COLMA EL CAMINO REAL BICYCLE AND PEDESTRIAN IMPROVEMENT PLAN

APPENDICIES





- A. EXISTING CONDITIONS (WITH APPENDICES)
- **B.** CROSS SECTION ALTERNATIVES
- C. COST ESTIMATES TABLE
- D. FUNDING SOURCES
- E. QUICK-BUILD OPTIONS EXCERPT FROM THE GBI MEMO



APPENDIX A EXISTING CONDITIONS MEMO



Memorandum

Date: December 2, 2019

To: Abdulkader Hashem, Town of Colma

From: Bob Grandy and Ingrid Ballús Armet, Fehr & Peers

Subject: Colma El Camino Real Bicycle and Pedestrian Improvement Plan – Existing

Conditions

SF19-1035

The purpose of this memo is to describe existing conditions and previously completed transportation plans for the Colma El Camino Real study area, defined as the stretch of El Camino Real between Albert M Teglia Boulevard and Arlington Drive. The first section of this memo describes the planning context of this study, including a brief summary of relevant plans and projects that have been completed or are in process. Existing conditions are then broken down into the Town's demographics and transportation infrastructure, including operations and safety performance of the corridor. Lastly, the goals and vision for the Colma EL Camino Real Bicycle and Pedestrian Improvement Plan (the "Plan") are introduced.

Executive Summary

El Camino Real is a State Highway (State Highway 82) that bisects the Town of Colma and serves as the main corridor to travel through the Town between Daly City and South San Francisco. It provides access to Colma BART station and South San Francisco BART station, in addition to a number of Samtrans bus stops along the corridor. The existing transportation conditions along the El Camino Real study area are as follows:



- El Camino Real has three lanes in each direction for much of the study area, narrowing to two lanes in each direction south of Mission Road
- The corridor operates under capacity and a large percentage of vehicles travel above the speed limit
- There are significant sidewalk gaps on the west side of El Camino Real from F Street to
 Villa Avenue and on both sides of El Camino Real from Mission Road to Arlington Drive
- There are no existing bicycle facilities
- On-street parking is under-utilized, with less than 50 percent occupancy throughout, except for north of F Street, near Colma BART station, and from Serramonte Boulevard to Collins Avenue, near the commercial area

Based on improvements identified in previous transportation plans and studies as well as the existing conditions analysis presented in this memo, the *El Camino Real Bicycle and Pedestrian Improvement Plan* ("the Plan") may include the following:

- A road diet (i.e. removal of one or more vehicle travel lanes in each direction)
- Bicycle facilities on El Camino Real
- Sidewalk expansions, and addition where currently missing
- Traffic calming measures to address high vehicle speeