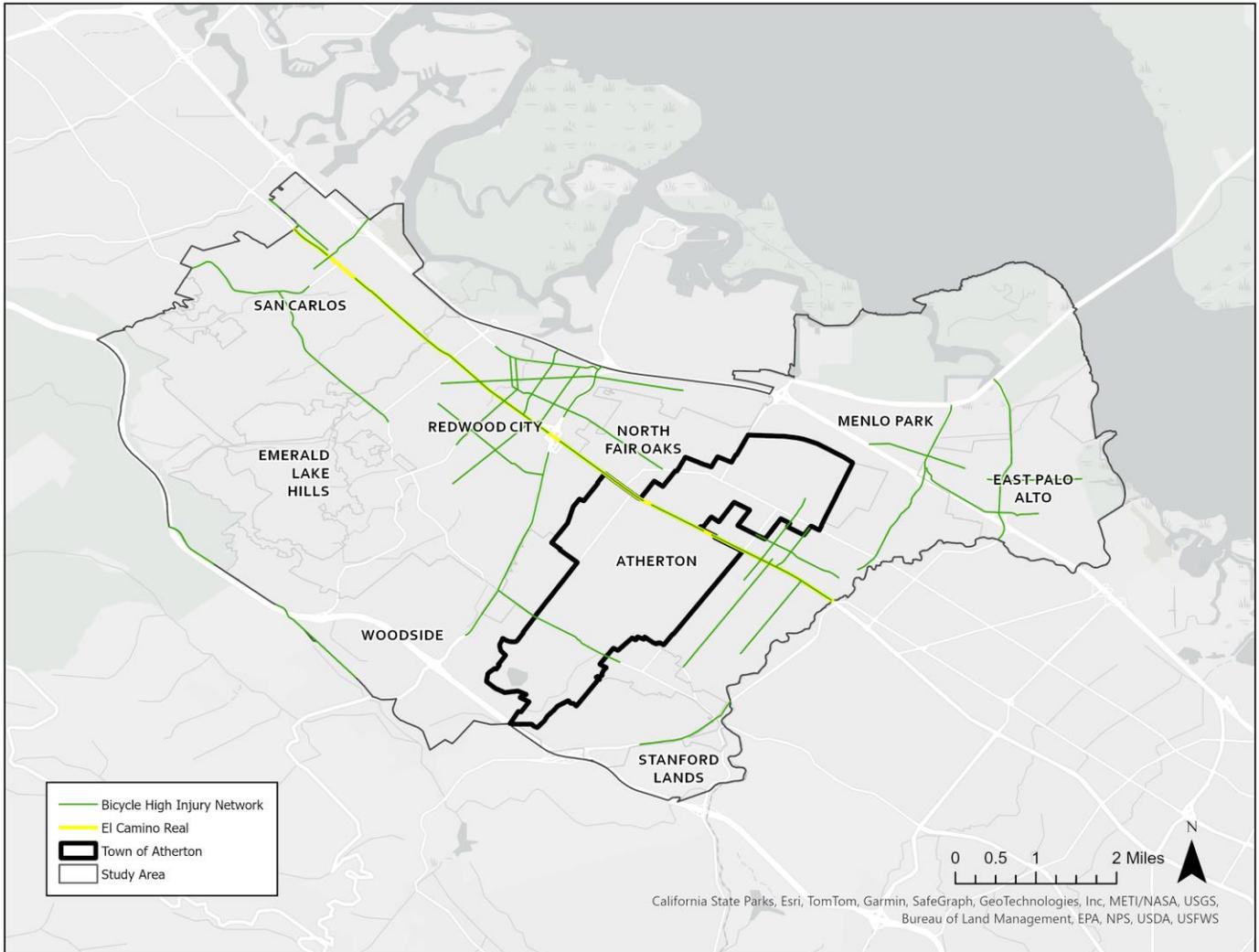
Source: C/CAG, 2024.

Figure 49: Pedestrian HIN



Source: C/CAG, 2024.

Figure 50: Bicycle HIN



Source: C/CAG, 2024.

## PARKING

There is limited on-street parking along the north side of ECR and no street parking along the southside. There are some marked spaces between Encinal Avenue and Valparaiso Avenue, as shown in Figure 51. There are unmarked on-street parking spaces from Encinal Avenue to Alejandra Avenue, Wilburn Avenue to Stockbridge Avenue, and 5<sup>th</sup> Avenue to Selby Lane, as shown in Figure 52.

*Figure 51: Marked On-Street Parking Along Northbound ECR From Encinal Avenue to Valparaiso Avenue*



*Source: Google Maps, 2024.*

Figure 52: Unmarked On-Street Parking on Northbound ECR From Encinal Avenue to Alejandra Avenue



Source: Google Maps, 2024.

## PLANNED ROADWAY NETWORK

Table 15 lists major barriers in the study area from the CBPP that are good candidates for funding to implement the respective plans, studies, and projects.

Table 15: Recommended Roadway Improvements

Location	Jurisdiction/Lead Agency	Notes/Source
Highway 101 Crossings	Menlo Park	Caltrans D4 Bike Plan
University Avenue	East Palo Alto	
Highway 101 Crossings	Redwood City	US 101/SR 84 Interchange Project, Inner Harbor Specific Plan (unadopted)
Alameda de las Pulgas	Multiple jurisdictions (includes San Mateo, Belmont, San Carlos, Redwood City, Atherton, Menlo Park, and West Menlo Park)	Unincorporated San Mateo County Active Transportation Plan (2021)

Location	Jurisdiction/Lead Agency	Notes/Source
5th Avenue in North Fair Oaks	Unincorporated San Mateo County	Unincorporated San Mateo County Active Transportation Plan (2021)
Caltrain Crossings	Grade Separation Feasibility Study (underway)	Redwood City station
Caltrain Crossings	Unincorporated San Mateo County	San Mateo County applied for Caltrans Sustainable Transportation Planning funds in 2021 to study a grade-separated bike/pedestrian crossing of the Caltrain corridor in North Fair Oaks between 5th Avenue and County/Redwood City boundary, crossing may be at Pacific Avenue or at Berkshire Avenue and Westmoreland Avenue

Source: C/CAG, 2021.

## KEY TAKEAWAYS

The mobility network within the study area is comprised of SamTrans bus routes, shuttle routes, Caltrain, bicycle and pedestrian facilities, and various state roadways. Some of the bus stops along the project corridor are non-ADA-accessible and are difficult to access via walking or bicycling. There are a number of plans that have been completed to improve transit access and performance in the study area including SamTrans’ Bus Stop Improvement Plan and ECR Bus Speed and Reliability Study. While this portion of ECR does not currently have any dedicated bicycle facilities, the CBPP recommends a Class 2b buffered bicycle lane to improve conditions for bicyclists. The pedestrian network along the project corridor is lacking sidewalks on the southbound section which can make using the corridor problematic for pedestrians. ECR is listed on the county’s HIN for all modes and safety improvements should be prioritized within the project corridor.

## 6. CONCLUSION

This memo documents the existing conditions along the project corridor and within the study area. The data analyzed and corresponding results presents a baseline of travel conditions and demographics within the study area. ECR is an important north-south corridor that provides San Mateo County residents with a non-freeway facility to travel within the county. The project corridor is accessed by several modes, all of which need to be considered when recommending changes to the corridor. Safety should be the primary concern, as there are a number of crashes along the project corridor. While Atherton itself does not have a large concentration of underserved communities, nearby areas such as Redwood City and North Fair Oaks would benefit from improvements to the project corridor.

# El Camino Real Complete Streets Corridor Study

## Phase 1 Engagement Summary

### Introduction and Overview of Events

In Phase 1 of the El Camino Real Complete Streets Corridor Study, the Town of Atherton, the San Mateo County Transportation Authority (TA), and Winter Consulting engaged in a series of community outreach events to gather input from various stakeholders. The goal was to establish a shared understanding of the project and collect insights on existing conditions, opportunities, and challenges. In Phase 1 of Engagement, the project team organized various engagement activities including one technical working group meeting, three pop-ups, four listening sessions, two focus groups with CBO partners, and one virtual community meeting. These events were aimed at engaging corridor users, local residents, property owners, advocacy groups, and school administrators, with a focus on reaching equity priority communities, including Spanish speakers and North Fair Oaks (NFO) residents.

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 bus stop signage was posted 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.

This summary highlights key findings and feedback from Phase 1 engagement activities.

Event	Date	Time	Touchpoints	Format
Technical Working Group Meeting #1	April 26, 2024	1:00 PM - 2:30 PM	Seven participants <ul style="list-style-type: none"> <li>• Caltrans, County and city staff</li> </ul>	Virtual
Pop Up: Atherton Earth Day Festival	April 21, 2024	11:00 AM - 3:00 PM	80 individuals	In-person
Listening Session #1	May 15, 2024	2:30 PM - 3:30 PM	7 participants <ul style="list-style-type: none"> <li>• School administrators</li> </ul>	Virtual

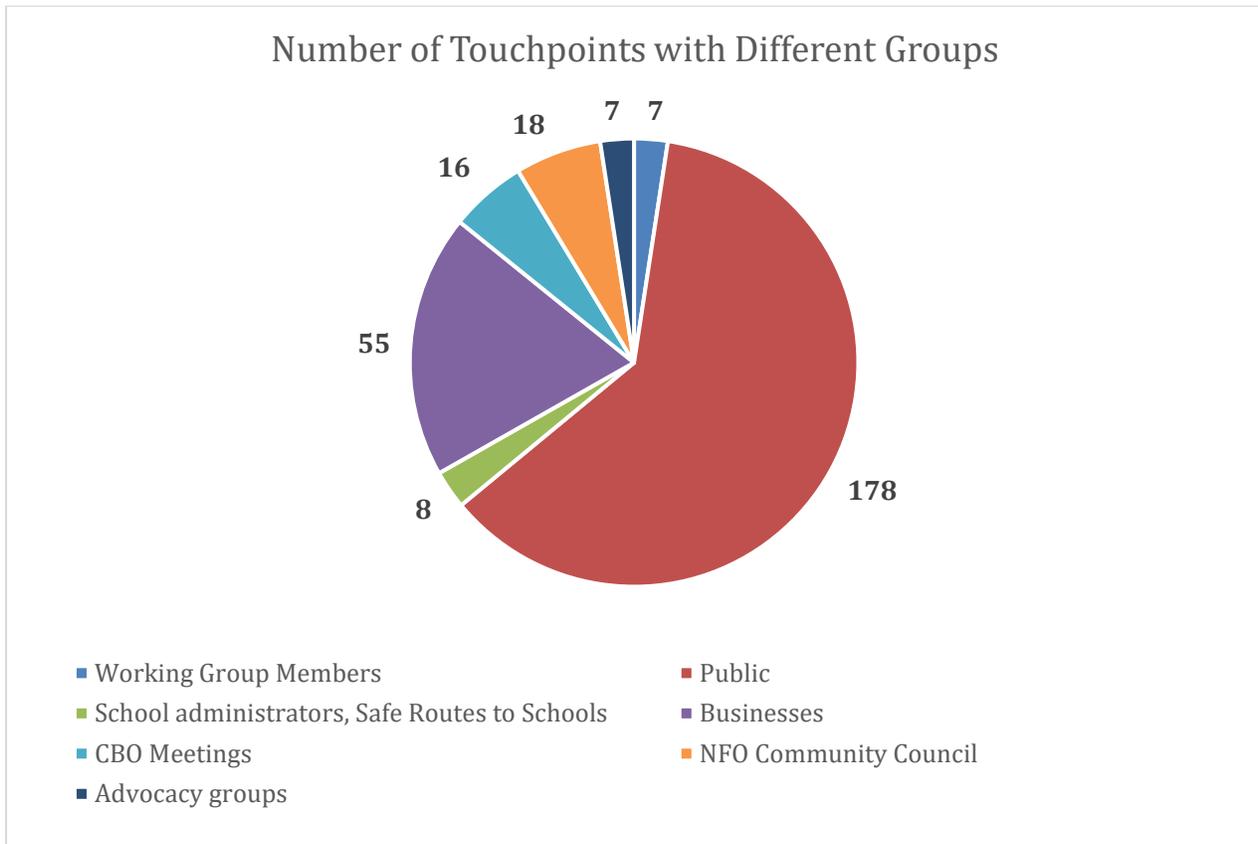


**El Camino Real Complete Streets Study  
Phase 1 Engagement Summary**

Event	Date	Time	Touchpoints	Format
			<ul style="list-style-type: none"> <li>Safe Routes to Schools coordinators</li> </ul>	
Listening Session #2 (Silicon Valley Bicycle Coalition)	May 23, 2024	12:00 PM - 1:00 PM	7 participants <ul style="list-style-type: none"> <li>Advocacy group members</li> </ul>	Virtual
Listening Session #3	May 24, 2024	6:00 PM - 7:30 PM	1 participant <ul style="list-style-type: none"> <li>Menlo College staff</li> </ul>	Virtual
Canvassing Businesses in the Study Area	July 10, 2024	9:30 AM – 11:30 AM	55 businesses invited to attend the community meeting and fill out the survey	In-person
Virtual Community Meeting	June 13, 2024	6:00 PM - 7:30 PM	12 participants <ul style="list-style-type: none"> <li>Residents of neighborhoods along Selby Lane, Spruce Avenue, and within NFO</li> </ul>	Virtual
Pop Up: Fair Oaks Community Center	June 14, 2024	3:00 PM – 5:00 PM	41 individuals	In-person
Pop Up: Redwood City Music in the Park	June 26, 2024	5:00 PM - 8:00 PM	45 individuals	In-person
Focus Group: Acterra	June 27, 2024	4:00 PM - 5:00 PM	8 participants <ul style="list-style-type: none"> <li>Residents of neighborhoods along the El Camino Real corridor</li> </ul>	In-person
Listening Session #4 (North Fair Oaks Community Council)	June 27, 2024	7:00 PM - 9:00 PM	18 participants <ul style="list-style-type: none"> <li>Eight North Fair Oaks council members</li> <li>10 members of the public</li> </ul>	Hybrid
Focus Group: El Concilio	July 2, 2024	6:00 PM - 7:00 PM	8 participants <ul style="list-style-type: none"> <li>Residents of North Fair Oaks who drive and use transit along corridor</li> </ul>	In-person
<b>Total Number of Touchpoints with Individuals:</b>			<b>289</b>	



Overall, the project team had individual touchpoints with approx. 289 people throughout Phase 1.



*Chart 1: The number of touchpoints with individuals across all in-person and virtual engagement activities, broken down by audience type.*

## Key Takeaways on the Corridor

### Pedestrian Safety and Infrastructure

- Community members raised significant concerns about the quality of pedestrian infrastructure along El Camino Real.
- Community members emphasized the importance of adding continuous sidewalks along both sides of the corridor, particularly because rainy conditions make the dirt paths inaccessible.
- Many community members pointed out the risks of crossing multiple lanes of traffic on El Camino Real and mentioned crosswalks as currently built out are often ignored by drivers. Participants called for more crosswalks with flashing lights and pedestrian refuges midway through crossings.
- Many participants stressed how dangerous it is to walk along the corridor without lighting at night and early in the morning. Multiple participants expressed that they walk along this corridor during these times to get to work.
- Participants expressed a desire to be able to safely walk to the bus stops along El Camino Real.

## **Bicycle Lanes and Safety**

- Many community members expressed a willingness to travel more often by bike if infrastructure were improved to create a safe cycling experience. Key suggestions included:
  - Replacing dirt paths with paved sidewalks
  - Improving street level lighting
  - Adding protected bike lanes, particularly Class II bike lanes, without taking into account the gutter along sidewalks when determining the width of the lanes
  - Narrowing or reducing traffic lanes to make space for additional bike lanes
  - Converting parts of the street median into a bike or pedestrian trail.
- School administrators and Safe Routes to Schools coordinators offered varying opinions on whether improved bicycle and pedestrian infrastructure on El Camino Real would lead to an increase in students and staff members using active transportation along El Camino Real. Most parents across focus groups were hesitant to allow their children to bike along El Camino Real regardless of improved bicycle facilities.
- Some participants felt that a bike lane along this corridor would help improve connectivity across El Camino Real as a whole.

## **Public Transportation and Bus Stops**

- Many community members from North Fair Oaks and other surrounding equity priority communities depend on El Camino Real bus service to commute to work, run errands, and move through the larger area.
- Some North Fair Oaks community members shared that visibility surrounding bus stops is unsafe, particularly for those working in the service and hospitality sectors who have late evening/early morning work hours.
- School administrators, advocacy organizations, and residents along the corridor all highlighted difficulties accessing bus stops. Accessing bus stops is even more difficult during rain, as the dirt paths either flood or become muddy.
- Community members suggested installing protective coverings and seating to improve the waiting conditions at bus stops along El Camino Real.
- Some participants suggested installing bus islands for safer transit use.
- Participants heavily emphasized issues with bus service reliability, including delays and inaccurate schedules. Participants spoke about how the unreliable bus service negatively affects them when getting to work or other time-sensitive destinations.
- Participants also mentioned that because of the lack of lighting at the bus stops, drivers may not always see them at the stops and can be passed up.
- Community members called for bus stops to be more evenly spaced out along the corridor.
- Some participants felt that a bus lane on El Camino Real would not be worth the loss of a traffic lane considering how infrequently the bus currently runs, though Route ECR is supposed to be at 15-minute frequencies.



- Participants at the North Fair Oaks Community Council listening session identified a potential opportunity to align with the SamTrans Bus Stop Improvement Plan efforts.

### **Traffic and the Driver Experience**

- Drivers emphasized that a lack of lighting along the corridor makes it difficult for drivers to identify pedestrians walking along the corridor. Community members explained that additional lighting would make them feel safer when driving.
- Drivers described congestion caused by cars attempting to turn left on the corridor. Participants asked for either an increase in protected left turns or a decrease in intersections where left turns are allowed.
- Community members shared that it is stressful as a driver when pedestrians are forced to walk on the road shoulder due to narrow or lack of sidewalks.
- Community members reported visibility issues when turning onto El Camino Real. Drivers have to edge forward to see oncoming traffic, putting other drivers, crossing pedestrians, and bicyclists at risk.
- Community members advocated for reduced traffic speeds. School administrators stressed that speeding and unsafe maneuvering heightens risk during school pick up and drop off windows.
- Community members observed that drivers do not follow traffic safety rules. They've often observed drivers failing to use turn signals, ignoring pedestrian hybrid beacons and traffic lights, and driving over the speed limit.
- Some community members were concerned about whether parking would be reduced, while others supported reduced parking as drivers getting out of their cars will sometimes force drivers to swerve out of their lane to make space for opening doors.
- Community members supported maintaining the current landscaping and tree canopy due the aesthetic appeal, but cited this as sometimes causing visibility issues with shading.
- Improved landscaping and visibility were also highlighted by community members along with extending solid white lanes southbound on El Camino Real to prevent drivers from misusing the far-right lane as an express lane.

### **Flooding on El Camino Real**

- Participants reported that flooding forces pedestrians and cyclists onto the road during rainy conditions and advocated for a complete sidewalk network to mitigate dangerous conditions.
- Community members also expressed flooding worsens traffic and the experience of commuting by car.
- Flooding on the southbound side of the corridor makes bus stops along the corridor inaccessible.



**Feedback on Specific Intersections on El Camino Real**

Intersection with ECR	Comments
5th Avenue	<ul style="list-style-type: none"> <li>• Multiple comments reflecting dangerous driving, walking, and biking at this intersection</li> <li>• Suggestions for improved crosswalks with beacons</li> <li>• Concerns about students being able to access Selby School</li> </ul>
Selby Lane	<ul style="list-style-type: none"> <li>• Frustration about lack of progress and implementation of improvements previously identified as part of prior planning efforts</li> <li>• Multiple comments reflecting dangerous driving, walking, and biking at this intersection</li> <li>• Concerns about students being able to access Selby School</li> <li>• Comment about NFO residents not being considered during previous planning efforts at this intersection</li> <li>• Reported visibility issues when turning onto El Camino Real as a driver</li> <li>• Reported confusion and congestion caused by cars blocking the street and not using turn signals</li> <li>• Multiple comments that flooding near Selby Lane presents challenges</li> <li>• Multiple suggestions to install a stop sign at this intersection</li> <li>• Observations that the narrow pedestrian pathway at this intersection forces pedestrians to walk on the roads and causes stress for drivers</li> </ul>
Atherton Avenue	<ul style="list-style-type: none"> <li>• Challenging to cycle near this intersection due to lack of lighting</li> <li>• Reports of accidents at this intersection because drivers are trying to turn onto corridor</li> </ul>
Valparaiso Avenue	<ul style="list-style-type: none"> <li>• Multiple comments about this intersection being particularly high-traffic, partially due to drivers avoiding Santa Cruz Avenue</li> <li>• Multiple reports of drivers speeding through intersection</li> <li>• Increased pedestrian danger because of lack of sidewalks</li> <li>• Comments that cars don't stop at the traffic light</li> <li>• One suggestion to not add more parking northbound of this intersection to avoid making traffic even more difficult for drivers</li> </ul>
Alejandra Avenue	<ul style="list-style-type: none"> <li>• Comments from school administrators stressing the lack of traffic control during school pick up and drop off windows</li> <li>• Reports from school administrators of dangerous driving behavior, such as drivers getting out of their vehicles and activating the pedestrian hybrid beacon to then get in their vehicles to cross El Camino Real</li> <li>• Reports of drivers ignoring the pedestrian hybrid beacon when driving through the intersection on El Camino Real</li> </ul>
Encinal Avenue	<ul style="list-style-type: none"> <li>• Comment that time permitted for pedestrians to cross this intersection is insufficient</li> <li>• Comment that turning left is dangerous due to pedestrians and cyclists on the road shoulder</li> </ul>



**El Camino Real Complete Streets Study  
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Intersection with ECR	Comments
Almendral Avenue	<ul style="list-style-type: none"> <li>• Reported speeding despite traffic calming measures at this intersection</li> </ul>
Middlefield Road	<ul style="list-style-type: none"> <li>• Visibility issues at this intersection</li> </ul>
Spruce Avenue, Watkins Avenue	<ul style="list-style-type: none"> <li>• Calls for additional lighting at these intersections to help drivers better see pedestrians</li> </ul>
Oakwood Drive, Stockbridge Avenue	<ul style="list-style-type: none"> <li>• Comment that participant prefers turning left at these intersections where there are traffic lights</li> </ul>

## Survey Results

The online survey and activity map were active from April 21 to June 28, 2024. Overall, there were 320 responses to the online survey and 59 markers were added to the activity map to show locations that people enjoy visiting or where conditions make it challenging to get around.

The online survey was promoted on the Town’s website, through social media posts, shared by funding partners and neighboring cities, promoted at in-person and virtual events, included in outreach letters to local businesses, and posted on temporary signage that were installed at bus stops along El Camino Real within the study area.

### Top Priorities to Improve Travel

The online survey asked respondents to select their top three priorities for travel along El Camino Real. The chart below indicates which options were ranked the highest based on what people selected as their top priorities. Safety for pedestrians, cyclists, and drivers were ranked the highest overall while concern for maintaining street parking was one of the lowest priorities for respondents.



**El Camino Real Complete Streets Study  
Phase 1 Engagement Summary**

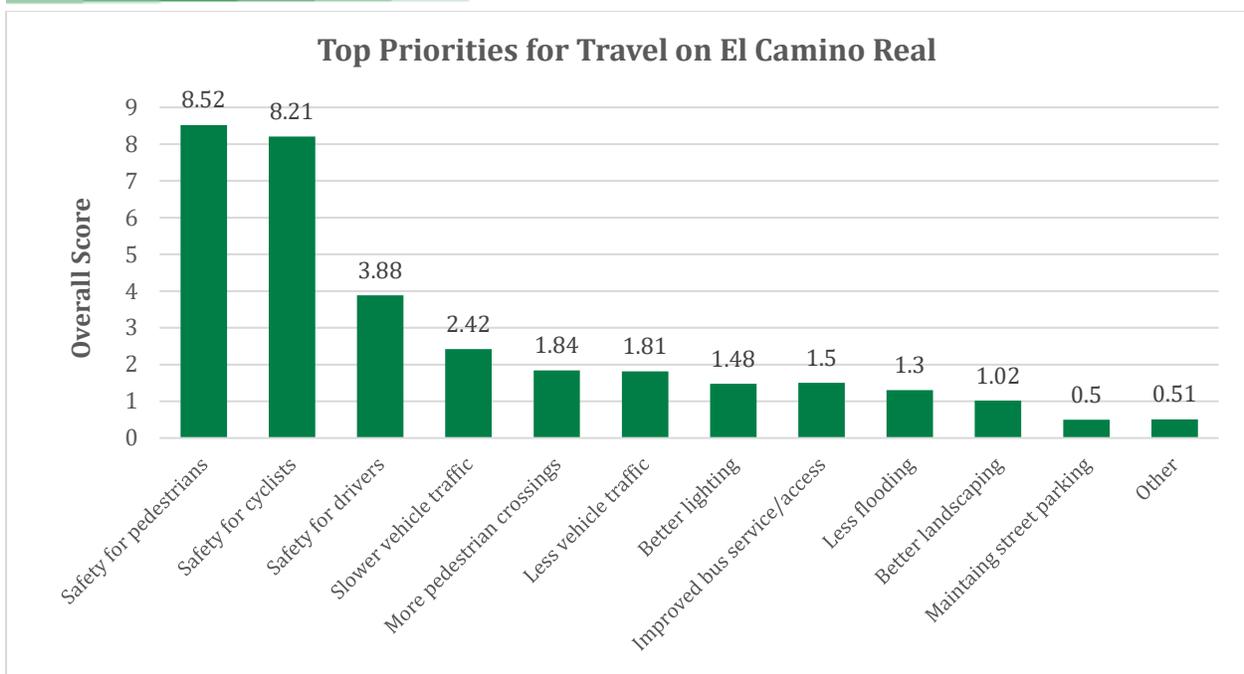


Chart 2: Ranked priorities for travel along El Camino Real. Note that the overall score is calculated as the sum of the weight of each ranked position, multiplied by the response count for the position choice, divided by the total contributions.

**Map Data**

Respondents were asked to add markers to the activity map to show the location of challenging places and desired locations.

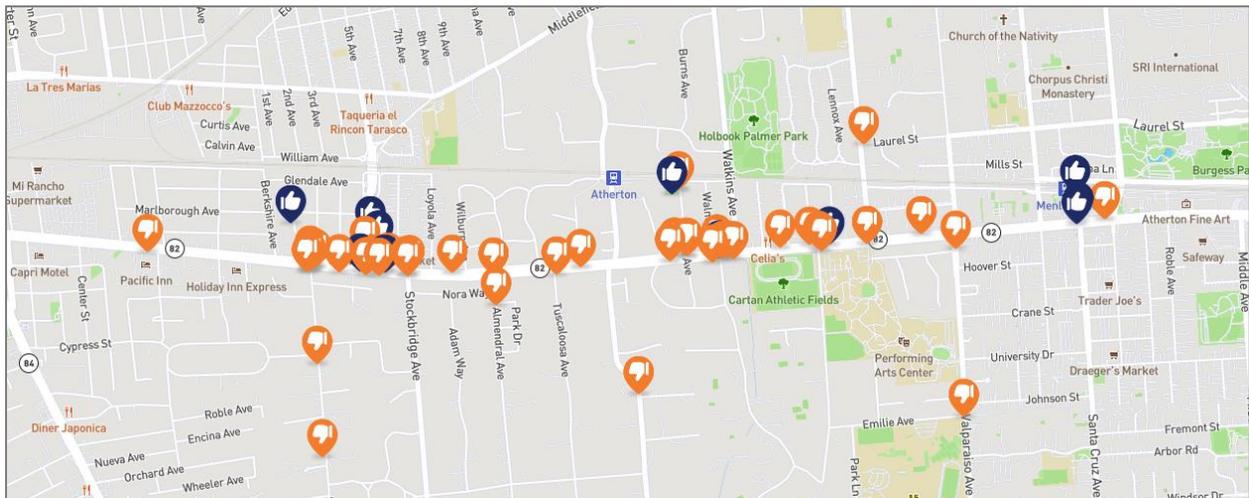


Figure 1: Markers placed on the activity map online.

Many respondents offered detailed comments to describe where they had experienced or witnessed a collision between vehicles, cyclists, or pedestrians (see Figure 2). Comments also cited specific locations where there is a desire to improve safety at intersections, add or improve pedestrian crosswalks, introduce paved sidewalks, or where bike lanes are needed (see Figure 3).



# El Camino Real Complete Streets Study Phase 1 Engagement Summary

Figure 4 includes the location of desired locations that were specifically described in the online survey or as markers placed on the activity map. These destinations indicate where people would like to travel more on foot, by bike, or other forms of active transportation if conditions along El Camino Real were improved.

## Atherton Phase 1 Survey Responses: Collisions & Near Misses

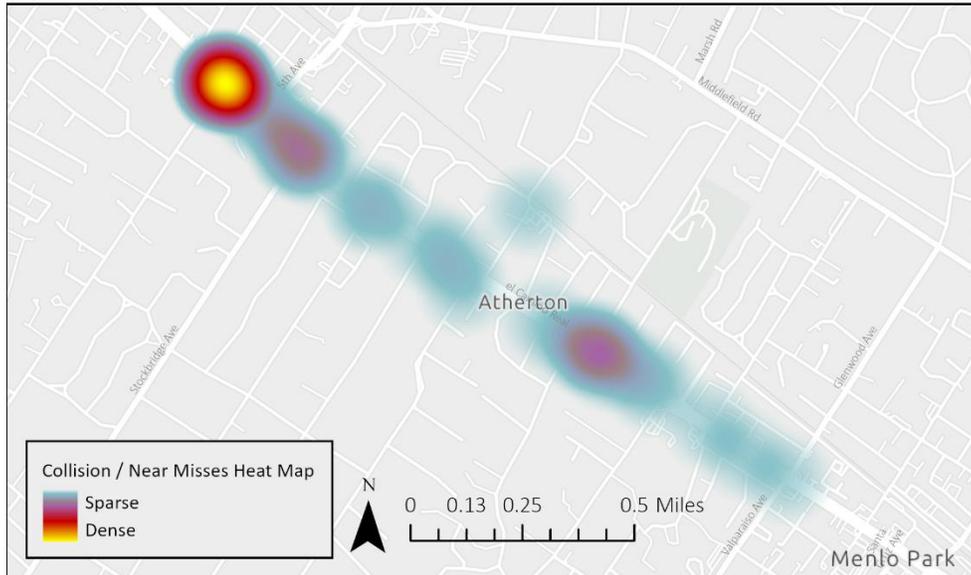


Figure 2: Mapped locations of collisions or near misses as reported by the public.

## Atherton Phase 1 Survey Responses: Traffic Improvements

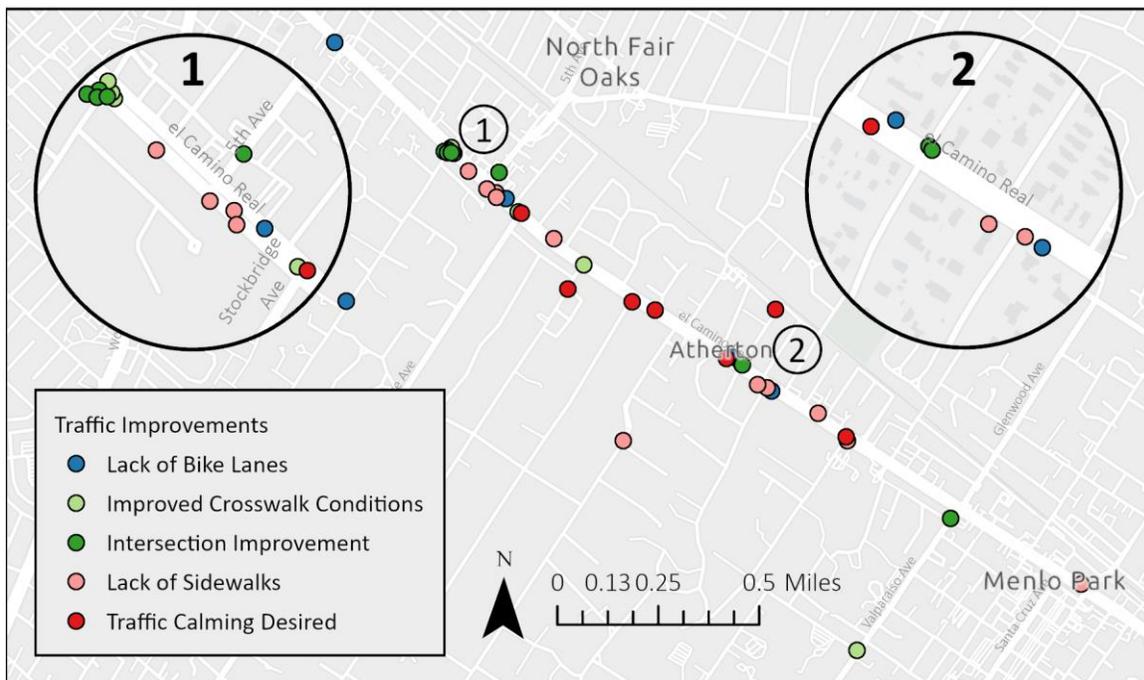


Figure 3: Map of locations where the public reported a need to improve safety or traffic conditions.

## Atherton Phase 1 Survey Responses: Desired Destinations

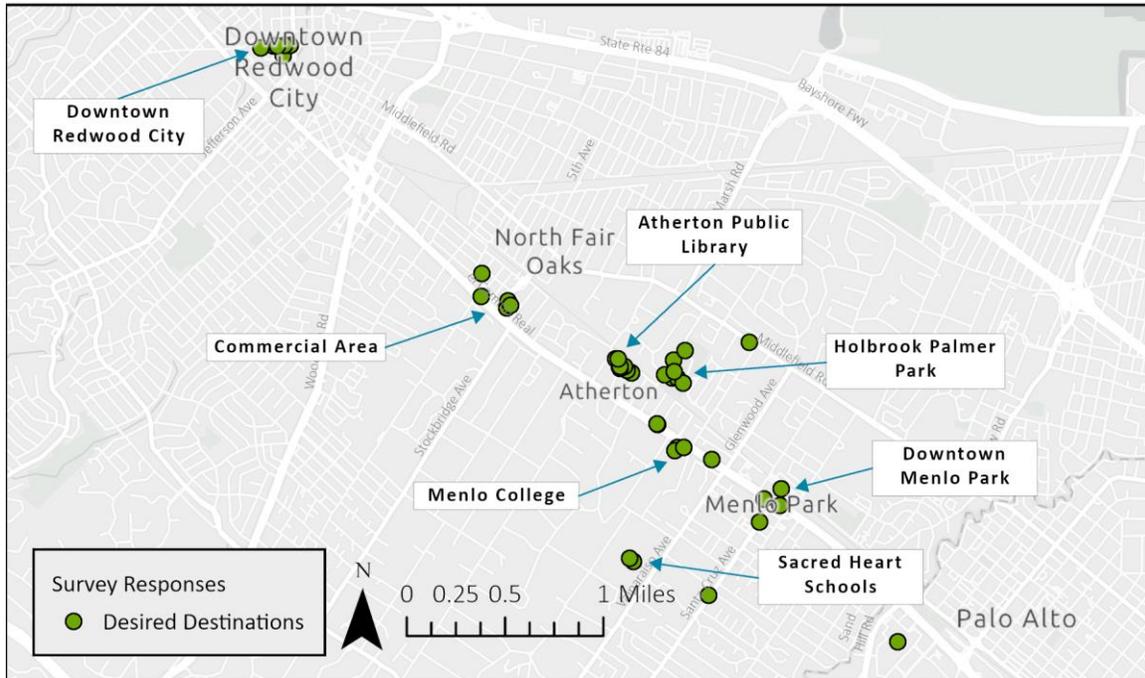


Figure 4: Mapped locations of desired destinations in proximity to the study area.

### Respondent Demographics

The majority of respondents live in San Mateo County (84.74%), with 12.46% from Santa Clara, and less than 3% from other counties. The project team heard from a broad range of age groups as shown in Figure 5, while most respondents self-identified as white (63.29%), Asian (15.82%), or Hispanic/Latino (6%). There were 156 respondents who identify as female, 142 as male, 1 indicated 'other', while 21 declined to respond to this question.

**El Camino Real Complete Streets Study  
Phase 1 Engagement Summary**

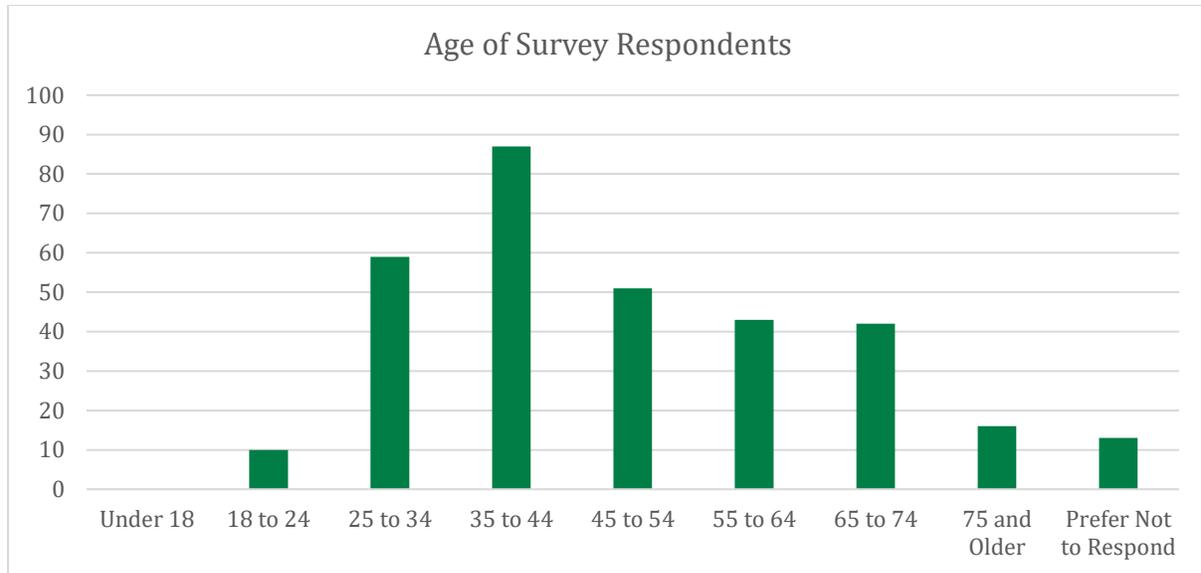


Figure 5: Age of survey respondents.

Most of the respondents reported an annual household income of \$150,000 or more. However, there were 64 respondents who reported an annual household income of less than \$150,000 and 77 people declined to respond.



## El Camino Real Complete Streets Corridor Study Phase 2 Engagement Summary

### Introduction and Overview of Public Engagement

In Phase 2 of the El Camino Real Complete Streets Corridor Study, the Town of Atherton, the San Mateo County Transportation Authority (SMCTA), WSP, and Winter Consulting engaged in a series of community engagement activities to gather input from various stakeholders on the pros and cons of the top three design concepts developed following the initial outreach efforts.

This included an online survey that was available to the public via the project website. The survey was promoted via the project website, email blasts, social media, and promoted in the Athertonian newsletter that is delivered to all residents in Atherton. Flyers were distributed at Town events and letters were mailed to businesses along the corridor to promote participation in the online survey, which ultimately gathered 493 responses over eight weeks, 55 percent of whom self-identified as Atherton residents. Results of the survey are provided below.

In Phase 2 of Engagement, the project team also organized engagement events, including one technical working group meeting, three pop-up events, two listening sessions, two focus groups with Community-Based Organization (CBO) partners, and one virtual community meeting. These events were aimed at engaging the broad spectrum of corridor users, local residents, property owners, school administrators, businesses, and advocacy groups that focus on reaching equity priority communities, including Spanish speakers and North Fair Oaks (NFO) residents. Approximately 216 people participated in in-person or virtual events, which resulted in “touchpoints” where participants were able to relate their ideas in person or virtually, providing insight into their input.

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. The online survey provided a cost-effective way to reach a wider audience and get measurable results. The engagement events were complementary tactics to have more of a dialogue and conversation about specific topics and issues.

- 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?



## What We Heard

The online survey and activity map were active for eight weeks from January 13, 2025 to March 7, 2025. Overall, there were 493 responses to the online survey. The online survey was promoted on the Town’s website, through social media posts, shared by funding partners and neighboring cities, promoted at in-person and virtual events, and included in outreach letters to local businesses.

As illustrated in the following tables, there was nearly equal between Concept 2, which had the highest average ranking of 3.01, and Concept 1 with an average ranking of 2.99. Among Atherton residents, Concept 1 received the greatest support, 42% finding that it meets their needs. Concepts 2 and 3 received much lower support.

Results of Public Survey (Percentages)

	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)
<b>Concept 1</b>	2.99	27%	29%	3.47	21%	42%
<b>Concept 2</b>	3.01	32%	30%	2.19	51%	13%
<b>Concept 3</b>	2.54	31%	9%	2.08	28%	19%

Results of Public Survey (Responses)

	All Respondents (493)			Atherton Respondents (265)		
	Mostly Meets Needs (Score: 3-5)	Does Not Meet Needs (Score: 1)	Does Meet Needs (Score: 5)	Mostly Meets Needs (Score: 3-5)	Does Not Meet Needs (Score: 1)	Does Meet Needs (Score: 5)
<b>Concept 1</b>	278	135	143	185	56	112
<b>Concept 2</b>	281	160	146	91	135	34
<b>Concept 3</b>	241	153	46	84	128	19

The majority of survey respondents who identified as residents of Atherton currently consider El Camino Real to be a highway where bikes and pedestrians should not be encouraged in fear of increasing the number of collisions. While there was support to improve safety, most residents do not observe many cyclists along this route and felt that there is no demand for bike lanes on this street. Several would prefer that bicycles be routed along local streets instead. They also expressed broad concern about the removal of traffic lanes because of increases in travel time. Residents felt that El Camino Real is 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.

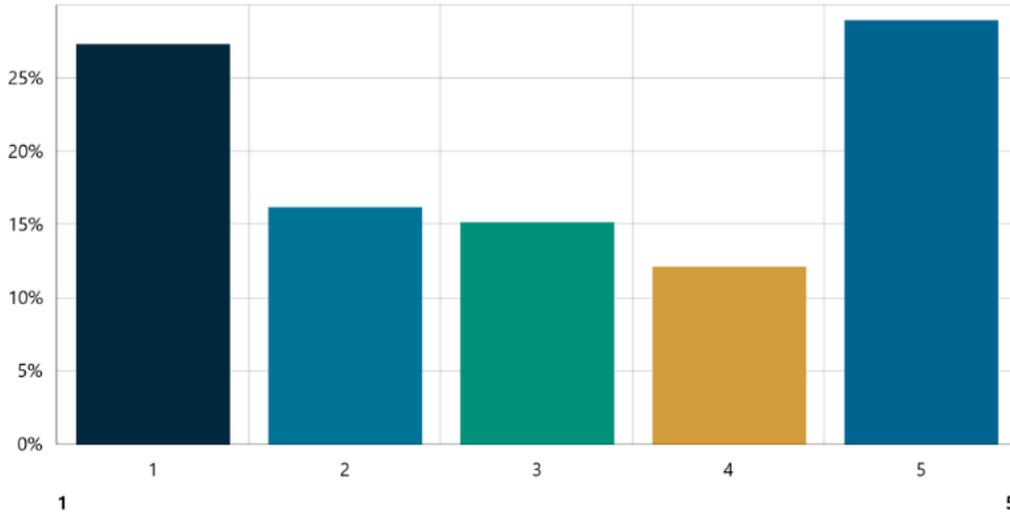


## Feedback on Design Concept #1

Question: On a scale of 1 to 5, how well would this design meet your needs? (1 = Does not meet my needs, 5 = Meets my needs very well)

**1. On a scale of 1 to 5, how well would this design meet your needs? (1 = Does not meet my needs, 5 = Meets my needs very well) Required**

Slider | Skipped: 0 | Answered: 493 (100%)



Count	Average	Median	Min	Max
493	2.99	3.00	1	5

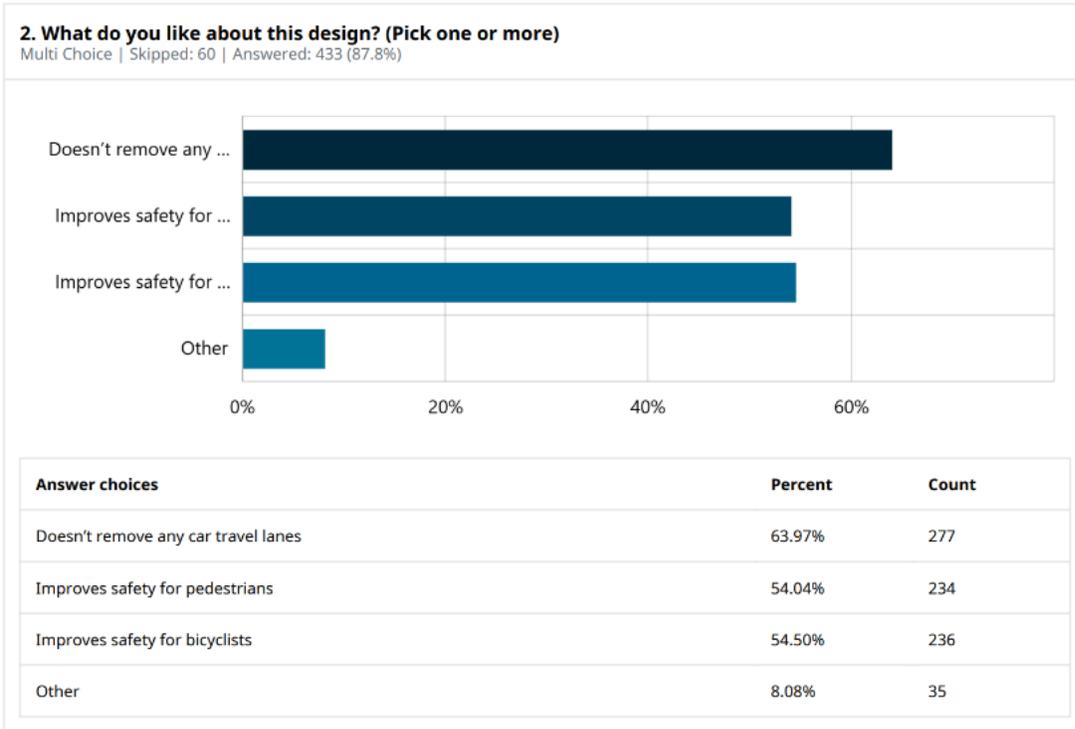
1	2	3	4	5
27.38%	16.23%	15.21%	12.17%	29.01%
135	80	75	60	143

The survey results indicate a varied reception to the first design, with an average rating of 2.99. A significant portion of respondents rated the design as 1 (27.38%) and 5 (29.01%), reflecting contrasting opinions. The remaining ratings were distributed as follows: 2 (16.23%), 3 (15.21%), and 4 (12.17%).

# El Camino Real Complete Streets Study

## Phase 2 Engagement Summary

Question: What do you like about the Concept 1 design? (Pick one or more)

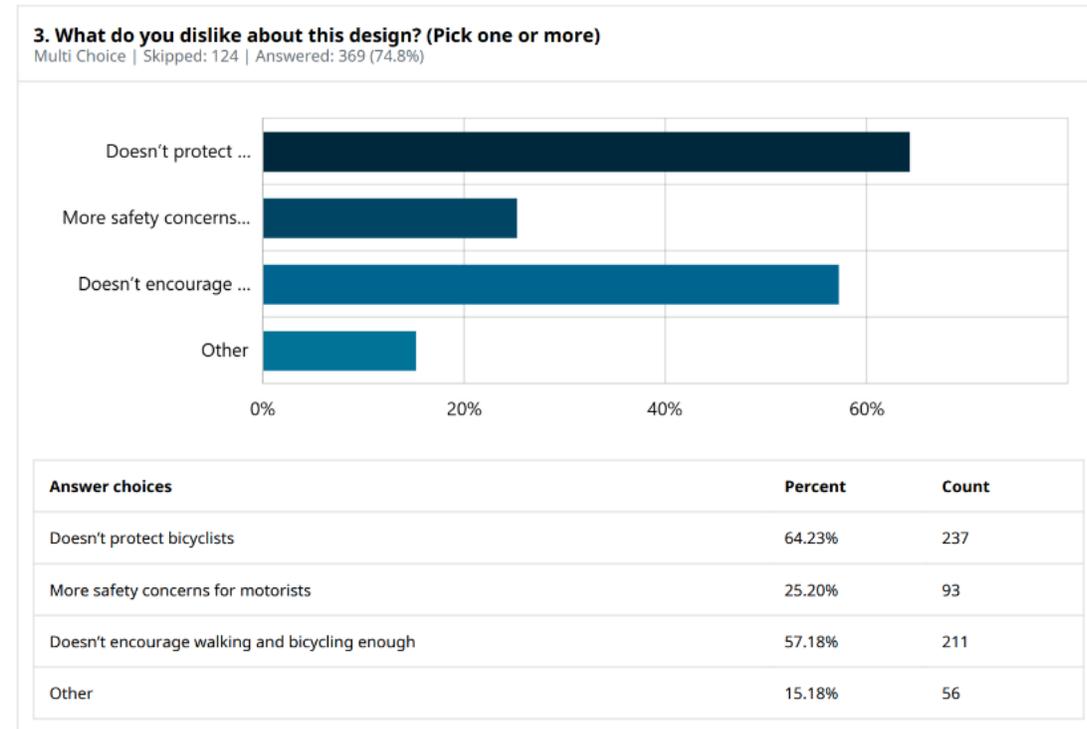


The survey results highlight key aspects of design concept #1 that respondents appreciate. A majority (63.97%) value that it doesn't remove any car travel lanes. Additionally, 54.04% appreciate the improved safety for pedestrians, and 54.50% favor the enhanced safety for bicyclists. A smaller portion (8.08%) mentioned other reasons.



## El Camino Real Complete Streets Study Phase 2 Engagement Summary

Question: What do you dislike about the Concept 1 design? (Pick one or more)



The survey results reveal concerns about design concept #2. A majority (64.23%) feel it doesn't protect bicyclists, while 57.18% believe it fails to encourage walking and bicycling sufficiently. Additionally, 25.20% think the design creates more safety concerns for motorists, and 15.18% mentioned other issues.

### Comments on Design Concept #1 (By Theme)

Subject of Comment	Number of Mentions	Percentage
Not enough protection for bike/ped	35	17%
Supportive of this option	32	15%
Concerns the design won't reduce vehicle speeds	28	13%
Design Suggestions (I.e. Proposing traffic lights, crosswalks, etc.)	28	13%
Opposed to reducing vehicle lanes	18	9%
Questioning the purpose or need of the project (I.e. How many cyclists really use this corridor, etc.)	16	8%
Safety concerns	15	7%
Will make congestion worse	14	7%
Encourage Bike/Walk on another route	13	6%
Opposed	8	4%
Other	3	1%
<b>TOTAL</b>	<b>210</b>	



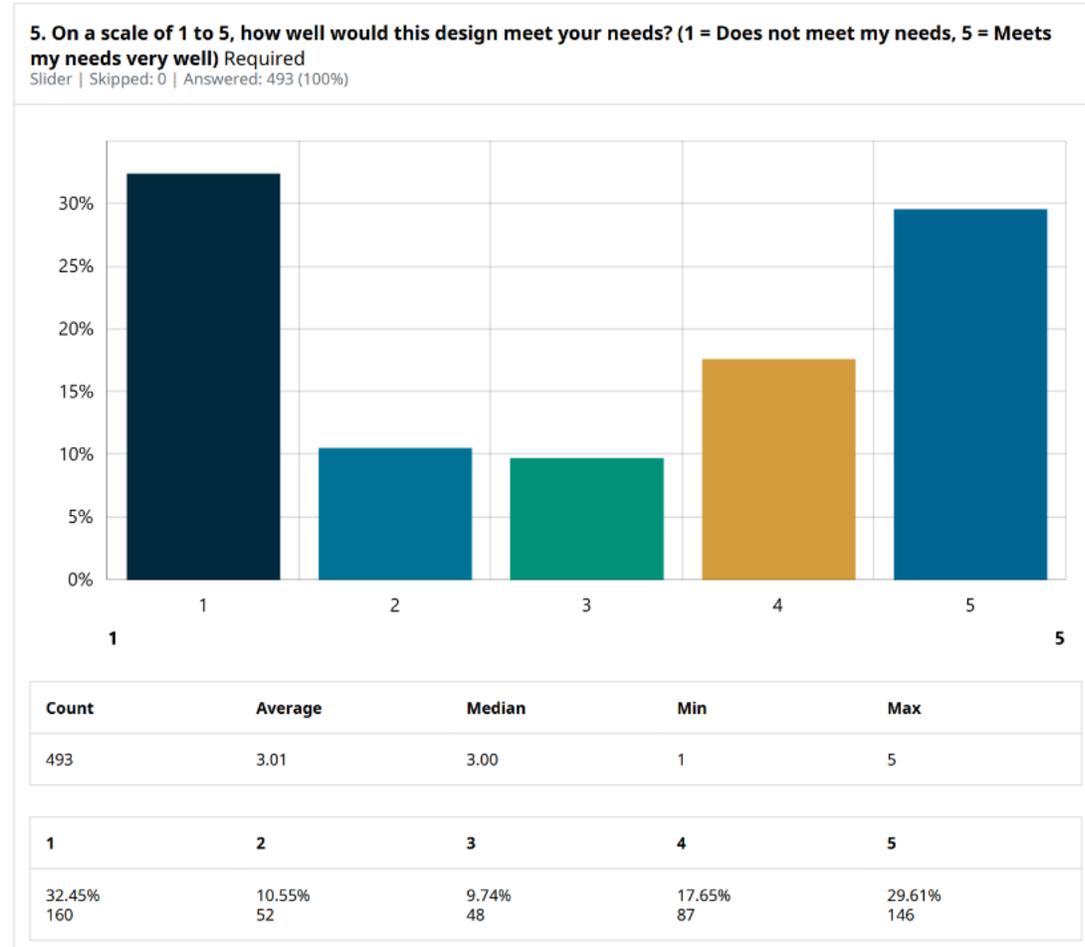
## Key Takeaways

- **Insufficient Protection for Bicyclists and Pedestrians:** Overall, survey respondents expressed a strong focus on safety and balancing different travel modes in El Camino Real. There is significant concern about the design not offering adequate protection for cyclists and pedestrians. There is concern that inviting more cyclists and pedestrians along ECR without adequate protection will increase the likelihood of collisions.
- **Need for Wider Sidewalks:** Strong need to ensure adequate space for pedestrians, emphasizing that sidewalk design should be a key consideration.
- **Polarized Values and Priorities:** While some respondents are supportive of the design, others expressed concern about narrowing the current vehicle lanes to make space for a bike lane and sidewalk. Criticism of Concept 1 was prevalent due to lack of safety improvements for pedestrians and cyclists. Raised significant concerns regarding safety, noting that painted bike lanes alone offer insufficient protection due to high vehicle speeds and aggressive driving behaviors on El Camino Real. Some supported Concept 1 for maintaining vehicle flow and for introducing new infrastructure without confusing drivers, others argued that it failed to provide adequate pedestrian or cyclist protections.
- **Lack of Traffic Calming and Design Suggestions:** Some respondents believe keeping all vehicle lanes intact was the best option. There are doubts about the design's ability to reduce vehicle speeds, along with various suggestions for improvements, such as adding traffic lights and crosswalks.



## Feedback on Design Concept #2

Question: On a scale of 1 to 5, how well would this design meet your needs? (1 = Does not meet my needs, 5 = Meets my needs very well)



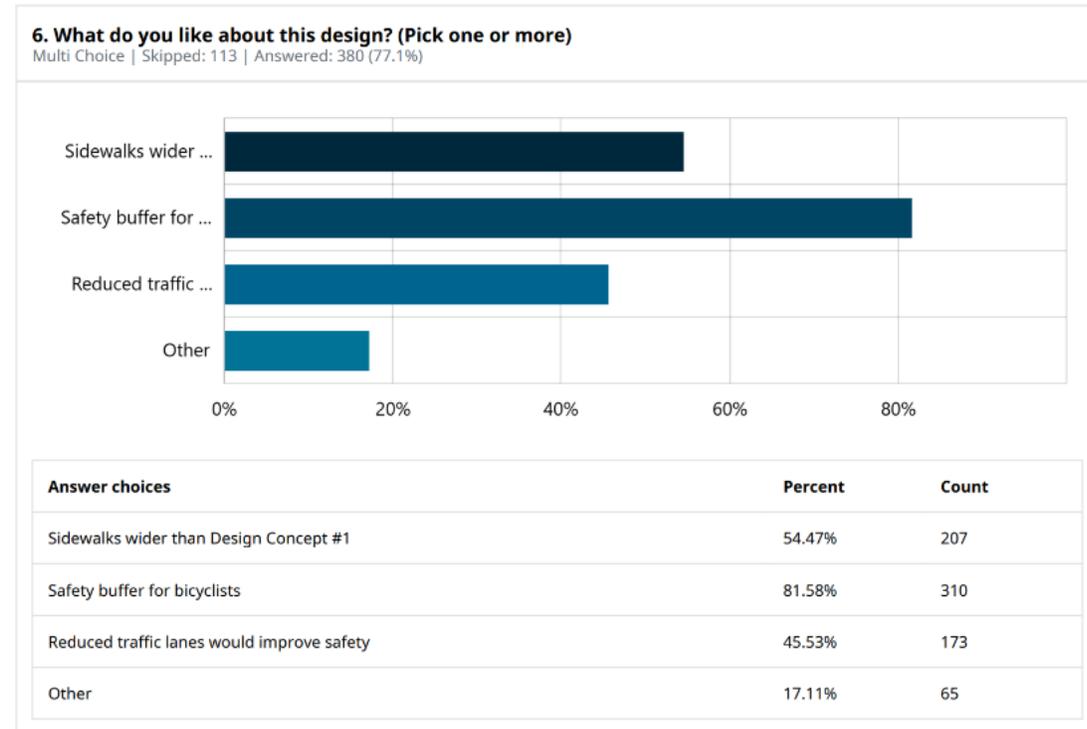
The survey results for design concept #2 show an average rating of 3.01, indicating moderate satisfaction. A significant portion of respondents rated the design as 1 (32.45%) and 5 (29.61%), reflecting contrasting opinions. The remaining ratings were distributed as follows: 2 (10.55%), 3 (9.74%), and 4 (17.65%).



# El Camino Real Complete Streets Study

## Phase 2 Engagement Summary

Question: What do you like about the Concept 2 design? (Pick one or more)

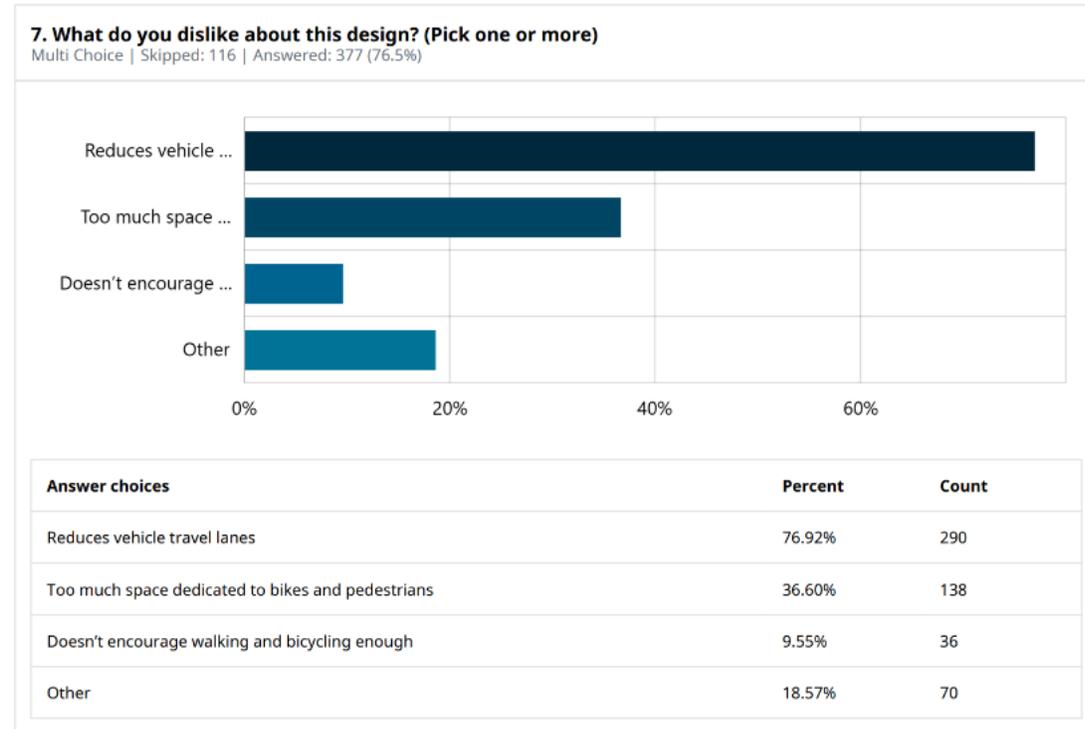


The survey results highlight several positive aspects of design concept #2. A majority (81.58%) appreciate the safety buffer for bicyclists. Additionally, 54.47% favor the wider sidewalks compared to Design Concept #1, and 45.53% believe that reduced traffic lanes would improve safety. A smaller portion (17.11%) mentioned other reasons.



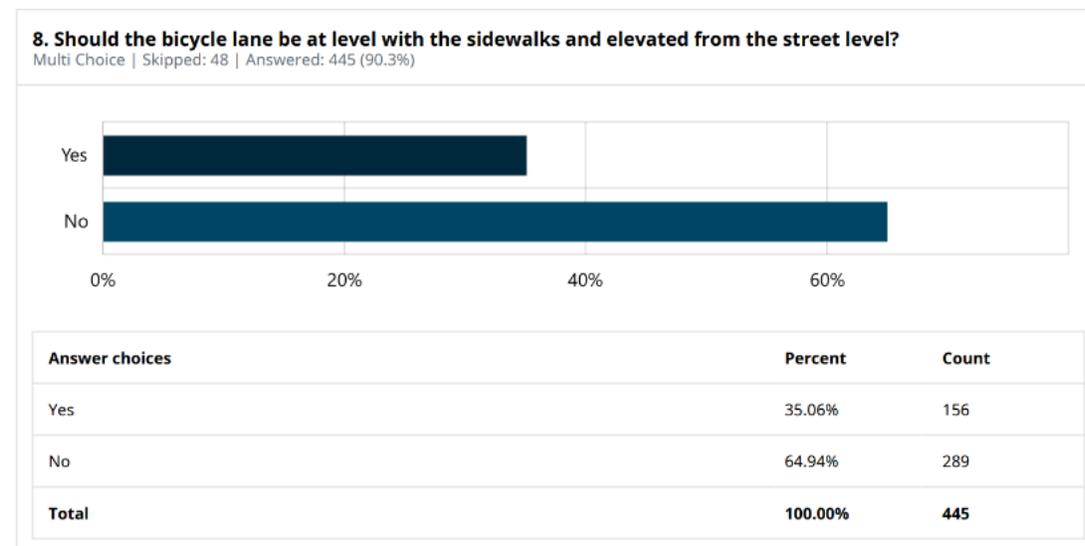
## El Camino Real Complete Streets Study Phase 2 Engagement Summary

Question: What do you dislike about the Concept 2 design? (Pick one or more)



The survey results indicate several concerns about design concept #2. A majority (76.92%) dislike the reduction in vehicle travel lanes. Additionally, 36.60% feel there is too much space dedicated to bikes and pedestrians, while 9.55% believe it doesn't encourage walking and bicycling enough. A smaller portion (18.57%) mentioned other issues.

Question: Should the bicycle lane be at level with the sidewalks and elevated from the street level?



The survey results show that a majority (64.94%) of respondents prefer not to have the bicycle lane at the same level as the sidewalks and elevated from the street level and 35.06% support this design feature.



Comments on Design Concept #2 (By Theme)

Subject of Comment	Number of Mentions	Percentage
Supportive of this option	58	27%
Design Suggestions (I.e. Proposing traffic lights, crosswalks, etc.)	42	19%
Opposed to reducing vehicle lanes	28	13%
Will make congestion worse	25	12%
Not enough protection for bike/ped	14	6%
Opposed	13	6%
Questioning the purpose or need of the project	10	5%
Concerns the design won't reduce vehicle speeds	7	3%
Encourage Bike/Walk on another route	6	3%
Other	6	3%
Opposed – Felt there are not enough riders/walkers to be proposing this	5	2%
Safety Concerns	3	1%
<b>TOTAL</b>	<b>217</b>	

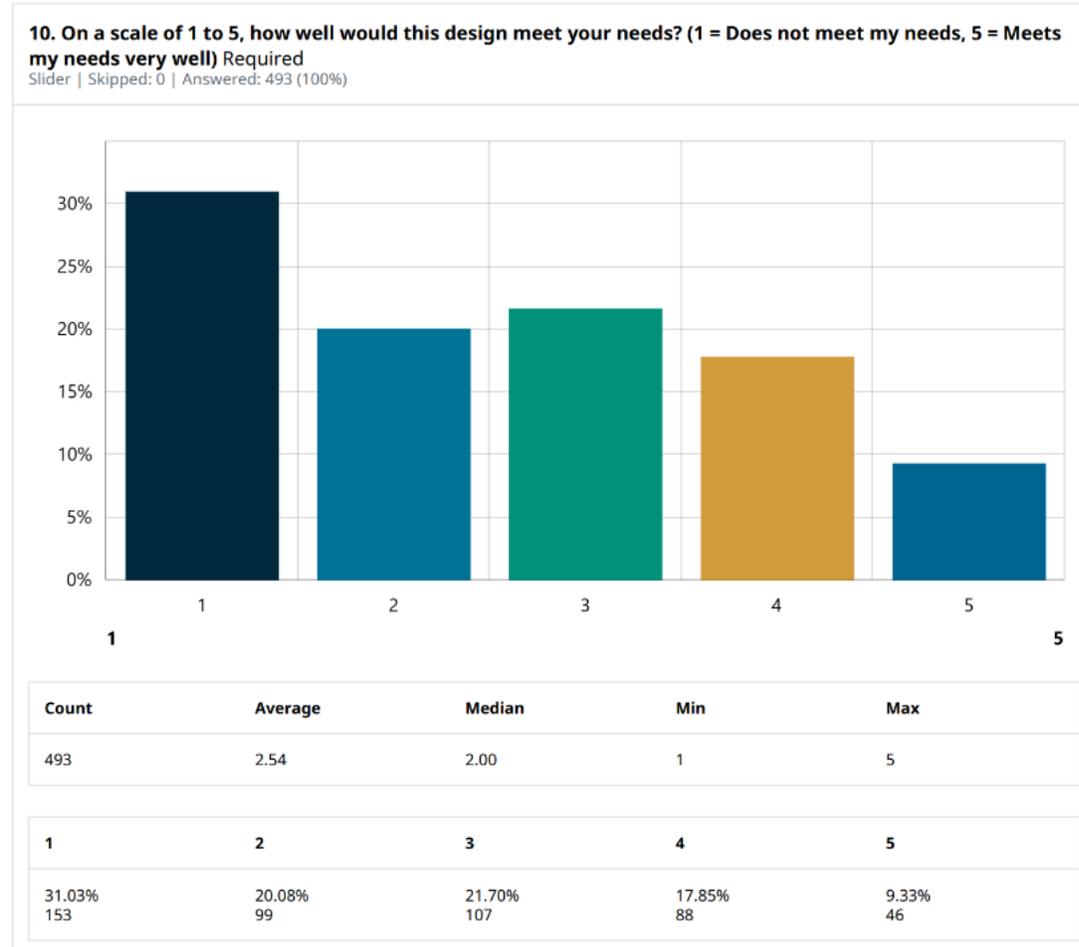
Key Takeaways

- Separated Bike Lanes and Enhanced Safety:** Many participants emphasized the importance of separating vehicles, cyclists, and pedestrians to reduce conflicts and improve safety. People are supportive of design concept #2 due to its enhanced safety measures for both cyclists and pedestrians, despite some concerns over its impact on traffic flow. Several participants specifically mentioned the dividers as a key feature that protects bikers from vehicle traffic.
- Opposition to Travel Lane Reduction and Traffic Concerns:** 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. Many comments questioned the effectiveness of lane reductions, particularly regarding traffic congestion during peak hours and driver safety.
- Trade Off Between Safety and Traffic Flow:** Some participants strongly felt these safety benefits outweighed possible traffic disruptions. Some believed keeping all vehicle lanes intact was the best option, but they acknowledged that it did not improve conditions for pedestrians and cyclists.



## Feedback on Design Concept #3

Question: On a scale of 1 to 5, how well would this design meet your needs? (1= Does not meet my needs, 5= Meets my needs very well)

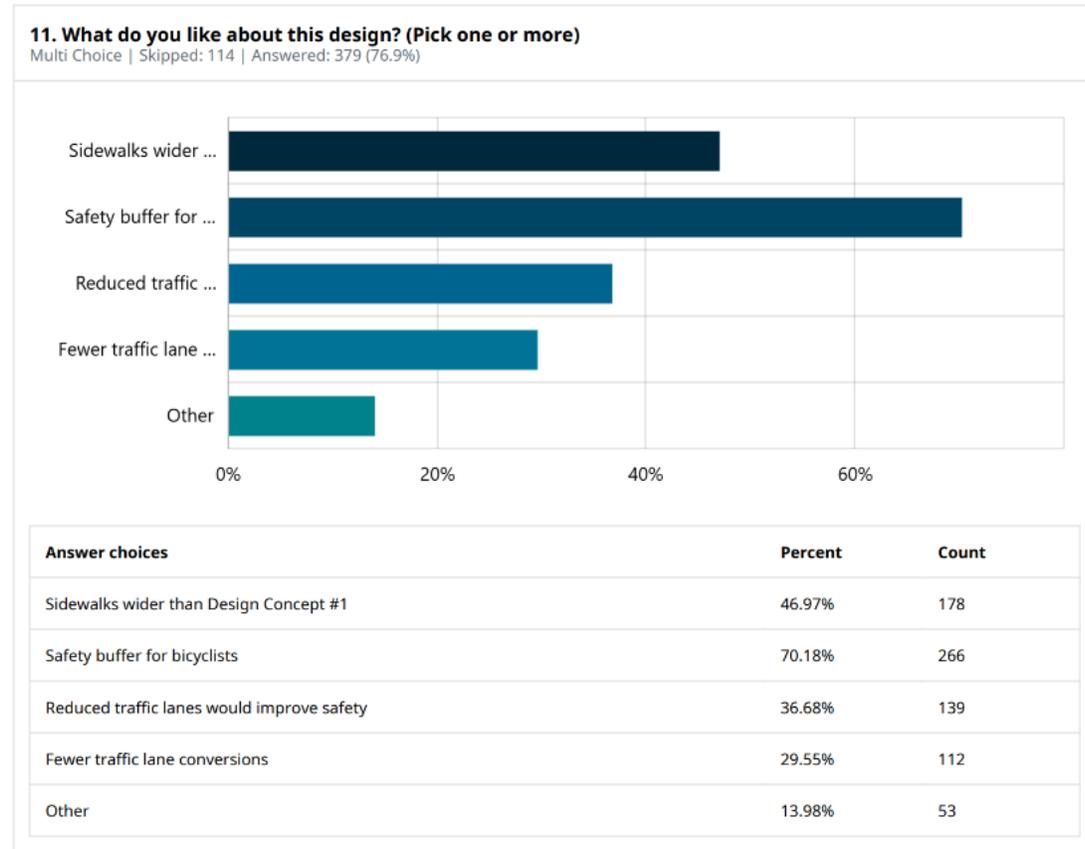


The survey results for design concept #3 indicate moderate satisfaction, with an average rating of 2.54. A significant portion of respondents rated the design as 1 (31.03%), while fewer rated it as 5 (9.33%). The remaining ratings were distributed as follows: 2 (20.08%), 3 (21.70%), and 4 (17.85%).

# El Camino Real Complete Streets Study

## Phase 2 Engagement Summary

Question: What do you like about the Concept 3 design? (Pick one or more)

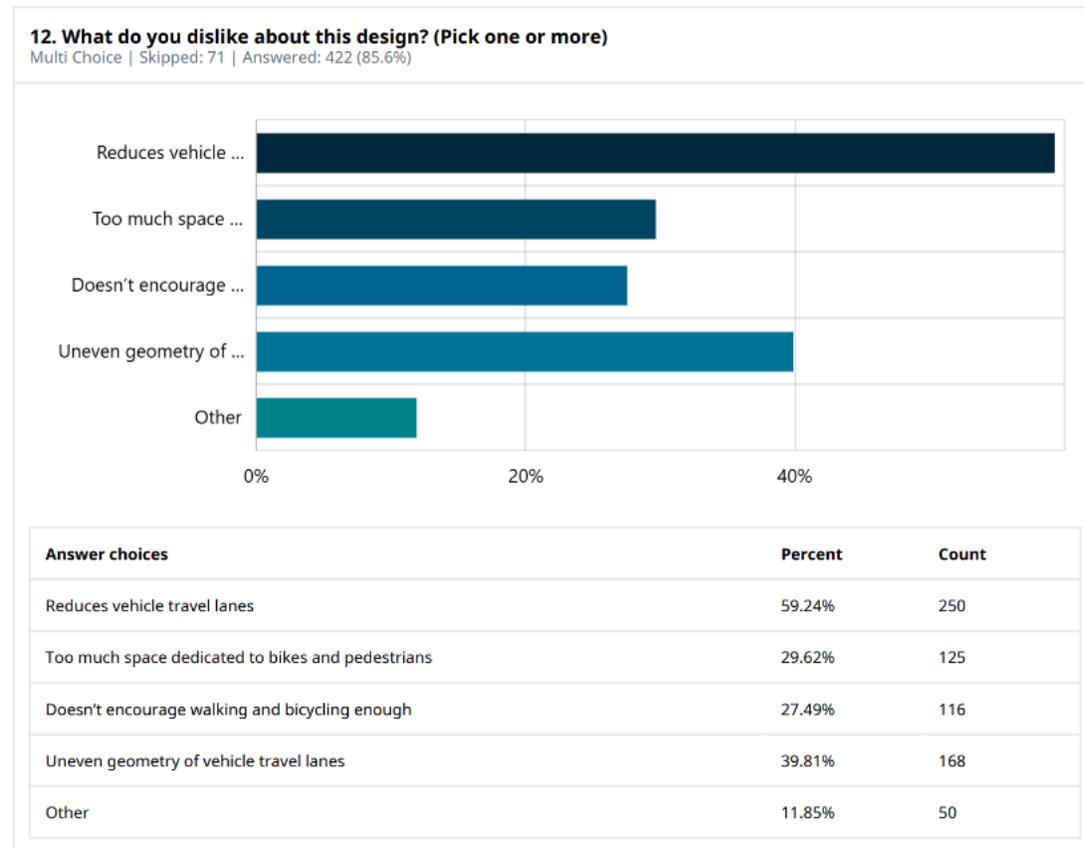


The survey results highlight several positive aspects of design concept #3. A majority (70.18%) appreciate the safety buffer for bicyclists. Additionally, 46.97% favor the wider sidewalks compared to Design Concept #1, and 36.68% believe that reduced traffic lanes would improve safety. Furthermore, 29.55% like the fewer traffic lane conversions, while 13.98% mentioned other reasons.



## El Camino Real Complete Streets Study Phase 2 Engagement Summary

Question: What do you dislike about the Concept 3 design? (Pick one or more)



The survey results reveal several concerns about design concept #3. A majority (59.24%) dislike the reduction in vehicle travel lanes. Additionally, 39.81% are concerned about the uneven geometry of vehicle travel lanes. Furthermore, 29.62% feel there is too much space dedicated to bikes and pedestrians, while 27.49% believe it doesn't encourage walking and bicycling enough. A smaller portion (11.85%) mentioned other issues.

### Comments on Design Concept #3 (By Theme)

Subject of Comment	Number of Mentions	Percentage
Design Suggestions	32	17%
Supportive of this option	31	17%
Not enough protection for bike/ped	30	16%
Opposed	19	10%
Questioning the purpose or need of the project	19	10%
Opposed to reducing vehicle lanes	17	9%
Will make congestion worse	15	8%
Other	7	4%



**El Camino Real Complete Streets Study  
Phase 2 Engagement Summary**

Concerns the design won't reduce vehicle speeds	4	2%
Encourage Bike/Walk on another route	4	2%
Opposed – Felt there are not enough riders/walkers to be proposing this	3	2%
safety concerns	2	1%
Loss of Parking	1	1%
<b>TOTAL</b>	<b>184</b>	

**Key Takeaways**

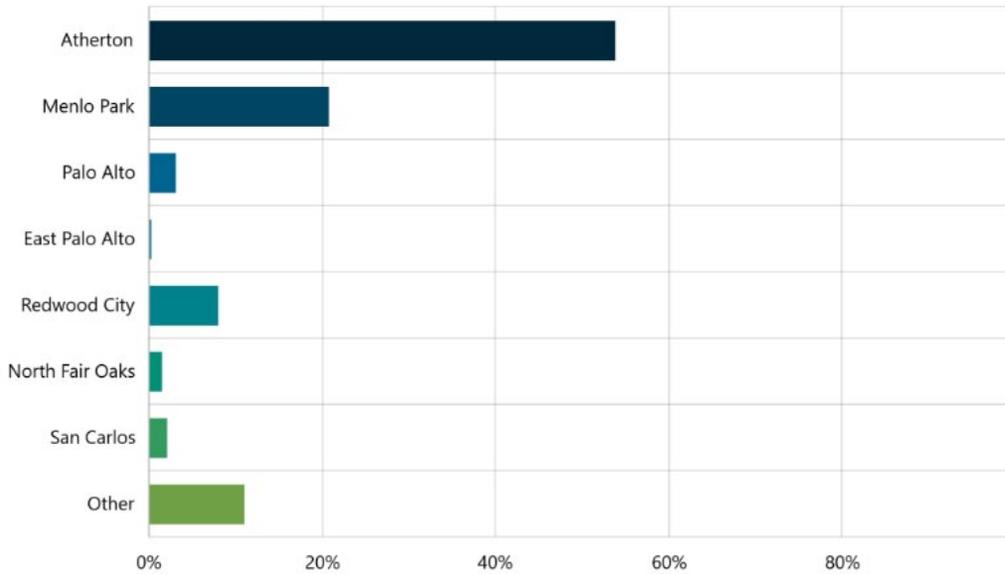
- **A Balanced Compromise:** Overall, many respondents expressed a strong focus on safety, infrastructure concerns, and balancing different travel modes on El Camino Real. Many respondents saw Design concept #3 as a reasonable compromise of the three concepts and are supportive of the design. It was perceived as practical solution that is considerate of both car congestion and bike safety.
- **Lack of Protection and Opposition to Lane Reduction:** Several comments expressed concern that reducing lanes for vehicles would create bottlenecks, increase traffic congestion, and lead to unsafe driving conditions.
- **Protected Bike Lanes:** There was strong support for the protected bike lanes featured in sections of this concept. Several people specifically mentioned the protected bike lanes as a key reason for choosing Concept 3. They appreciated the separation of bike lanes from traffic, particularly through the use of planters and other aesthetic improvements.



## Survey Demographics

Question: Where do you live?

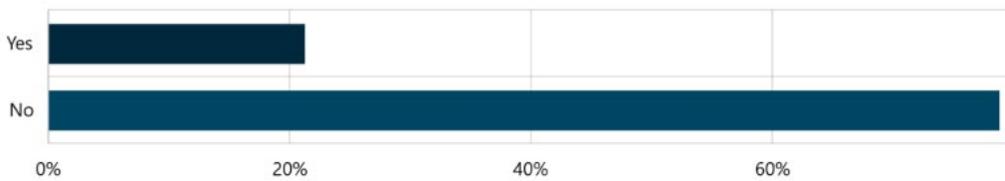
**14. Where do you live?** Required  
Select Box | Skipped: 0 | Answered: 493 (100%)



The survey demographics reveal that most respondents (53.75%) live in Atherton. Other notable locations include Menlo Park (20.69%), Redwood City (7.91%), and Palo Alto (3.04%). Smaller percentages of respondents reside in North Fair Oaks (1.42%), San Carlos (2.03%), and East Palo Alto (0.20%). Additionally, 10.95% of respondents live in other areas.

Question: Do you work in Atherton?

**15. Do you work in Atherton?**  
Multi Choice | Skipped: 3 | Answered: 490 (99.4%)



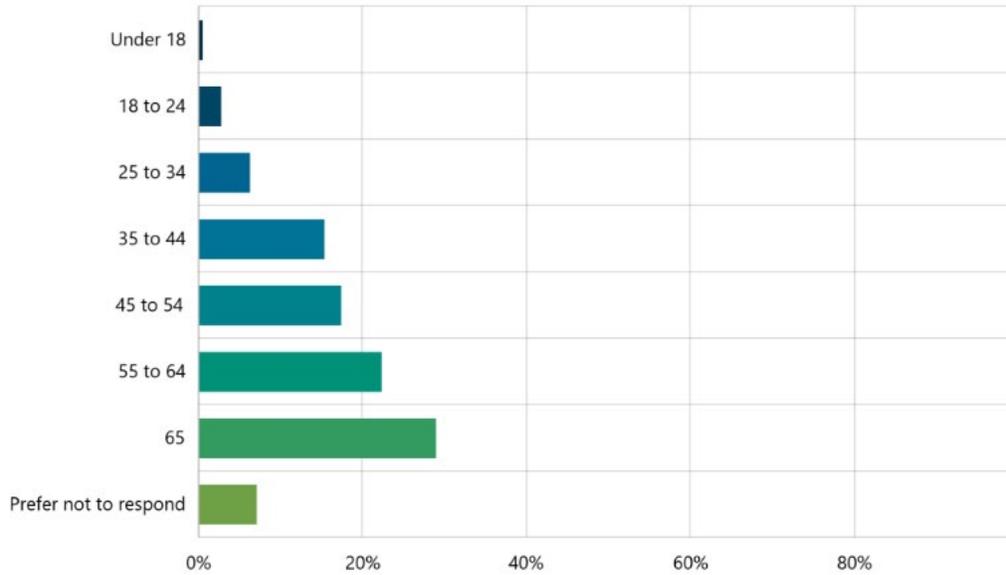
The survey results reveal that a majority of respondents (78.78%) do not work in Atherton, while 21.22% indicated that they do. This provides insight into the local workforce distribution and the commuting patterns of the respondents.

# El Camino Real Complete Streets Study Phase 2 Engagement Summary

Question: What is your age?

## 16. What is your age?

Select Box | Skipped: 8 | Answered: 485 (98.4%)



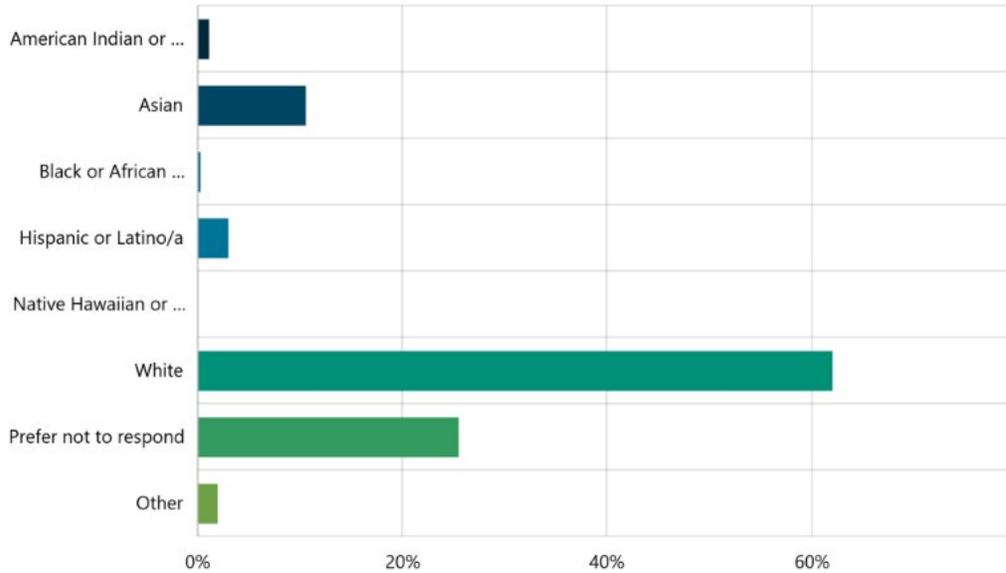
There was a diverse age range among respondents. The largest group is aged 65 and over (28.87%), followed by those aged 55-64 (22.27%). Other notable age groups include 45-54 (17.32%), 35-44 (15.26%), 25-34 (6.19%), and 18-24 (2.68%). A small percentage of respondents are under 18 (0.41%), and 7.01% preferred not to respond.



## El Camino Real Complete Streets Study Phase 2 Engagement Summary

Question: Please indicate your race/ethnicity

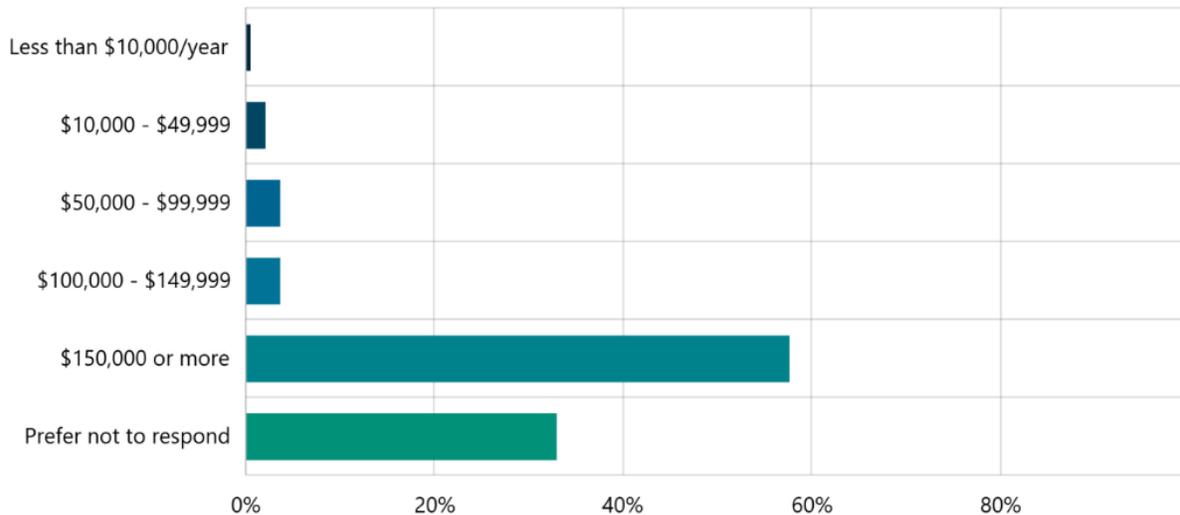
**18. Please indicate your race/ethnicity.**  
Multi Choice | Skipped: 17 | Answered: 476 (96.6%)



The survey demographics on race/ethnicity show that a majority of respondents (61.97%) are White. Other represented groups include Asian (10.50%), Hispanic or Latino/a (2.94%), American Indian or Alaskan Native or Native American (1.05%), and Black or African American (0.21%). No respondents identified as Native Hawaiian or Other Pacific Islander. Additionally, 25.42% preferred not to respond, and 1.89% indicated other races/ethnicities.

Question: What is your total annual household income?

**19. What is your total annual household income?**  
Select Box | Skipped: 43 | Answered: 450 (91.3%)



**El Camino Real Complete Streets Study  
Phase 2 Engagement Summary**

The survey results provide insight into the annual income distribution of respondents. A majority (57.56%) earn \$150,000 or more per year, while smaller percentages fall into lower income brackets. Additionally, 32.89% of respondents preferred not to disclose their income.

## Engagement Events

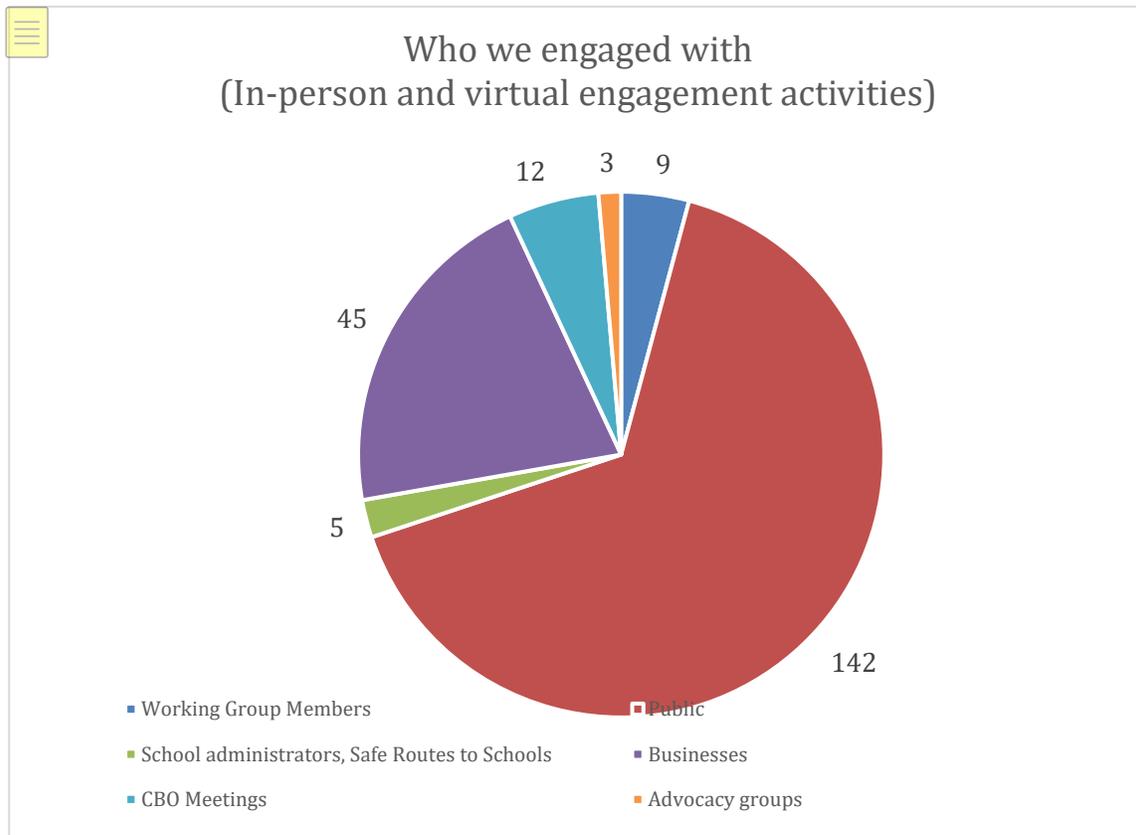
The table below summarizes the meetings, pop ups, and listening sessions held throughout Phase 2.

Event	Date	Number of Touchpoints	Format
Pop Up 1: Fair Oaks Community Center	February 14, 2025	50+ individuals	In-person
Pop Up 2: Town of Atherton Public Library	February 6, 2025	35 individuals	In-person
Pop Up 3: Menlo College Campus, Dining Hall	February 12, 2025	32 individuals	In-person
Listening Session #1	February 16, 2025	1 participant <ul style="list-style-type: none"> <li>• Businesses</li> <li>• Commercial areas</li> </ul>	Virtual
Letters to Businesses	February 24, 2025	Sent to 44 businesses fronting onto El Camino Real including Redwood City, Unincorporated San Mateo County and Menlo Park	Physical Mailers
Focus Group with CBO 1: El Concilio	February 26, 2025	10 participants <ul style="list-style-type: none"> <li>• Residents of North Fair Oaks who drive and use transit along corridor</li> </ul>	In-person
Focus Group with CBO 2: Acterra	February 27, 2025	2 participants <ul style="list-style-type: none"> <li>• Residents of neighborhoods along the El Camino Real corridor</li> </ul>	In-person
Listening Session #2	March 3, 2025	8 participants <ul style="list-style-type: none"> <li>• School administrators</li> <li>• Safe Routes to Schools coordinators</li> <li>• Advocacy group members</li> </ul>	Virtual



**El Camino Real Complete Streets Study  
Phase 2 Engagement Summary**

Event	Date	Number of Touchpoints	Format
Virtual Community Meeting	March 5, 2025	25 participants <ul style="list-style-type: none"> <li>Residents of neighborhoods along Selby Lane, Spruce Avenue, and within NFO</li> </ul>	Virtual
Technical Working Group Meeting #2	March 6, 2025	9 participants <ul style="list-style-type: none"> <li>Caltrans</li> <li>County staff</li> <li>City staff</li> </ul>	Virtual
<b>Total Number of Touchpoints</b>		<b>216</b>	



*Chart 1: The number of touchpoints with individuals across all in-person and virtual engagement activities, broken down by audience type.*



## Stakeholder Presentations

Staff also conducted a “road show” or series of presentations with committees and community councils representing the study area. 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
- Menlo Park Complete Streets Commission
- North Fair Oaks Community Council
- County Bicycle & Pedestrian Advisory Committee
- Redwood City Transportation Advisory Committee
- San Mateo Area Chamber of Commerce – Transportation & Housing Committee

The key takeaways are similar to feedback from the survey and engagement events; however key issues for specific communities varied. For representatives of areas surrounding the northern study area, committee members expressed concern about connectivity and ensuring effective transitions with adjacent facilities; there were also concerns about loss of parking with Concepts 1 & 3. For representatives of areas surrounding the southern study area, committee members echoed concerns about crossing El Camino Real and expressed support for prioritizing safety enhancements over removal of on street parking.



## Conclusions

The Town of Atherton deployed a variety of tactics to gather feedback from a broad range of people who travel along El Camino Real within the study area. The online survey was shared in the Town-wide newsletter, letters were sent to businesses directly, and focus groups were held to reach underserved communities. 55% of respondents to the survey and 80% of the attendees at the virtual community meeting were residents of the Town of Atherton.

Overall, there is widespread concern about the lack of sidewalks or narrow sidewalks. Many felt that proper sidewalks must be implemented to create safe conditions along El Camino Real. 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 a major concern. Many people are worried that the concepts 2 and 3 that propose removing vehicle lanes will make traffic worse introducing new conflicts between pedestrians, cyclists, and drivers. Participants supported bike lane separation from traffic, but others would only use bike lanes if fully protected.

There was no single concept that rose prominently above the rest amongst the general public. When asked to rank each concept on a scale of 1 to 5 of “How well this design would meet their needs”, Concept 2 had the highest average ranking of 3.01, but it is followed closely by Concept 1 with an average ranking of 2.99. The survey rankings for Concepts 1 and 2 were highly polarized, with participants divided between prioritizing pedestrian and cyclist safety and concerns about increased traffic congestion. When analyzing input from Atherton residents, Concept 1 received the greatest support, 42% indicating that it meets their needs through the survey. Concepts 2 and 3 received much lower support.

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. Many favored Concept 2 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, 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. The project team did not receive 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).



DATE: March 18, 2025  
TO: Kay Cheng, WSP  
FROM: Andrew Lee, PE, TE, PTOE; traffic analysis excerpted from George Naylor (WSP)  
SUBJECT: Design Concepts Summary Memo  
CC: Carolyn Mamaradlo, SMCTA; Douglas Kim, Town of Atherton  
PROJECT NUMBER: 474-1585-069  
PROJECT NAME: El Camino Real Complete Streets Study

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This memorandum summarizes the alternatives development process for the El Camino Real Complete Streets Study (“Study”). The project study area is a 1.5-mile stretch of El Camino Real, which is also designated State Route 82, within and adjacent to the Town of Atherton (“Atherton”); the project extents include a portion of unincorporated San Mateo County, known as North Fair Oaks, and City of Menlo Park (“Menlo Park”). The project’s objective is to identify potential modifications to El Camino Real to add multimodal facilities, such as pedestrian facilities, bikeways, transit stop improvements, and ancillary facilities (e.g., stormwater improvements, lighting, safety measures).

The design concept portion of the project scope follows this process:

1. Preliminary alternatives development and screening
2. Conceptual design of screened alternatives and evaluation
3. Selection of a preferred design

The following sections summarize the analysis and conclusions from each step.

### 1. Existing conditions

The public rights of way along El Camino Real are approximately

- 130 feet wide between Selby Lane and Wilburn Avenue.
- 100 feet wide between Wilburn Avenue and Glenwood Avenue/Valparaiso Avenue.

Within the study area, southbound El Camino Real from north of Selby Lane to Alejandra Avenue is within Atherton. This section has three vehicle lanes, partially paved shoulder, no on-street parking, no sidewalks or bike lanes, and no curb and gutter. The segment from Alejandra Avenue to Valparaiso Avenue is within Menlo Park jurisdictional limits and fronts properties in Atherton. This segment has three vehicle lanes which transition to two through lanes and a right turn lane approaching Valparaiso Avenue. Similarly, this segment includes a partially paved shoulder, no on-street parking, no sidewalks or bike lanes, and no curb and gutter except at the Menlo College Drive and Valparaiso Avenue intersections. There are intermittent storm drain inlets on the west side of El Camino Real between Alejandra Avenue and Valparaiso Avenue.

Northbound El Camino Real between Glenwood Avenue and Watkins Avenue lies within Menlo Park. This section predominantly has two vehicle lanes, sidewalks, curb and gutter, and on-street parking that transitions to right turn lanes at intersections. The segment between Watkins Avenue and north of Wilburn Avenue is located within Atherton, has three vehicle lanes, a partially paved shoulder, no



on-street parking, no sidewalks or bike lanes, and no curb and gutter. The segment north of Wilburn Avenue is located within North Fair Oaks and retains three vehicle lanes with on-street parking, sidewalk, and curb and gutter.

## 2. Preliminary alternatives development and screening

The Project team considered the following options for walk, bike, transit, and drive facilities. These preliminary alternatives attempted to account for the corridor conditions identified in Phase 1 that include:

- Collision records, including severe injury and fatal collisions, and designation as a High Injury Corridor.
- Physical conditions that include the lack of dedicated walk, bicycling, and transit facilities.
- Planning documents for El Camino Real prepared by the Town of Atherton, adjacent jurisdictions (City of Menlo Park and San Mateo County), and State and regional agencies (Caltrans, Metropolitan Transportation Commission).<sup>1</sup>
- Travel behaviors that include non-drive travel mode share (8.5%), 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 on El Camino Real.

In response to these existing conditions, the Project team considered these options for the study corridor:

- For walk facilities, all build alternatives included adding new sidewalks on both sides of the street where they do not currently exist.
- For bike facilities, the build alternatives considered four types of solutions
  - No dedicated bikeways.
  - On-street bike lanes (Class II bikeways) on each side of the street.
  - One-way buffered bike lanes (Class II bikeways) or separated bikeways (Class IV bikeways), either roadway or elevated grade.
  - Two-way separated bikeways (Class IV bikeways) on one side of the street, typically the west side of El Camino Real.
- For transit facilities, the build alternatives considered
  - Shared lanes with vehicles.
  - Bus only lanes.
  - Bus stop improvements.

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<sup>1</sup> 2014 Town of Atherton Bike and Pedestrian Master Plan, Menlo Park El Camino Real Corridor Study, San Mateo County C/CAG Comprehensive Bicycle and Pedestrian Plan, Countywide Transportation Plan, Reimagine SamTrans initiative, Grand Boulevard Initiative, MTC Active Transportation Network, Caltrans SHOPP Project #1W130, Caltrans District 4 Bike Plan.

- For drive facilities, the build 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.

The Project team developed seven initial alternatives that applied the facility options presented above to the existing El Camino Real right of way; they are described below and summarized in Table 1.

**Table 1 - Preliminary Concepts**

#	Preliminary Concept	Walk Facility	Bike Facility	Transit Facility	Drive Facility
0	No Build	None	None	Shared w\ 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 w\ 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 w\ 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 w\ vehicles (2 lanes) Widened bus stops	2 lanes
5	One-way Separated Bikeways (Sidewalk Grade)	Medium sidewalk both sides	Two one-way separated bikeways	Shared w\ 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 w\ 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 w\ vehicles (2/3 lanes) Widened bus stops	3 lanes in one direction & 2 lanes in the other direction

The Project team developed an evaluation matrix and scoring system to screen and score the seven initial 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 Project team either screened out or selected the preliminary alternatives to advance into the conceptual design stage for the reasons listed below. The evaluation of the seven preliminary alternatives is shown in Table 2.

- **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 El Camino Real 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 El Camino Real. 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 El Camino Real as **Concept #1 Added Sidewalks and Striped Bike Lanes** (Appendix A).
- **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 El Camino Real 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 & Buffered/Protected Bike Lanes** in the next project phase (Appendix A). 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 El Camino Real (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 El Camino Real 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 El Camino Real. 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 (Appendix A).

Table 2 Preliminary Concepts Screening

Goal	Objective	0 No Build	1 S/W + LS	2 SW+ Bike Lane	3 SW + Bus Only Lane	4 1-way Sep / Buffer Bike Lane.	5 1-way Sep Bike (Raised)	6 2-way Sep Bike (Raised)	7 3 Ln / 2 Ln 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, Equity & Access	Fills gap in biking, walking, and transit network	None	Low	Medium	Medium	High	High	High	High
	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

**2. Conceptual design of screened alternatives and evaluation**

The following section summarizes the refined conceptual designs and their performance against the project evaluation criteria (see Section 2.2 below).

**2.1 Conceptual Design Description**

The project team’s surveyor, Unico, collected a topographic survey of the full project extents, inclusive of the existing curb lines, edge of pavement, trees with trunk size, lane and parking markings, above-ground utilities, and elevations. Parametrix used the topographic survey as a base map to develop concept designs for the three concepts across three typical sections of El Camino Real. The drawing extents total to approximately one-third of the 1.5-mile study extents and are included in the appendix (Appendix B).

- Segment 1, from Selby Lane to Fifth Avenue
- Segment 2, showcasing the Atherton Avenue/Fair Oaks Lane intersection
- Segment 3, from Encinal Avenue to Valparaiso Avenue/Glenwood Avenue.

During the conceptual design stage, the Project team identified design elements that apply to all concepts

- Two alternatives for traffic control at Selby Lane: a new traffic signal or installation of a High Intensity Activated Crosswalk (HAWK) beacon with elimination of through left-turn movements for vehicles at each approach to El Camino Real.
- 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 El Camino Real.
- 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 El Camino Real.
- New traffic signal at Watkins Avenue (mitigation for Caltrain Electrification Project).
- New HAWK beacons at Tuscaloosa Avenue and Stockbridge Avenue 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 Atherton to promote safety for active transportation.

The refined **Concept #1 (Added Sidewalks and Striped Bike Lanes)** proposes to retain the existing vehicular travel lanes in each direction of El Camino Real (Appendix B, Sheets P-1 and 2).

- Northern end, in North Fair Oaks from north of Selby Lane to Wilburn Avenue, 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.<sup>2</sup>
- In the southbound direction from north of Selby Lane to Menlo College Drive/Encinal Avenue and in the northbound direction in Atherton between Watkins Avenue to Wilburn Avenue, 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 Avenue to Glenwood Avenue/Valparaiso Avenue, 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 Avenue.

The refined **Concept #2 (Wider Sidewalks & Buffered/Protected Bike Lanes)** proposes to reduce El Camino Real to two vehicle lanes in each direction (Appendix B, Sheets P-3 and 4).

- In the southbound direction from north of Selby Lane to Encinal Avenue and in the northbound direction from Watkins Avenue to Wilburn Avenue, 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 Avenue to Valparaiso Avenue, 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 Avenue.
- In the northbound direction in Menlo Park, from Glenwood Avenue/Valparaiso Avenue to Watkins Avenue, 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 Avenue to Selby Lane, 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.

The refined **Concept #3 (Wider Sidewalks and Partial Buffered/Protected Bike Lanes)** proposes to alternate two and three vehicle lanes on El Camino Real in each direction with painted bike lanes

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<sup>2</sup> Lane numbering follows the Caltrans Highway Design Manual (Section 62.1(1)) convention, where “On a multilane roadway, the lanes available for through travel in the same direction are numbered from left to right when facing in the direction of travel.”

next to the three-lane sections and separated bikeways next to the two-lane sections (Appendix B, Sheets P-5 and 6).

- 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 El Camino Real 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 El Camino Real with one-way bikeways on each side of the street. The transition from two to three vehicle lanes on southbound El Camino Real was placed at Fair Oaks Lane. The transition from two to three vehicles lanes on northbound El Camino Real was placed at Atherton Avenue. This was intended to maximize roadway lanes where traffic conditions warranted more capacity.

## 2.2 Conceptual Design Evaluation

The Project team developed six metrics to evaluate the Conceptual Designs:

- 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 three conceptual design drawings (Appendix B) were used to evaluate the proposals against the six metrics listed above. The traffic operations of the Concepts were analyzed and documented by WSP.<sup>3</sup> The scores for each Concept are presented in Table 3. Among the findings:

- For bicyclist and pedestrian safety, Concept #1 scored Low, Concept #3 scored Medium, and Concept #2 scored High, consistent with the proposed sidewalk widths, bikeway widths, whether there is the possibility of a horizontal and vertical buffer, and separation with vehicle traffic.
- All concepts scored Medium for flood impacts, as all concepts would include new curb and gutter and stormwater infrastructure in Atherton. However, there is a marginal difference in potential landscaping between concepts and its effect on stormwater runoff and management.

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<sup>3</sup> WSP (2025) Task 3.2.2 Memo Supplemental, - Travel Demand Forecasts

- For minimizing traffic diversion onto local streets, WSP developed a travel demand model to estimate the change in approach and departure volumes at each of the 12 project intersections.
  - The No Project and Concept 1 volumes are the same, as the roadway configurations for those alternatives are the same.
  - Concept 2 traffic volumes along El Camino Real reduce the most relative to the No Project/ Concept 1.
  - Concept 3, traffic volumes are not reduced as significantly relative to the No Project/ Concept 1 baselines, but they still are less along El Camino Real.

Since El Camino Real is a major regional facility that carries both local and through traffic, the reduction in capacity would cause through vehicle trips to divert to parallel arterials and freeways if the travel time increase is significant enough on El Camino Real. As such, Concept #1 scored High, Concept #3 scored Medium-High, and Concept #2 scored Medium.

It should be noted that the Oakwood Drive/Oakwood Blvd and Atherton Avenue/Isabella Avenue/Alejandra Avenue locations have significant traffic calming infrastructure in place (speed bumps/speed tables), which the demand model would not consider in the route diversions, which implies that the demand model may be overestimating the impact of the local street traffic diversion and the traffic may actually stay on El Camino Real. Nonetheless, the results of the diversion analysis identifies areas that might need to be monitored to minimize diversion.

- For maintaining vehicle speed, WSP developed a corridor model to forecast changes in travel time and average speed at commute peak hours based on forecast traffic volumes, changes in roadway configuration, and proposed signals and beacons.
  - Concept 1 forecast average travel speeds were commensurate with existing conditions, approximately 20 mph inclusive of stop delays at controlled intersections. Concept 2 was forecast to decrease travel speeds in the peak direction by 30-40 percent (6-8 mph slower) and Concept 3 was forecast to decrease travel speeds by 5-30 percent (1-6 mph slower).
  - Concept 1 forecast travel times were commensurate with existing conditions. Concept 2 was forecast to increase travel time in the peak direction by 30-50 percent (2-3 minutes longer) and Concept 3 was forecast to increase travel time by at most 30 percent (2 minutes longer).

As such, Concept #1 scored High, Concept #3 scored Medium-High, and Concept #2 scored Medium, consistent with the projected impacts on travel speeds and congestion level of service (LOS).

- As for minimizing loss of on-street parking on El Camino Real, each concept had differing impacts. Currently, there is allowed parking only in the northbound direction within the North Fair Oaks neighborhood (Selby Lane to Wilburn Avenue, approximately 35 parking spaces) and in Menlo Park (Watkins Avenue to Glenwood Avenue/Valparaiso Avenue, approximately 35 spaces). There is no parking allowed in the Town of Atherton portion of El Camino Real.
  - Generally, Concept 1 requires less space to fit the bike lane and is therefore scored “Medium”. However, in North Fair Oaks specifically, there is no wide shoulder so the parking lane must be replaced to accommodate the bike lane. As such, Concept #1

is estimated to remove the on-street parking in the North Fair Oaks neighborhood (~35 spaces), while retaining on-street parking in Menlo Park.

- Generally, Concept 2 requires more space to fit the wider and buffered bike lane and is therefore scored “Low.” However, in North Fair Oaks the outside travel lane (instead of the parking lane) is replaced with the bike lane. As such, Concept #2 is estimated to retain on-street parking in the North Fair Oaks neighborhood while removing on-street parking in Menlo Park (~35 spaces).
- Concept #3 is estimated to remove on-street parking in both the North Fair Oaks neighborhood (~35 spaces) and Menlo Park (~35 spaces). As such, concept #3 scored Low.

**Table 3 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
Minimizes 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

### 2.3 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).<sup>4</sup> 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. There are three comparable projects near the Project area of similar size and scope, summarized in Table 4 and described below.

#### *Comparable Projects*

The **El Camino Real Roadway Renewal Project** spans 3.6 miles in San Mateo County along El Camino Real/State Route 82. Caltrans is the implementing agency for the project, whose scope “proposes to rehabilitate the roadway and sidewalks, improve safety and visibility, remedy drainage issues, and upgrade curb ramps.” The project includes removing 300-350 trees; the scope does not include utility undergrounding. The estimated cost according to City of Burlingame City Council Update (Oct 2024) is between \$130 and \$140 million (2024), or approximately \$40 million per mile.

<sup>4</sup> <https://dot.ca.gov/-/media/dot-media/programs/design/documents/pdpm-chapter20-a11y-old.pdf>

The **Middlefield Road Improvement Project** in the North Fair Oaks neighborhood of unincorporated San Mateo County spans 0.4 miles between Pacific Street and 5<sup>th</sup> Street. San Mateo County is the implementing agency. The project converts the four-lane roadway to three lanes with bike lanes in a commercial corridor; it includes utility undergrounding, upgraded streets, sidewalks, curb ramps, landscaping, and street furnishings. The estimated cost is between \$21 and \$25 million (2022), or approximately \$50-60 million per mile. Escalated to 2025, the per mile cost is between \$60 and \$70 million.

The **Middlefield Road Streetscape Project** in the City of Redwood City spans 0.4 miles from Maple Street to Woodside Road and was completed in 2024. The project scope included utility undergrounding; upgraded streets, sidewalks, curb ramps, protected bike lanes and landscaping; the construction cost was approximately \$8 million (2018), which is equivalent to approximately \$20 million per mile. Escalated to 2025, the per mile cost is approximately \$30 million.

The El Camino Real Roadway Renewal Project is the most analogous to the proposed project in its jurisdiction and project scope.

#### *Construction Cost Estimate, Escalation, and Contingencies*

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 ROM cost of \$60 million (2025 dollars). Consistent between the two El Camino Real 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%. 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 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.

Table 4 Comparable Project Summary

Jurisdiction	Caltrans
Project Name	El Camino Real Roadway Renewal Project
Project Extents and Length	El Camino Real/State Route 82 in San Mateo County Post mile (PM) 12.3, East Santa Inez Avenue, in the City of San Mateo, to PM 15.9, Millbrae Avenue  3.6 miles
Project Scope	Varies: Up to 130-foot± right of way (4-6-lane arterial highway)  Rehabilitate the roadway and sidewalks, improve safety and visibility, remedy drainage issues, and upgrade curb ramps. Remove 300-350 trees.
Project Cost (Construction)	\$137.2M (2024)
Project Cost per Mile	\$38.1M (2024)
Reference	<a href="https://dot.ca.gov/-/media/dot-media/district-4/documents/d4-environmental-docs/82-el-camino-real-roadway-renewal-project/sm-82-final-eir-eis-508-pf3-a11y.pdf">https://dot.ca.gov/-/media/dot-media/district-4/documents/d4-environmental-docs/82-el-camino-real-roadway-renewal-project/sm-82-final-eir-eis-508-pf3-a11y.pdf</a>
Jurisdiction	County of San Mateo
Project Name	Middlefield Road Improvement Project
Project Extents and Length	Middlefield Road, from Pacific Street to 5 <sup>th</sup> Street,  0.4 miles
Project Scope	86-foot± right of way  Conversion from 4-lane to 3-lane roadway. Utility undergrounding; upgraded streets, sidewalks, curb ramps, landscaping, and street furnishings.
Project Cost (Construction)	\$21-25M (2022)
Project Cost per Mile	\$50-60M (2022)
Reference	<a href="https://www.smcgov.org/publicworks/middlefield-road-project-description">https://www.smcgov.org/publicworks/middlefield-road-project-description</a>
Jurisdiction	City of Redwood City
Project Name	Middlefield Road Streetscape Project
Project Extents and Length	Middlefield Road, from Maple Street to Woodside Road  0.4 miles
Project Scope	76-foot± right of way (3-lane roadway)  Utility undergrounding; upgraded streets, sidewalks, curb ramps, protected bike lanes and landscaping.
Project Cost (Construction)	\$8M (2018)
Project Cost per Mile	\$20M (2018)
Reference	<a href="https://www.redwoodcity.org/city-hall/current-projects/infrastructure-projects?id=127">https://www.redwoodcity.org/city-hall/current-projects/infrastructure-projects?id=127</a>

### 3. Next Steps: Selection of a preferred design

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

# Appendix

## Appendix A: Conceptual Cross Sections

## **Appendix B: Conceptual Design Plan Drawings**

# El Camino Real Complete Streets Corridor Plan

SMCTA ON-CALL TRANSPORTATION,  
PLANNING, MANAGEMENT AND SUPPORT SERVICES

CONTRACT NO. 20-T-P-008A  
WDR NO. 993

Task 7 – Selby Lane Near-Term  
Implementation Memorandum



PREPARED BY WSP USA & Parametrix

### VERSION CONTROL

VERSION	PURPOSE/CHANGE DESCRIPTION	AUTHOR	REVIEWER	SUBMITTAL DATE
1.0	Internal Release	Parin Patel	Erik Bird, Lauren Tsoi, Kay Cheng	6/19/25
2.0	Release to Client	Parin Patel	Douglas Kim, Carolyn Mamaradlo, and Robert Ovadia	6/27/25

### QAQC DOCUMENTATION

No.	Description	Req'd	OR	CH
1.	<b>SCOPE—OBJECTIVE(S) OF THE WORK IS DEFINED AND CONFORMS TO CONTRACTUAL WORK SCOPE AND LEVEL OF COMPLETENESS AS MENTIONED IN TASK</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.	<b>SCOPE—AS MENTIONED IN TASK 4.2, DOES THIS MEMO INCLUDE A SUMMARY OF THE EXISTING CONDITIONS DATA USING A COMBINATION OF NARRATIVE, GRAPHICS, AND DATA VISUALIZATIONS TO UNDERSTAND THE TRAVEL MARKETS, WHO IS USING THE TRANSPORTATION NETWORK, AND WHERE THE EXISTING INFRASTRUCTURE MIGHT NOT BE MEETING LOCAL AND COUNTYWIDE TRAVEL NEEDS FOR THE CORRIDOR</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3.	<b>ACCURACY—CALCULATION(S) HAVE BEEN CHECKED IN ACCORDANCE WITH QP-04</b>	No	<input type="checkbox"/>	<input type="checkbox"/>
4.	<b>STYLE—REPORT FORMATTING, GRAMMAR, SYNTAX, AND WRITING STYLE IS CONSISTENT WITH THE PROGRAM/PROJECT GUIDELINES</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.	<b>SUPPORTING DATA ARE INCLUDED OR REFERENCED</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6.	<b>DRAWINGS AND GRAPHICS (EXHIBITS OR REFERENCES) HAVE BEEN CHECKED AND REVIEWED</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.	<b>CLIENT/STAKEHOLDER COMMENTS BEEN ADDRESSED AND INCORPORATED</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8.	<b>REVISIONS HAVE BEEN ADEQUATELY IDENTIFIED, IF REQUIRED FOR UPDATED DELIVERABLE</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.	<b>SUPPORTING DATA ARE INCLUDED OR REFERENCED</b>	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

KEY: OR—Originator; CH—Checker

**COMMENTS** (e.g., for draft versions, explain if checklist items are required but not “checked”)

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## 1. INTRODUCTION

This memo summarizes the work completed for Task 7 – Near-Term Implementation Plan for Selby Lane as part of the San Mateo County Transportation Authority's (TA) El Camino Real (ECR) Complete Streets Study. This memo is organized into four main sections. The first section provides a technical memorandum, with technical analysis of El Camino Real/ Selby Lane Near Term Improvements. The next section provides detailed intersection renderings. The next section summarizes the Environmental Pathways. The last section details the Caltrans DEER application checklist.

## 2. EL CAMINO REAL AND SELBY LANE INTERSECTION NEAR TERM IMPROVEMENTS

This section summarizes the existing conditions at the intersection of El Camino Real and Selby Lane in the Town of Atherton, analyzes the need for traffic control devices, and presents options for improvements. The San Mateo County Transportation Authority and the Town of Atherton expressed their desire for near-term safety implementation actions that will be compatible with the long-term project options developed within the El Camino Real Complete Streets Study. The long-term project options are discussed in a separate technical memo prepared by Parametrix (Design Concepts Summary Memo, March 18, 2025).

### EXISTING CONDITIONS

El Camino Real at Selby Lane is an at-grade intersection with minor approach STOP control for the Selby Lane approaches. El Camino Real has three lanes in each direction and a left turn lane. Both Selby Lane approaches are a single lane. There is a marked crosswalk on the north leg of the intersection with crosswalk warning signs and advance yield lines. The northeast and southeast corners of the intersection in unincorporated San Mateo County have paved sidewalks and curb ramps. The northwest and southwest corners of the intersection in the Town of Atherton have dirt shoulders and sections of raised concrete curb but no paved sidewalks or curb ramps.

### TRAFFIC COUNTS AND VEHICLE OPERATIONS

The consultant team collected multimodal intersection turning movement counts at the El Camino Real / Selby Lane intersection for six hours (7-10AM, 2-5PM) on a typical weekday in March 2024 (Table 1). The two-way hourly vehicle traffic along El Camino Real ranges between 2300 and 3400 vehicles. Eastbound Selby Lane vehicle traffic ranges between 90 and 230 vehicles per hour. Westbound Selby Lane experiences between 15 and 40 vehicles per hour.

An intersection operations analysis performed by WSP forecasts delays greater than 50 seconds for the Selby Lane approaches, which is equivalent to a qualitative “level of service” score of “F”.<sup>1</sup>

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<sup>1</sup>Transportation Research Board (2022) Highway Capacity Manual (7<sup>th</sup> Edition) and AASHTO (2018) A Policy on Geometric Design of Highways and Streets (“Green Book”).

Table 1 Hourly Traffic Counts, El Camino Real at Selby Lane

Hour Beginning	Minor Street Vehicles (Eastbound Selby)	Minor Street Vehicles (Westbound Selby)	Major Street Vehicles (El Camino Real Two-way)	Walk-Bike (Crossing El Camino Real)	Warrant Satisfied
7 AM	92	20	2371	9	2 (Four-Hour) 3 (Peak Hour)
8 AM	214	21	3156	8	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)
9 AM	143	17	2313	2	2 (Four-Hour) 3 (Peak Hour)
2 PM	161	32	2671	8	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)
3 PM	225	36	3182	17	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)
4 PM	217	26	3344	13	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)

Source: National Data and Surveying Services, March 13, 2024

## TRAFFIC SAFETY AND COLLISIONS

According to Transportation Injury Mapping System (TIMS), there were nine injury collisions recorded at El Camino Real and Selby Lane between 2020 to 2024 (Table 2).<sup>2</sup> Of these, four crashes resulted in severe injury and five crashes involved a person walking or bicycling.

Year 2021 recorded the greatest number of injury crashes at four, followed by three injury crashes in 2022 and one injury crash each in 2023 and 2024.

<sup>2</sup> <https://tims.berkeley.edu/>

Table 2 Injury Collisions, El Camino Real at Selby Lane 2020-2024

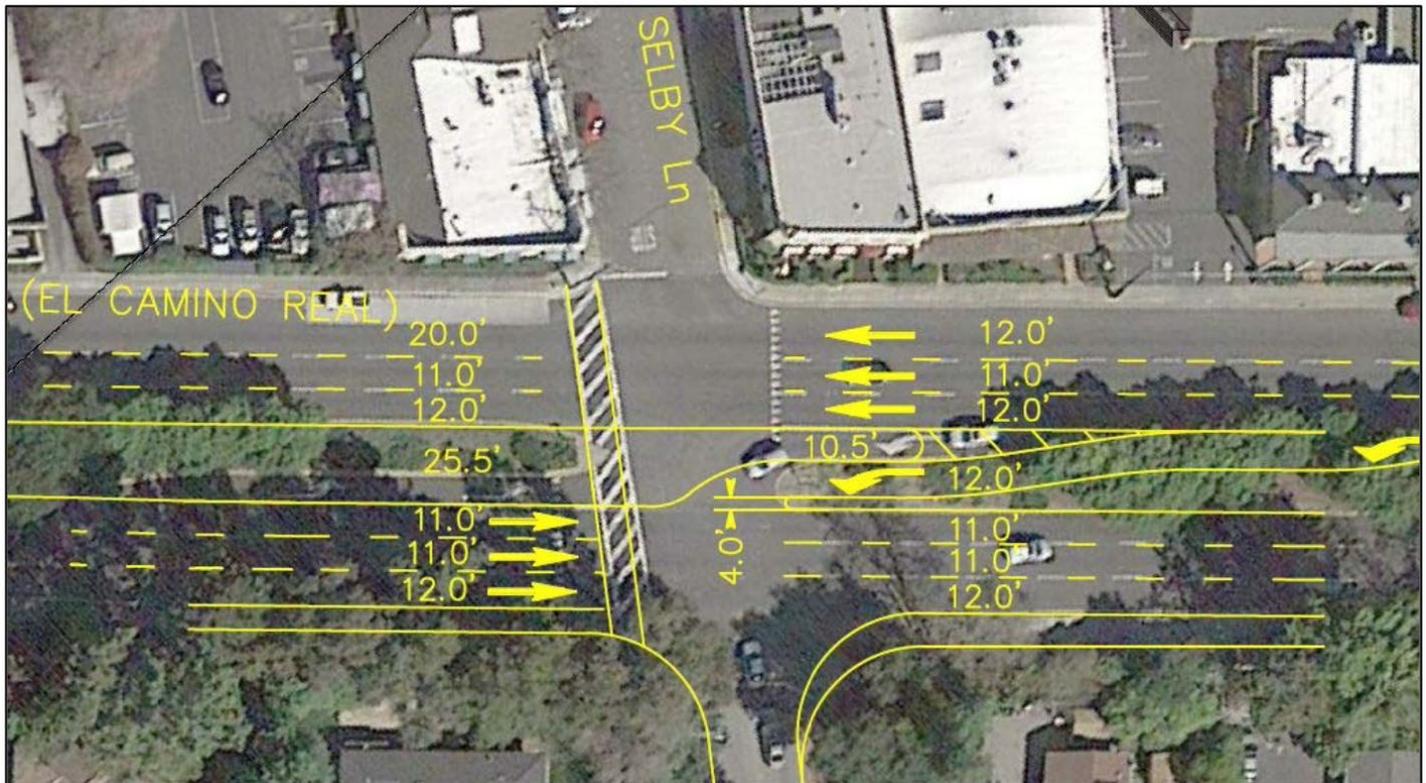
CASE ID	Date	Description	Walk-Bike-Involved	Outcome
9261328	2/13/2021	Southbound motorcycle driver broadside crash with eastbound left turning vehicle driver.	No	Severe Injury
91433252	3/5/2021	Northbound truck driver changing lanes rear end crash with northbound vehicle driver.	No	Complaint of Pain Injury
91459589	4/13/2021	Northbound truck driver broadside crash with a westbound bicycle rider.	Yes	Severe Injury
9297007	7/9/2021	Southbound truck driver broadside crash with southbound bicycle rider.	Yes	Visible Injury
91677634	1/2/2022	Southbound U-turning vehicle driver collision with person walking in marked crosswalk.	Yes	Complaint of Pain Injury
9404523	1/12/2022	Westbound vehicle driver broadside crash with southbound vehicle driver.	No	Visible Injury
91997207	10/19/2022	Northbound left turn vehicle driver broadside crash with a northbound vehicle driver.	No	Complaint of Pain Injury
92155007	8/15/2023	Northbound vehicle driver broadside crash with a westbound bicycle rider.	Yes	Severe Injury
94426957	10/3/2024	Southbound left turn vehicle driver broadside crash with a northbound bicycle rider.	Yes	Visible Injury.

Source: SafeTREC UC Berkeley Transportation Injury Mappy System (TIMS) Data retrieved May 7, 2024

## PREVIOUS INTERSECTION CONCEPTS

The city has analyzed intersection modifications that included bicycle and pedestrian safety improvements that would include restricting left turns and through movements for vehicle movements from Selby Lane onto and across El Camino Real. These improvements were explored in the May 30, 2017 Selby Lane Bike Study “Final Traffic Analysis” report. These improvements would have included three key design elements: 1) restricting left turns and through movements onto and across El Camino Real, 2) restricting southbound left turns from El Camino Real onto Selby Lane, and 3) installing rectangular rapid flashing beacons (RRFBs) for pedestrian crossings across El Camino Real (Figure 1). These would have included redesigning the medians at Selby Lane to accommodate the new design of the intersection. These improvements will be considered by the city along with the potential fully signalized intersection improvements discussed in Task 7.

Figure 1: Selby Ln Intersection Concepts



## SIGNAL WARRANT

The Manual on Uniform Traffic Control Devices (MUTCD) and the California-specific CA MUTCD set forth the parameters to investigate the need for a traffic control signal; these are referred to as “warrants” in the CA MUTCD.<sup>3</sup> The warrants consider aspects that include the number of lanes at the intersection for the major and minor approaches, traffic speed, vehicle traffic volumes, walk and bike volumes, and others.<sup>4</sup> According to the CA MUTCD, “The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.”<sup>5</sup>

The warrants analyzed in this study are Warrants 1 through 4 and 7 and the findings are discussed briefly below.

<sup>3</sup> US Department of Transportation Federal Highway Administration (2023) MUTCD 11<sup>th</sup> Edition; California Department of Transportation (2014, revised 2024) CA MUTCD Revision 8.

<sup>4</sup> CA MUTCD Chapter 4C.

<sup>5</sup> Ibid. Section 4C.01.03.

## WARRANT 1, EIGHT HOUR VEHICULAR VOLUME

Warrant 1 is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal.<sup>6</sup> The applicable thresholds for major and minor vehicle traffic to satisfy Warrant 1 are more than 600 two-way vehicles on El Camino Real and more than 150 vehicles on one approach of Selby Lane (Table 3). The eastbound Selby Lane traffic volumes satisfy the Warrant 1 threshold for four out of the six hours counted and therefore does not satisfy Warrant 1 (Table 1).

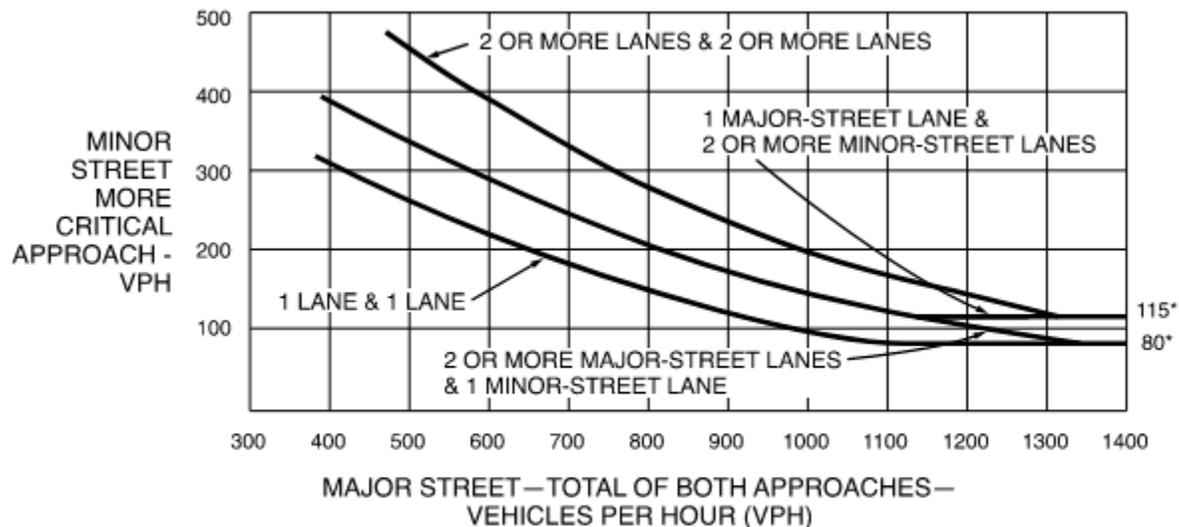
Table 3 CA MUTCD Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100% <sup>a</sup>	80% <sup>b</sup>	70% <sup>c</sup>	56% <sup>d</sup>	100% <sup>a</sup>	80% <sup>b</sup>	70% <sup>c</sup>	56% <sup>d</sup>
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

## WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Warrant 2 is intended for application at locations where the volume of intersecting traffic is the principal reason to consider installing a traffic signal.<sup>7</sup> The applicable threshold to satisfy Warrant 2 is 80 vehicles on one approach of Selby Lane when the two-way traffic on the major street exceeds 1400 hourly vehicles. The eastbound Selby Lane traffic volumes satisfy the Warrant 2 threshold for all six hours counted and therefore satisfies Warrant 2 (Table 1).

Figure 2 CA MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



\*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane

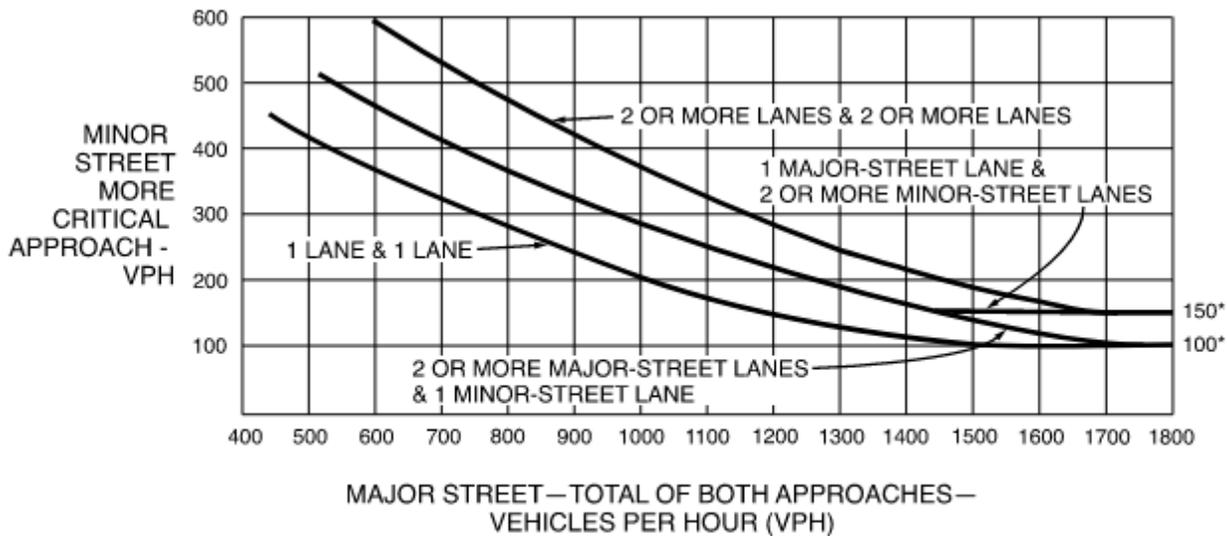
<sup>6</sup> CA MUTCD Section 4C.02

<sup>7</sup> Ibid Section 4C.03

## WARRANT 3, PEAK HOUR

Warrant 3 is intended for application only in unusual cases that attract or discharge large numbers of vehicles over a short time.<sup>8</sup> The El Camino Real and Selby Lane intersection and adjacent land uses do not conform to these provisions of the CA MUTCD, although the recorded intersection volumes satisfy the minimum thresholds for this warrant (Figure 2 and Table 1).

Figure 3 CA MUTCD Figure 4C-3. Warrant 3, Peak-Hour Vehicular Volume



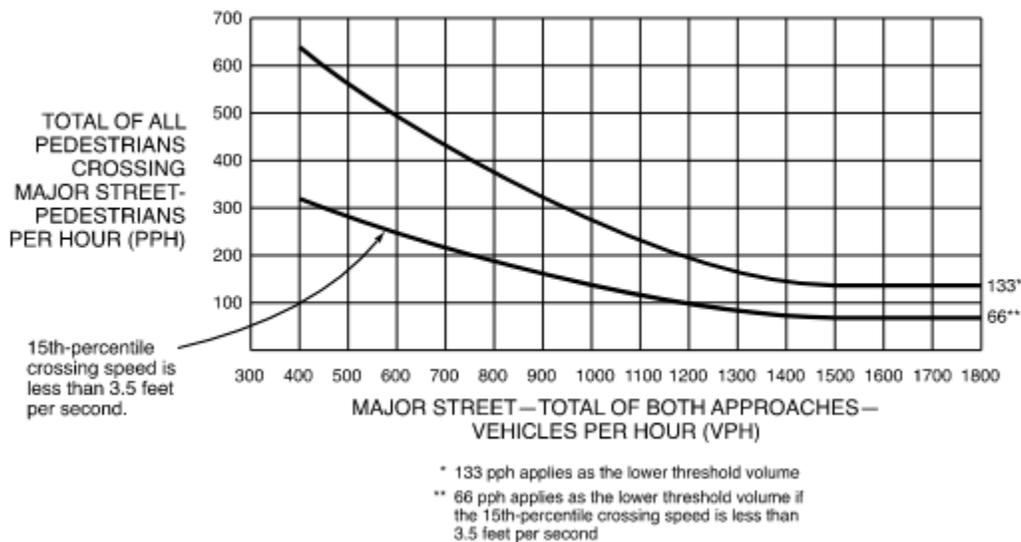
\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane

<sup>8</sup> CA MUTCD Section 4C.04

## WARRANT 4, PEDESTRIAN VOLUME

Warrant 4 is intended for application at locations where the traffic volume on a major street is so heavy that people walking experience excessive delay in crossing the major street.<sup>9</sup> The applicable threshold to satisfy Warrant 4 is 66 people walking in one peak hour or 53 people across four hours when the two-way traffic on the major street exceeds 1800 hourly vehicles. The number of people using the crosswalk was recorded at a minimum of two and a maximum of 17 across the six hours counted and therefore does not satisfy Warrant 4 (Table 1). It should be noted that this crossing at Selby Lane does experience seasonal peaks, as some students from the North Fair Oaks neighborhood attending Adelante Selby Spanish Immersion School use this crossing.

Figure 4 CA MUTCD Figure 4C-6. Warrant 4, Pedestrian Peak Hour Volume



## WARRANT 7, CRASH EXPERIENCE

Warrant 7 is intended for application at locations where the severity and frequency of crashes are the principal reasons to consider installing a traffic signal.<sup>10</sup> The applicable threshold to satisfy Warrant 7 is three total fatal-and-injury and pedestrian crashes. Warrant 7 thresholds are satisfied for years 2021 and 2022 with four and three injury crashes, respectively (Table 2).

<sup>9</sup> Ibid Section 4C.05

<sup>10</sup> CA MUTCD Section 4C. 08

Table 4 CA MUTCD Table 4C-2. Minimum Number of Reported Crashes in a One-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) <sup>a</sup>		Total of fatal-and-injury angle and pedestrian crashes <sup>a</sup>	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	5	4	3	3
2 or more	1	5	4	3	3
2 or more	2 or more	5	4	3	3
1	2 or more	5	4	3	3

<sup>a</sup> Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

## RECOMMENDED NEAR-TERM ACTION

Existing conditions at the El Camino Real and Selby Lane intersection justify the need for safety improvements, such as enhanced bicycle and pedestrian crossings. They also warrant the installation of a traffic control device like a traffic signal based on traffic volume (Warrant 4) and crash experience (Warrant 7). 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 is therefore not seen as a feasible near-term action.

Parametrix developed a conceptual plan for a traffic signal at El Camino Real as described below

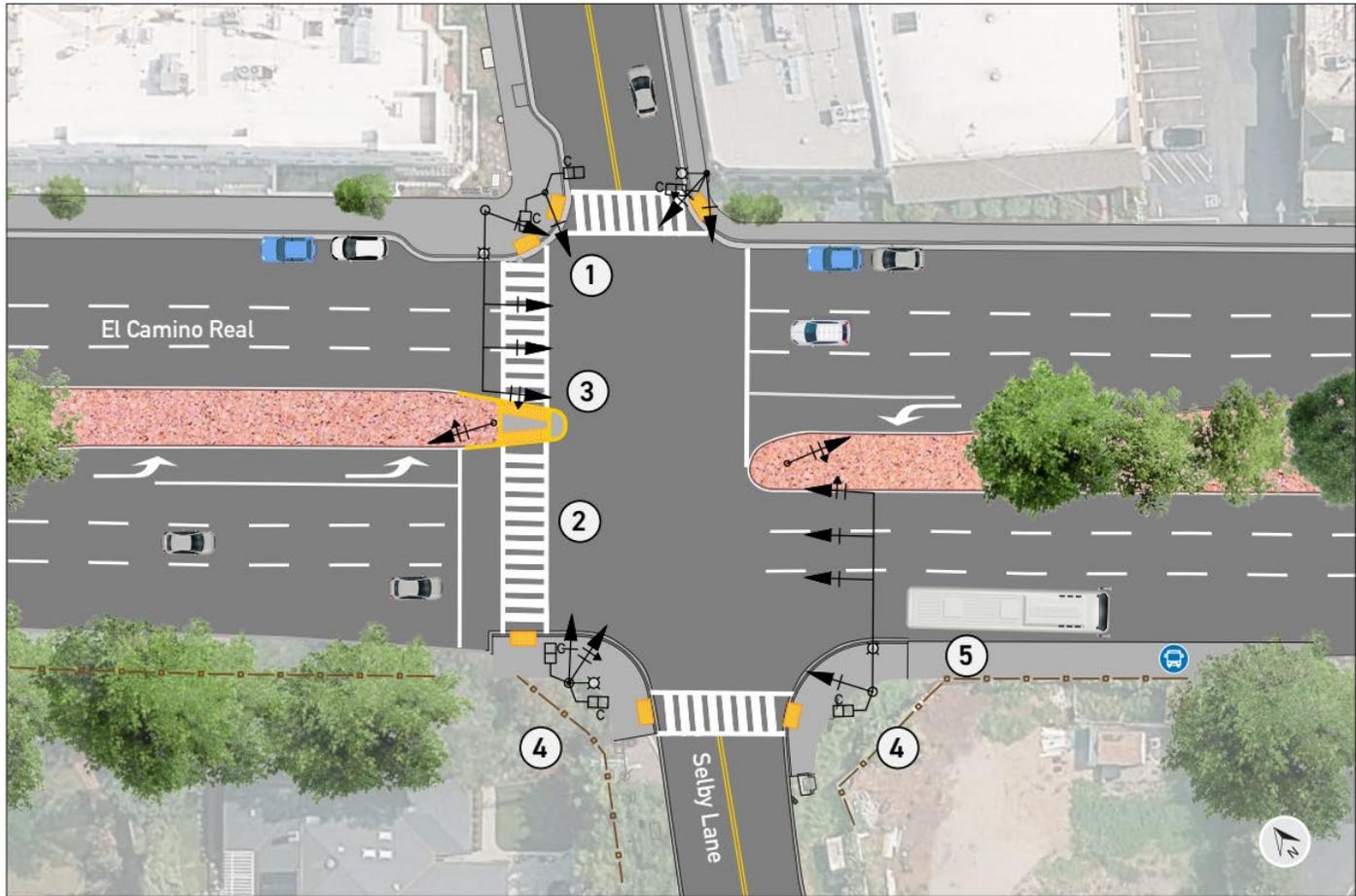
- New traffic signal equipment and intersection lighting within the existing highway right of way that would not conflict with future walk or bike facilities.
- A modified north side median to provide a crossing refuge for people in the north side crosswalk.
- New paved corner areas with detectable warning 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 El Camino Real 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 El Camino Real.

The typical cost for new traffic signal systems is between \$400,000 and \$600,000.<sup>11</sup>

<sup>11</sup> 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 Design Concepts Summary Memo, March 18, 2025

### 3. SELBY INTERSECTION RENDERING AND CONSTRUCTION NOTES<sup>12</sup>



#### CONSTRUCTION NOTES

- ① Install a new traffic signal system with intersection lighting
- ② Add/upgrade high-visibility crossmark markings and vehicle stop bars.
- ③ Construct a median refuge island
- ④ Construct temporary concrete corners for an accessible path of travel. Maintain existing surface drainage patterns across Selby Lane.
- ⑤ Install temporary paved transit stop (optional)

#### LEGEND

- Vehicle Signal Head (Left)
- Vehicle Signal Head (Through)
- Pedestrian Signal Head
- Overhead Lighting

<sup>12</sup> Optional temporary paved transit stop referenced in Table 7 of the Town of Atherton Bicycle and Pedestrian Master Plan

## 4. ENVIRONMENTAL PATHWAYS

The intent of this section is to describe the viability of potential environmental clearance pathways for the Selby Lane near-term project as proposed in the Task 7 Implementation Plan. The evaluation of potential pathways considered the scope of the proposed improvements at Selby Lane as described under *Project Understanding* and the potential for those improvements to affect the natural and built environment. Potential pathways under both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) were evaluated, and a recommendation regarding the applicability of those pathways is provided. However, as the CEQA and NEPA lead agency, Caltrans is responsible for making the final determination regarding the applicability of the suggested CEQA and NEPA environmental clearance pathways.

### PROJECT UNDERSTANDING

The intent of the Project is to implement a near-term improvement to address safety issues within the El Camino Real Corridor and improve the pedestrian environment. The proposed improvements would be implemented at El Camino Real and Selby Lane and are inclusive of the following elements with installation of a signalized intersection:

- New traffic signal control and intersection lighting at the current minor-approach STOP controlled intersection
- Concrete pavement with detectible warning surfaces at the northwest and southwest corners where there is currently an unpaved dirt shoulder
- Pedestrian refuge island on the north side of the intersection
- Minor surface gutter improvements to direct stormwater runoff
- Optional concrete pavement area for a bus stop
- Upgraded pavement markings and traffic control signs

### ENVIRONMENTAL CLEARANCE PATHWAYS

Based on the project elements described above, the Project was evaluated for its applicability as an exempt undertaking under CEQA and excluded action under NEPA. The evaluation also considered whether the Project could trigger exceptions to the use of a CEQA exemption or unusual circumstances (exceptions) to the use of a NEPA exclusion. Below is a discussion of that evaluation and recommendations regarding the applicability of CEQA exemptions and NEPA exclusions.

### CALIFORNIA ENVIRONMENTAL QUALITY ACT

There are two types of CEQA exemptions, statutory and categorical. Statutory exemptions are created by the State Legislature and are found either in the statute itself or the CEQA Guidelines (Sections 15260-15285). Statutory exemptions completely release a project from CEQA even if it has the potential to significantly affect the environment. Statutory exemptions are absolute and there are no exceptions. If a project qualifies as statutorily exempt the project's environmental review is complete; however, it is advisable that the lead agency includes documentation in the project file that offers evidence that the project is exempt by statute. Categorical exemptions are listed classes of projects that have been determined not to have a significant effect on the environment and are created through the regulatory process found in CEQA Guidelines Sections 15300-15333. Categorical exemptions are conditioned by limitations (exceptions) defined in the CEQA Guidelines Section 15300.2 and Public Resources Code, Section 21084. Categorical exemptions cannot be applied if any of the criteria for exceptions are triggered. If a

project meets the criteria for a categorical exemption, the lead agency is required to determine whether an exception to the exemption is triggered.

None of the statutory exemptions outlined in Title 14, Chapter 3, Article 18, Section 15260 to 15285 of CEQA would apply to the proposed project.

The following categorical exemptions were considered to have applicability to the project and exceptions to their use were not noted. The city may rely on one, some, or all the following exemptions unless there are conditions that the city is aware of that may negate their use.

### 15301. EXISTING FACILITIES

Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use. The types of “existing facilities” itemized under this class are not intended to be all-inclusive of the types of projects which might fall within Class 1; however, the following facility type could be applicable to the project:

(c) Existing highways and streets, sidewalks, gutters, bicycle and pedestrian trails, and similar facilities (this includes road grading for the purpose of public safety), and other alterations such as the addition of bicycle facilities, including but not limited to bicycle parking, bicycle-share facilities and bicycle lanes, transit improvements such as bus lanes, pedestrian crossings, street trees, and other similar alterations that do not create additional automobile lanes).

### 15302. REPLACEMENT OR RECONSTRUCTION

Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have basically the same purpose and capacity as the structure replaced.

(c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

### 15304. MINOR ALTERATIONS TO LAND

Class 4 consists of minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes.

(b) New gardening or landscaping, including the replacement of existing conventional landscaping with water efficient or fire-resistant landscaping.

(f) Minor trenching and backfilling where the surface is restored.

Lastly, should the city determine that the above categorical exemptions do not apply, application of the commonsense exemption (CEQA Guidelines 15061(b)(3)) could be used. The commonsense exemption can be applied if there is no possibility that the Project would have a significant effect on the environment.

### NATIONAL ENVIRONMENTAL POLICY ACT

The Federal Highway Administration (FHWA) has established a list of actions (23 CFR part 771.117) that meet the definition contained in 40 CFR 1508.4. The list covers actions which have been deemed to typically not result in individually or cumulatively significant effects. In addition to FHWA’s list of excluded actions, other applicable exclusions established by the Federal Railroad Administration (23 CFR part 771.116) or the Federal Transit Administration (771.118) could be identified as applicable and may be approved by FHWA in consultation with FRA or FTA and when the applicable requirements of those sections have been met.

Based on the current project description and proposed project components, the Project could qualify as an

excluded action under 23 CFR Part 771, unless it is determined that the action could involve unusual circumstances. Applicable actions under Part 771.117 include:

(c)(2) – Approval of utility installations along or across a transportation facility

(c)(3) – Construction of bicycle and pedestrian lanes, paths, and facilities

(c)(7) – Landscaping

(c)(8) – Installation of fencing, signs pavement markings small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur

(c)(22) – Project, as defined in 23 U.S.C. 101, that would take place entirely within the existing operational right-of-way

## CONCLUSION

As noted earlier, Caltrans would make the final determination as to which CEQA and NEPA process should be followed, including whether any of the exemptions or exclusions are applicable. If Caltrans does not find the Project to be exempt from CEQA or excluded from NEPA, the Project could be processed with a Negative Declaration (ND), Mitigated Negative Declaration (MND), and Finding of No Significant Impact (FONSI) barring controversy or unknown circumstances, which the Team does not believe exists for the Project.

## 5. CALTRANS DEER APPLICATION CHECKLIST

No.	Criteria	True	False
1	<p>The project qualifies for a categorical/statutory exemption under the CEQA and a categorical exclusion under the NEPA, or the project has a completed and approved higher-level environmental document (IS/ND/MND, EIR, EA/FONSI, or EIS). The reason for the preparation of a higher-level environmental document must not be due to transportation related effects, and the project must not result in an increase in vehicle miles traveled (VMT).</p> <p><i>The proposed near-term improvements have undergone environmental review and are anticipated to qualify for a categorical exemption under CEQA and a categorical exclusion under NEPA. The project will not result in an increase in vehicle miles traveled (VMT).</i></p>	X	
2	<p>The project has a single-build alternative, and no other engineering analysis is required to evaluate or rule out other possible alternatives.</p> <p><i>The near-term improvements is a single build alternative. Section 2 summarizes the traffic and engineering analysis</i></p>	X	
3	<p>The project does not require CTC action.</p> <p><i>The project is not anticipated to require California Transportation Commission (CTC) action, as it is not part of the State Transportation Improvement Program (STIP) or the Active Transportation Program (ATP).</i></p>	X	
4	<p>The project doesn't involve any right of way conveyances from Caltrans to the local agencies (for example, dedications, relinquishments, modifications to right of way limits, etcetera).</p> <p><i>The project does not involve any conveyances from Caltrans to the local agency.</i></p>	X	
5	<p>The project doesn't require FHWA approval for relinquishment or new public road connections involving a modification to the access control. (The new public road connection process is complex in that it requires Caltrans assess that the operations of the facilities have been protected and that the connection is in the best interest of the State. This recommendation must be formally submitted to the CTC, and if applicable, to FHWA for approval.)</p> <p><i>The project is not anticipated to require any FHWA approval, as the proposed improvements are limited to signalization, striping, and intersection modifications within the existing right-of-way and do not involve access control changes.</i></p>	X	
6	<p>The project doesn't propose bridge widenings or constructing new structures (for example, earth retaining structures such as retaining walls, tiebacks, soil nails, sound walls, culverts, etcetera.) that are not per Caltrans Standard Plans.</p> <p><i>This project does not propose bridge widenings or construction of new structures</i></p>	X	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
**DESIGN ENGINEERING EVALUATION REPORT APPLICATION CHECKLIST**

No.	Criteria	True	False
1	The project qualifies for a categorical/statutory exemption under the CEQA and a categorical exclusion under the NEPA, or the project has a completed and approved higher-level environmental document (IS/ND/MND, EIR, EA/FONSI, or EIS). The reason for the preparation of a higher-level environmental document must not be due to transportation related effects, and the project must not result in an increase in vehicle miles traveled (VMT).	X	
2	The project has a single-build alternative, and no other engineering analysis is required to evaluate or rule out other possible alternatives.	X	
3	The project does not require CTC action.	X	
4	The project doesn't involve any right of way conveyances from Caltrans to the local agencies (for example, dedications, relinquishments, modifications to right of way limits, etcetera).	X	
5	The project doesn't require FHWA approval for relinquishment or new public road connections involving a modification to the access control. (The new public road connection process is complex in that it requires Caltrans assess that the operations of the facilities have been protected and that the connection is in the best interest of the State. This recommendation must be formally submitted to the CTC, and if applicable, to FHWA for approval.)	X	
6	The project doesn't propose bridge widenings or constructing new structures (for example, earth retaining structures such as retaining walls, tiebacks, soil nails, sound walls, culverts, etcetera.) that are not per Caltrans Standard Plans.	X	

I hereby certify that the above information provided related to this project is true and correct to the best of my knowledge and belief. I further understand and agree that if information contrary to aforementioned table at any stage during the Caltrans review process or if the project scope changes the results of any of the above elements, project may have to be managed through a different Caltrans Review Process and may be subject to delays, revisions, or denials.

\_\_\_\_\_  
 Name of Applicant

\_\_\_\_\_  
 Signature of applicant

\_\_\_\_\_  
 Date

**Instructions:**

1. These criteria are used to determine the qualifications to use the Design Engineering Evaluation Report (DEER) as a project initiation and approval document. If all of the following conditions are met, and the project is not deemed to be complex by the Caltrans functional unit responsible for the oversight, the usage of the DEER is appropriate.
2. If additional information is needed on any of the elements listed in the checklist, please contact the appropriate DPO or Caltrans point of contact:  
<https://dot.ca.gov/programs/traffic-operations/ep/district-contacts>
3. This checklist may be reviewed with the applicant at the initial consultation/pre-permit submittal meetings.

**Abbreviations:**

1. **IS:** Initial Study
2. **ND:** Negative Declaration
3. **MND:** Mitigated Negative Declaration
4. **FONSI:** Finding of No Significant Impact
5. **EIR:** Environmental Impact Report
6. **EIS:** Environmental Impact Statement
7. **CEQA:** California Environmental Quality Act
8. **NEPA:** National Environmental Policy Act
9. **FHWA:** Federal Highway Administration
10. **CTC:** California Transportation Commission
11. **DPO:** District Encroachment Permit Office

# El Camino Real Complete Streets Corridor Plan

SMCTA ON-CALL TRANSPORTATION,  
PLANNING, MANAGEMENT AND SUPPORT SERVICES

CONTRACT NO. 20-T-P-008A  
WDR NO. 993

Draft Task 7 – Selby Lane Near-Term  
Implementation Memorandum



PREPARED BY WSP USA & Parametrix

**FINAL**

VERSION CONTROL

VERSION	PURPOSE/CHANGE DESCRIPTION	AUTHOR	REVIEWER	SUBMITTAL DATE
1.0	Internal Release	Parin Patel	Erik Bird, Lauren Tsoi, Kay Cheng	6/19/25
2.0	Release to Client	Parin Patel	Douglas Kim, Carolyn Mamaradlo, and Robert Ovadia	6/30/25

QAQC DOCUMENTATION

No.	Description	Req'd	OR	CH
1.	SCOPE—OBJECTIVE(S) OF THE WORK IS DEFINED AND CONFORMS TO CONTRACTUAL WORK SCOPE AND LEVEL OF COMPLETENESS AS MENTIONED IN TASK	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.	SCOPE—AS MENTIONED IN TASK 4.2, DOES THIS MEMO INCLUDE A SUMMARY OF THE EXISTING CONDITIONS DATA USING A COMBINATION OF NARRATIVE, GRAPHICS, AND DATA VISUALIZATIONS TO UNDERSTAND THE TRAVEL MARKETS, WHO IS USING THE TRANSPORTATION NETWORK, AND WHERE THE EXISTING INFRASTRUCTURE MIGHT NOT BE MEETING LOCAL AND COUNTYWIDE TRAVEL NEEDS FOR THE CORRIDOR	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3.	ACCURACY—CALCULATION(S) HAVE BEEN CHECKED IN ACCORDANCE WITH QP-04	No	<input type="checkbox"/>	<input type="checkbox"/>
4.	STYLE—REPORT FORMATTING, GRAMMAR, SYNTAX, AND WRITING STYLE IS CONSISTENT WITH THE PROGRAM/PROJECT GUIDELINES	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6.	DRAWINGS AND GRAPHICS (EXHIBITS OR REFERENCES) HAVE BEEN CHECKED AND REVIEWED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.	CLIENT/STAKEHOLDER COMMENTS BEEN ADDRESSED AND INCORPORATED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8.	REVISIONS HAVE BEEN ADEQUATELY IDENTIFIED, IF REQUIRED FOR UPDATED DELIVERABLE	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.	SUPPORTING DATA ARE INCLUDED OR REFERENCED	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

KEY: OR—Originator; CH—Checker

**COMMENTS** (e.g., for draft versions, explain if checklist items are required but not “checked”)

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## 1. INTRODUCTION

This memo summarizes the work completed for Task 7 – Near-Term Implementation Plan for Selby Lane as part of the San Mateo County Transportation Authority's (TA) El Camino Real (ECR) Complete Streets Study. This memo is organized into four main sections. The first section provides a technical memorandum, with technical analysis of El Camino Real/ Selby Lane Near Term Improvements. The next section provides detailed intersection renderings. The next section summarizes the Environmental Pathways. The last section details the Caltrans DEER application checklist.

## 2. EL CAMINO REAL AND SELBY LANE INTERSECTION NEAR TERM IMPROVEMENTS

This section summarizes the existing conditions at the intersection of El Camino Real and Selby Lane in the Town of Atherton, analyzes the need for traffic control devices, and presents options for improvements. The San Mateo County Transportation Authority and the Town of Atherton expressed their desire for near-term safety implementation actions that will be compatible with the long-term project options developed within the El Camino Real Complete Streets Study. The long-term project options are discussed in a separate technical memo prepared by Parametrix (Design Concepts Summary Memo, March 18, 2025).

### EXISTING CONDITIONS

El Camino Real at Selby Lane is an at-grade intersection with minor approach STOP control for the Selby Lane approaches. El Camino Real has three lanes in each direction and a left turn lane. Both Selby Lane approaches are a single lane. There is a marked crosswalk on the north leg of the intersection with crosswalk warning signs and advance yield lines. The northeast and southeast corners of the intersection in unincorporated San Mateo County have paved sidewalks and curb ramps. The northwest and southwest corners of the intersection in the Town of Atherton have dirt shoulders and sections of raised concrete curb but no paved sidewalks or curb ramps.

### TRAFFIC COUNTS AND VEHICLE OPERATIONS

The consultant team collected multimodal intersection turning movement counts at the El Camino Real / Selby Lane intersection for six hours (7-10AM, 2-5PM) on a typical weekday in March 2024 (Table 1). The two-way hourly vehicle traffic along El Camino Real ranges between 2300 and 3400 vehicles. Eastbound Selby Lane vehicle traffic ranges between 90 and 230 vehicles per hour. Westbound Selby Lane experiences between 15 and 40 vehicles per hour.

An intersection operations analysis performed by WSP forecasts delays greater than 50 seconds for the Selby Lane approaches, which is equivalent to a qualitative “level of service” score of “F”.<sup>1</sup>

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<sup>1</sup>Transportation Research Board (2022) Highway Capacity Manual (7<sup>th</sup> Edition) and AASHTO (2018) A Policy on Geometric Design of Highways and Streets (“Green Book”).

Table 1 Hourly Traffic Counts, El Camino Real at Selby Lane

Hour Beginning	Minor Street Vehicles (Eastbound Selby)	Minor Street Vehicles (Westbound Selby)	Major Street Vehicles (El Camino Real Two-way)	Walk-Bike (Crossing El Camino Real)	Warrant Satisfied
7 AM	92	20	2371	9	2 (Four-Hour) 3 (Peak Hour)
8 AM	214	21	3156	8	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)
9 AM	143	17	2313	2	2 (Four-Hour) 3 (Peak Hour)
2 PM	161	32	2671	8	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)
3 PM	225	36	3182	17	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)
4 PM	217	26	3344	13	1 (8 Hour) 2 (Four-Hour) 3 (Peak Hour)

Source: National Data and Surveying Services, March 13, 2024

## TRAFFIC SAFETY AND COLLISIONS

According to Transportation Injury Mapping System (TIMS), there were nine injury collisions recorded at El Camino Real and Selby Lane between 2020 to 2024 (Table 2).<sup>2</sup> Of these, four crashes resulted in severe injury and five crashes involved a person walking or bicycling.

Year 2021 recorded the greatest number of injury crashes at four, followed by three injury crashes in 2022 and one injury crash each in 2023 and 2024.

<sup>2</sup> <https://tims.berkeley.edu/>

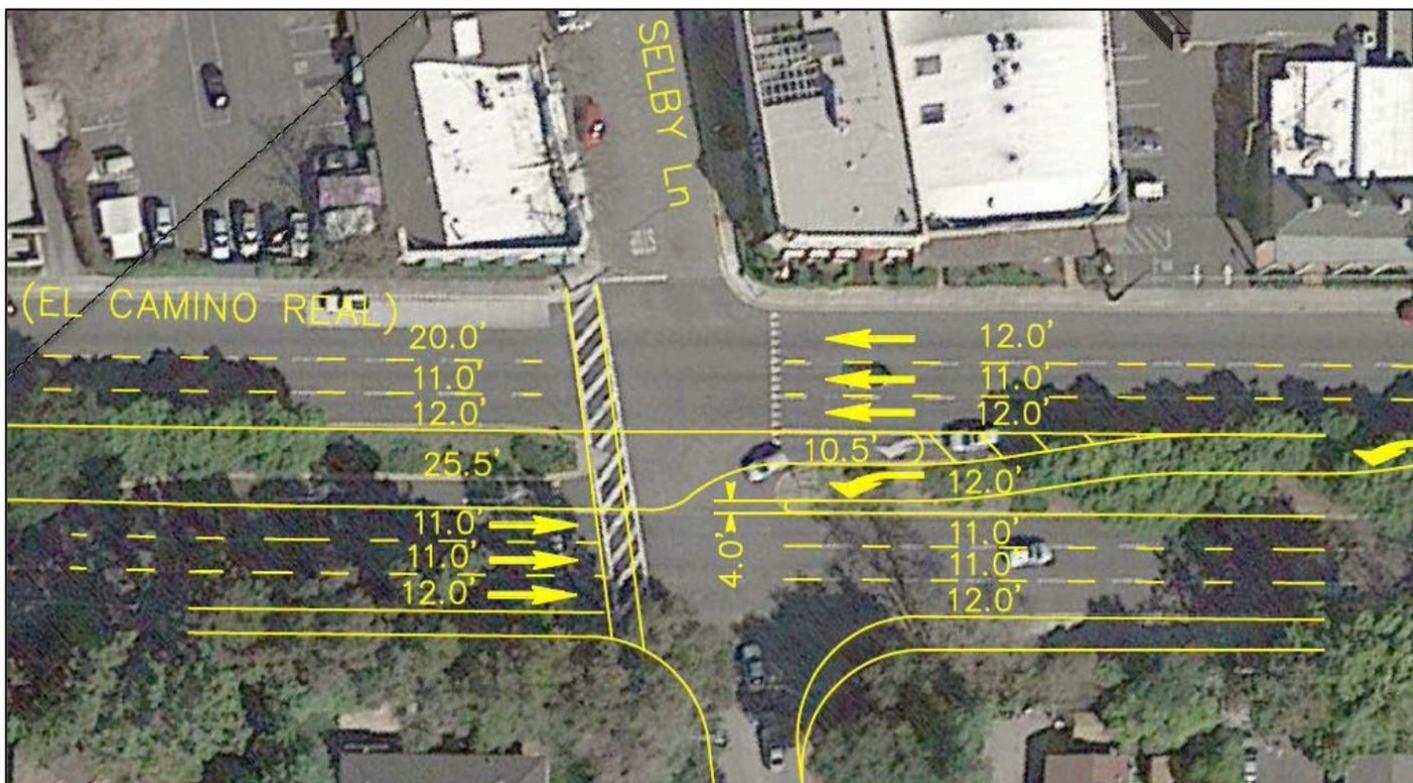
Table 2 Injury Collisions, El Camino Real at Selby Lane 2020-2024

CASE ID	Date	Description	Walk-Bike-Involved	Outcome
9261328	2/13/2021	Southbound motorcycle driver broadside crash with eastbound left turning vehicle driver.	No	Severe Injury
91433252	3/5/2021	Northbound truck driver changing lanes rear end crash with northbound vehicle driver.	No	Complaint of Pain Injury
91459589	4/13/2021	Northbound truck driver broadside crash with a westbound bicycle rider.	Yes	Severe Injury
9297007	7/9/2021	Southbound truck driver broadside crash with southbound bicycle rider.	Yes	Visible Injury
91677634	1/2/2022	Southbound U-turning vehicle driver collision with person walking in marked crosswalk.	Yes	Complaint of Pain Injury
9404523	1/12/2022	Westbound vehicle driver broadside crash with southbound vehicle driver.	No	Visible Injury
91997207	10/19/2022	Northbound left turn vehicle driver broadside crash with a northbound vehicle driver.	No	Complaint of Pain Injury
92155007	8/15/2023	Northbound vehicle driver broadside crash with a westbound bicycle rider.	Yes	Severe Injury
94426957	10/3/2024	Southbound left turn vehicle driver broadside crash with a northbound bicycle rider.	Yes	Visible Injury.

Source: SafeTREC UC Berkeley Transportation Injury Mappy System (TIMS) Data retrieved May 7, 2024

## PREVIOUS INTERSECTION CONCEPTS

The city has analyzed intersection modifications that included bicycle and pedestrian safety improvements that would include restricting left turns and through movements for vehicle movements from Selby Lane onto and across El Camino Real. These improvements were explored in the May 30, 2017 Selby Lane Bike Study “Final Traffic Analysis” report. These improvements would have included three key design elements: 1) restricting left turns and through movements onto and across El Camino Real, 2) restricting southbound left turns from El Camino Real onto Selby Lane, and 3) installing rectangular rapid flashing beacons (RRFBs) for pedestrian crossings across El Camino Real. These would have included redesigning the medians at Selby Lane to accommodate the new design of the intersection. These improvements will be considered by the city along with the potential fully signalized intersection improvements discussed in Task 7.



## SIGNAL WARRANT

The Manual on Uniform Traffic Control Devices (MUTCD) and the California-specific CA MUTCD set forth the parameters to investigate the need for a traffic control signal; these are referred to as “warrants” in the CA MUTCD.<sup>3</sup> The warrants consider aspects that include the number of lanes at the intersection for the major and minor approaches, traffic speed, vehicle traffic volumes, walk and bike volumes, and others.<sup>4</sup> According to the CA MUTCD, “The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.”<sup>5</sup>

The warrants analyzed in this study are Warrants 1 through 4 and 7 and the findings are discussed briefly below.

<sup>3</sup> US Department of Transportation Federal Highway Administration (2023) MUTCD 11<sup>th</sup> Edition; California Department of Transportation (2014, revised 2024) CA MUTCD Revision 8.

<sup>4</sup> CA MUTCD Chapter 4C.

<sup>5</sup> Ibid. Section 4C.01.03.

## WARRANT 1, EIGHT HOUR VEHICULAR VOLUME

Warrant 1 is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal.<sup>6</sup> The applicable thresholds for major and minor vehicle traffic to satisfy Warrant 1 are more than 600 two-way vehicles on El Camino Real and more than 150 vehicles on one approach of Selby Lane (Table 3). The eastbound Selby Lane traffic volumes satisfy the Warrant 1 threshold for four out of the six hours counted and therefore does not satisfy Warrant 1 (Table 1).

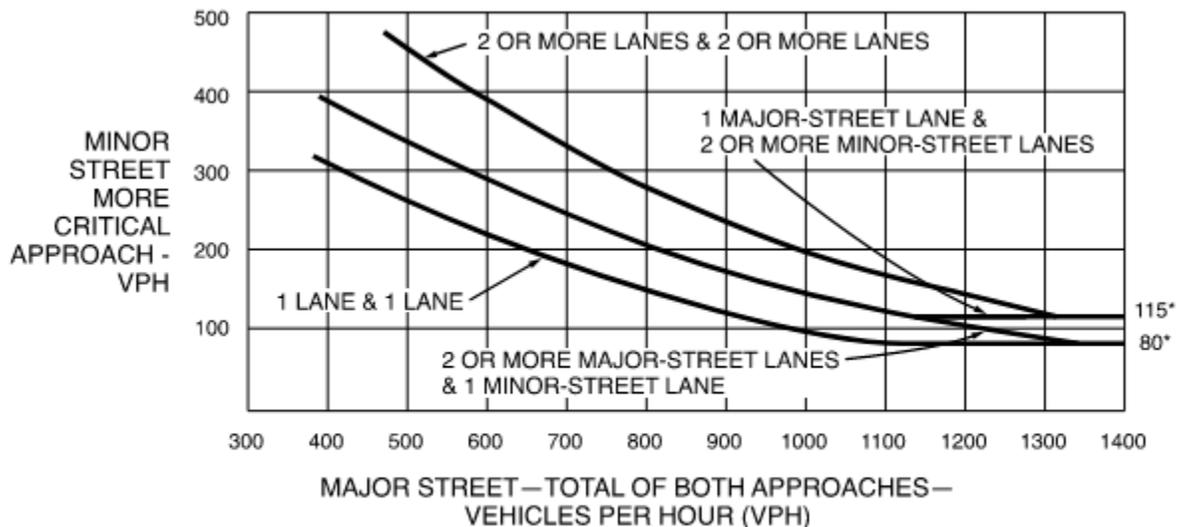
Table 3 CA MUTCD Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100% <sup>a</sup>	80% <sup>b</sup>	70% <sup>c</sup>	56% <sup>d</sup>	100% <sup>a</sup>	80% <sup>b</sup>	70% <sup>c</sup>	56% <sup>d</sup>
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

## WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Warrant 2 is intended for application at locations where the volume of intersecting traffic is the principal reason to consider installing a traffic signal.<sup>7</sup> The applicable threshold to satisfy Warrant 2 is 80 vehicles on one approach of Selby Lane when the two-way traffic on the major street exceeds 1400 hourly vehicles. The eastbound Selby Lane traffic volumes satisfy the Warrant 2 threshold for all six hours counted and therefore satisfies Warrant 2 (Table 1).

Figure 1 CA MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



\*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane

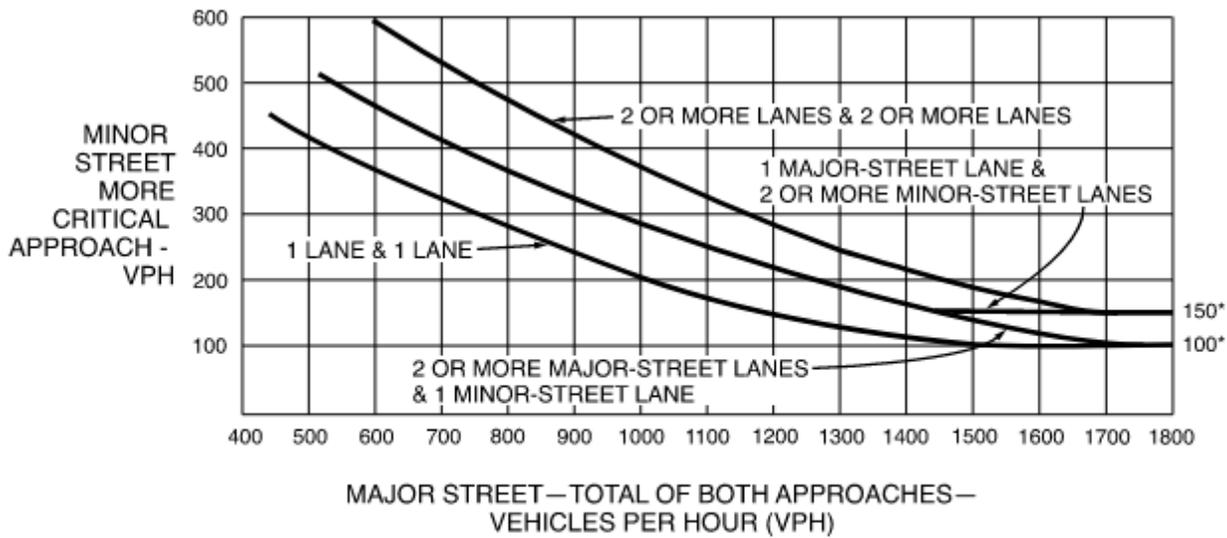
<sup>6</sup> CA MUTCD Section 4C.02

<sup>7</sup> Ibid Section 4C.03

## WARRANT 3, PEAK HOUR

Warrant 3 is intended for application only in unusual cases that attract or discharge large numbers of vehicles over a short time.<sup>8</sup> The El Camino Real and Selby Lane intersection and adjacent land uses do not conform to these provisions of the CA MUTCD, although the recorded intersection volumes satisfy the minimum thresholds for this warrant (Figure 2 and Table 1).

Figure 2 CA MUTCD Figure 4C-3. Warrant 3, Peak-Hour Vehicular Volume



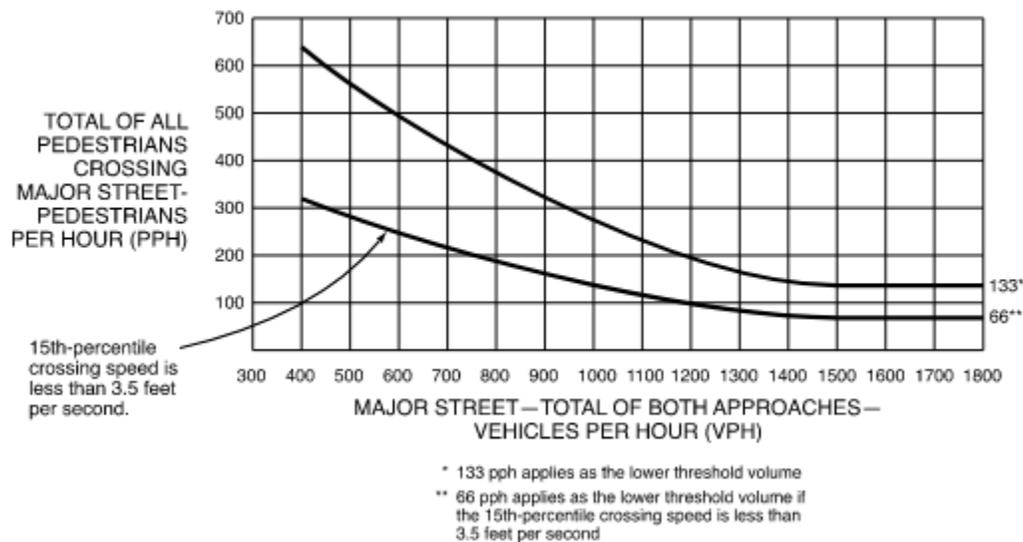
\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane

<sup>8</sup> CA MUTCD Section 4C.04

## WARRANT 4, PEDESTRIAN VOLUME

Warrant 4 is intended for application at locations where the traffic volume on a major street is so heavy that people walking experience excessive delay in crossing the major street.<sup>9</sup> The applicable threshold to satisfy Warrant 4 is 66 people walking in one peak hour or 53 people across four hours when the two-way traffic on the major street exceeds 1800 hourly vehicles. The number of people using the crosswalk was recorded at a minimum of two and a maximum of 17 across the six hours counted and therefore does not satisfy Warrant 4 (Table 1). It should be noted that this crossing at Selby Lane does experience seasonal peaks, as some students from the North Fair Oaks neighborhood attending Adelante Selby Spanish Immersion School use this crossing.

Figure 3 CA MUTCD Figure 4C-6. Warrant 4, Pedestrian Peak Hour Volume



## WARRANT 7, CRASH EXPERIENCE

Warrant 7 is intended for application at locations where the severity and frequency of crashes are the principal reasons to consider installing a traffic signal.<sup>10</sup> The applicable threshold to satisfy Warrant 7 is three total fatal-and-injury and pedestrian crashes. Warrant 7 thresholds are satisfied for years 2021 and 2022 with four and three injury crashes, respectively (Table 2).

<sup>9</sup> Ibid Section 4C.05

<sup>10</sup> CA MUTCD Section 4C. 08

Table 4 CA MUTCD Table 4C-2. Minimum Number of Reported Crashes in a One-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) <sup>a</sup>		Total of fatal-and-injury angle and pedestrian crashes <sup>a</sup>	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	5	4	3	3
2 or more	1	5	4	3	3
2 or more	2 or more	5	4	3	3
1	2 or more	5	4	3	3

<sup>a</sup> Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

## RECOMMENDED NEAR-TERM ACTION

Existing conditions at the El Camino Real and Selby Lane intersection justify the need for safety improvements, such as enhanced bicycle and pedestrian crossings. They also warrant the installation of a traffic control device like a traffic signal based on traffic volume (Warrant 4) and crash experience (Warrant 7). 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 is therefore not seen as a feasible near-term action.

Parametrix developed a conceptual plan for a traffic signal at El Camino Real as described below

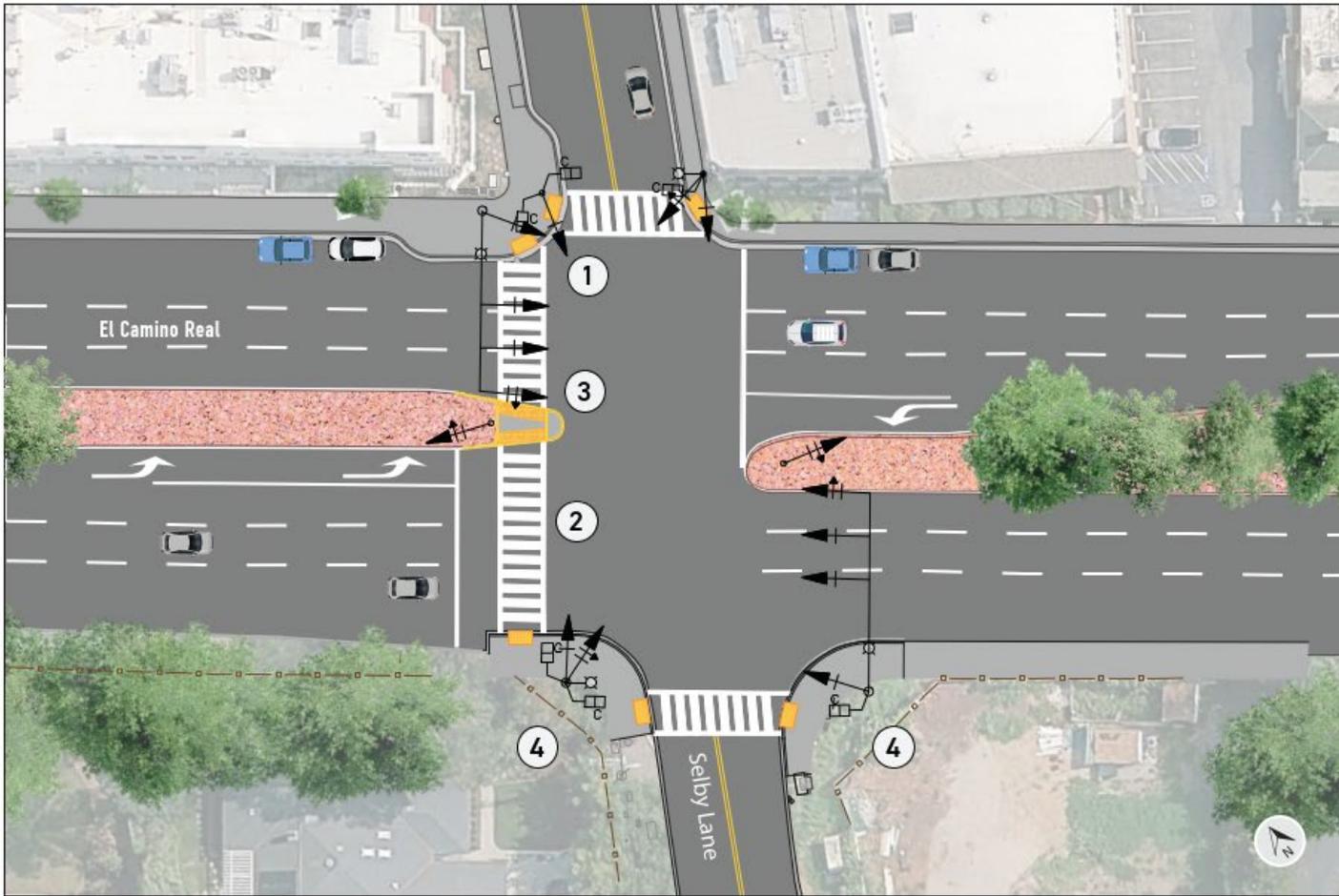
- New traffic signal equipment and upgrading intersection lighting within the existing highway right of way that would not conflict with future walk or bike facilities.
- A modified north side median to provide a crossing refuge for people in the north side crosswalk.
- New paved corner areas with detectable 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 El Camino Real 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 El Camino Real.

The typical cost for new traffic signal systems is between \$400,000 and \$600,000.<sup>11</sup>

<sup>11</sup> 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 Design Concepts Summary Memo, March 18, 2025

### 3. SELBY INTERSECTION RENDERING AND CONSTRUCTION NOTES



#### CONSTRUCTION NOTES

- 1 Install a new traffic signal system with intersection lighting
- 2 Add/upgrade high-visibility crossmark markings and vehicle stop bars.
- 3 Construct a median refuge island
- 4 Construct temporary concrete corners for an accessible path of travel. Maintain existing surface drainage patterns across Selby Lane.

#### LEGEND

- Vehicle Signal Head (Left)
- Vehicle Signal Head (Through)
- Pedestrian Signal Head
- Overhead Lighting

## 4. ENVIRONMENTAL PATHWAYS

The intent of this section is to describe the viability of potential environmental clearance pathways for the Selby Lane near-term project as proposed in the Task 7 Implementation Plan. The evaluation of potential pathways considered the scope of the proposed improvements at Selby Lane as described under *Project Understanding* and the potential for those improvements to affect the natural and built environment. Potential pathways under both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) were evaluated, and a recommendation regarding the applicability of those pathways is provided. However, as the CEQA and NEPA lead agency, Caltrans is responsible for making the final determination regarding the applicability of the suggested CEQA and NEPA environmental clearance pathways.

### PROJECT UNDERSTANDING

The intent of the Project is to implement a near-term improvement to address safety issues within the El Camino Real Corridor and improve the pedestrian environment. The proposed improvements would be implemented at El Camino Real and Selby Lane and are inclusive of the following elements with installation of a signalized intersection:

- New traffic signal control and intersection lighting at the current minor-approach STOP controlled intersection
- Concrete pavement with detectible warning surfaces at the northwest and southwest corners where there is currently an unpaved dirt shoulder
- Pedestrian refuge island on the north side of the intersection
- Minor surface gutter improvements to direct stormwater runoff
- Upgraded pavement markings and traffic control signs

### ENVIRONMENTAL CLEARANCE PATHWAYS

Based on the project elements described above, the Project was evaluated for its applicability as an exempt undertaking under CEQA and excluded action under NEPA. The evaluation also considered whether the Project could trigger exceptions to the use of a CEQA exemption or unusual circumstances (exceptions) to the use of a NEPA exclusion. Below is a discussion of that evaluation and recommendations regarding the applicability of CEQA exemptions and NEPA exclusions.

### CALIFORNIA ENVIRONMENTAL QUALITY ACT

There are two types of CEQA exemptions, statutory and categorical. Statutory exemptions are created by the State Legislature and are found either in the statute itself or the CEQA Guidelines (Sections 15260-15285). Statutory exemptions completely release a project from CEQA even if it has the potential to significantly affect the environment. Statutory exemptions are absolute and there are no exceptions. If a project qualifies as statutorily exempt the project's environmental review is complete; however, it is advisable that the lead agency includes documentation in the project file that offers evidence that the project is exempt by statute. Categorical exemptions are listed classes of projects that have been determined not to have a significant effect on the environment and are created through the regulatory process found in CEQA Guidelines Sections 15300-15333. Categorical exemptions are conditioned by limitations (exceptions) defined in the CEQA Guidelines Section 15300.2 and Public Resources Code, Section 21084. Categorical exemptions cannot be applied if any of the criteria for exceptions are triggered. If a project meets the criteria for a categorical exemption, the lead agency is required to determine whether an exception to the exemption is triggered.

None of the statutory exemptions outlined in Title 14, Chapter 3, Article 18, Section 15260 to 15285 of CEQA would apply to the proposed project.

The following categorical exemptions were considered to have applicability to the project and exceptions to their use were not noted. The city may rely on one, some, or all the following exemptions unless there are conditions that the city is aware of that may negate their use.

### 15301. EXISTING FACILITIES

Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use. The types of “existing facilities” itemized under this class are not intended to be all-inclusive of the types of projects which might fall within Class 1; however, the following facility type could be applicable to the project:

(c) Existing highways and streets, sidewalks, gutters, bicycle and pedestrian trails, and similar facilities (this includes road grading for the purpose of public safety), and other alterations such as the addition of bicycle facilities, including but not limited to bicycle parking, bicycle-share facilities and bicycle lanes, transit improvements such as bus lanes, pedestrian crossings, street trees, and other similar alterations that do not create additional automobile lanes).

### 15302. REPLACEMENT OR RECONSTRUCTION

Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have basically the same purpose and capacity as the structure replaced.

(c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

### 15304. MINOR ALTERATIONS TO LAND

Class 4 consists of minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes.

(b) New gardening or landscaping, including the replacement of existing conventional landscaping with water efficient or fire-resistant landscaping.

(f) Minor trenching and backfilling where the surface is restored.

Lastly, should the city determine that the above categorical exemptions do not apply, application of the commonsense exemption (CEQA Guidelines 15061(b)(3)) could be used. The commonsense exemption can be applied if there is no possibility that the Project would have a significant effect on the environment.

### NATIONAL ENVIRONMENTAL POLICY ACT

The Federal Highway Administration (FHWA) has established a list of actions (23 CFR part 771.117) that meet the definition contained in 40 CFR 1508.4. The list covers actions which have been deemed to typically not result in individually or cumulatively significant effects. In addition to FHWA’s list of excluded actions, other applicable exclusions established by the Federal Railroad Administration (23 CFR part 771.116) or the Federal Transit Administration (771.118) could be identified as applicable and may be approved by FHWA in consultation with FRA or FTA and when the applicable requirements of those sections have been met.

Based on the current project description and proposed project components, the Project could qualify as an excluded action under 23 CFR Part 771, unless it is determined that the action could involve unusual circumstances. Applicable actions under Part 771.117 include:

(c)(2) – Approval of utility installations along or across a transportation facility

(c)(3) – Construction of bicycle and pedestrian lanes, paths, and facilities

(c)(7) – Landscaping

(c)(8) – Installation of fencing, signs pavement markings small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur

(c)(22) – Project, as defined in 23 U.S.C. 101, that would take place entirely within the existing operational right-of-way

## CONCLUSION

As noted earlier, Caltrans would make the final determination as to which CEQA and NEPA process should be followed, including whether any of the exemptions or exclusions are applicable. If Caltrans does not find the Project to be exempt from CEQA or excluded from NEPA, the Project could be processed with a Negative Declaration (ND), Mitigated Negative Declaration (MND), and Finding of No Significant Impact (FONSI) barring controversy or unknown circumstances, which the Team does not believe exists for the Project.

## 5. CALTRANS DEER APPLICATION CHECKLIST

No.	Criteria	True	False
1	<p>The project qualifies for a categorical/statutory exemption under the CEQA and a categorical exclusion under the NEPA, or the project has a completed and approved higher-level environmental document (IS/ND/MND, EIR, EA/FONSI, or EIS). The reason for the preparation of a higher-level environmental document must not be due to transportation related effects, and the project must not result in an increase in vehicle miles traveled (VMT).</p> <p><i>The proposed near-term improvements has a completed and approved environmental review and will not result in an increase in VMT.</i></p>	X	
2	<p>The project has a single-build alternative, and no other engineering analysis is required to evaluate or rule out other possible alternatives.</p> <p><i>The near-term improvements has only one build alternative, Section 2 summarizes the traffic and engineering analysis.</i></p>	X	
3	<p>The project does not require CTC action.</p> <p><i>This project will likely not require CTC action because it is not part of the State Transportation Improvement Program or the Active Transportation Program.</i></p>	X	
4	<p>The project doesn't involve any right of way conveyances from Caltrans to the local agencies (for example, dedications, relinquishments, modifications to right of way limits, etcetera).</p> <p><i>The project does not involve any conveyances from Caltrans to the local agency.</i></p>	X	
5	<p>The project doesn't require FHWA approval for relinquishment or new public road connections involving a modification to the access control. (The new public road connection process is complex in that it requires Caltrans assess that the operations of the facilities have been protected and that the connection is in the best interest of the State. This recommendation must be formally submitted to the CTC, and if applicable, to FHWA for approval.)</p> <p><i>This project likely will not require any FWWA approval as only intersection improvements are proposed.</i></p>	X	
6	<p>The project doesn't propose bridge widenings or constructing new structures (for example, earth retaining structures such as retaining walls, tiebacks, soil nails, sound walls, culverts, etcetera.) that are not per Caltrans Standard Plans.</p> <p><i>This project does not propose bridge widenings or construction of new structures.</i></p>	X	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
**DESIGN ENGINEERING EVALUATION REPORT APPLICATION CHECKLIST**

No.	Criteria	True	False
1	The project qualifies for a categorical/statutory exemption under the CEQA and a categorical exclusion under the NEPA, or the project has a completed and approved higher-level environmental document (IS/ND/MND, EIR, EA/FONSI, or EIS). The reason for the preparation of a higher-level environmental document must not be due to transportation related effects, and the project must not result in an increase in vehicle miles traveled (VMT).	X	
2	The project has a single-build alternative, and no other engineering analysis is required to evaluate or rule out other possible alternatives.	X	
3	The project does not require CTC action.	X	
4	The project doesn't involve any right of way conveyances from Caltrans to the local agencies (for example, dedications, relinquishments, modifications to right of way limits, etcetera).	X	
5	The project doesn't require FHWA approval for relinquishment or new public road connections involving a modification to the access control. (The new public road connection process is complex in that it requires Caltrans assess that the operations of the facilities have been protected and that the connection is in the best interest of the State. This recommendation must be formally submitted to the CTC, and if applicable, to FHWA for approval.)	X	
6	The project doesn't propose bridge widenings or constructing new structures (for example, earth retaining structures such as retaining walls, tiebacks, soil nails, sound walls, culverts, etcetera.) that are not per Caltrans Standard Plans.	X	

I hereby certify that the above information provided related to this project is true and correct to the best of my knowledge and belief. I further understand and agree that if information contrary to aforementioned table at any stage during the Caltrans review process or if the project scope changes the results of any of the above elements, project may have to be managed through a different Caltrans Review Process and may be subject to delays, revisions, or denials.

\_\_\_\_\_  
 Name of Applicant

\_\_\_\_\_  
 Signature of applicant

\_\_\_\_\_  
 Date

**Instructions:**

1. These criteria are used to determine the qualifications to use the Design Engineering Evaluation Report (DEER) as a project initiation and approval document. If all of the following conditions are met, and the project is not deemed to be complex by the Caltrans functional unit responsible for the oversight, the usage of the DEER is appropriate.
2. If additional information is needed on any of the elements listed in the checklist, please contact the appropriate DPO or Caltrans point of contact:  
<https://dot.ca.gov/programs/traffic-operations/ep/district-contacts>
3. This checklist may be reviewed with the applicant at the initial consultation/pre-permit submittal meetings.

**Abbreviations:**

1. **IS:** Initial Study
2. **ND:** Negative Declaration
3. **MND:** Mitigated Negative Declaration
4. **FONSI:** Finding of No Significant Impact
5. **EIR:** Environmental Impact Report
6. **EIS:** Environmental Impact Statement
7. **CEQA:** California Environmental Quality Act
8. **NEPA:** National Environmental Policy Act
9. **FHWA:** Federal Highway Administration
10. **CTC:** California Transportation Commission
11. **DPO:** District Encroachment Permit Office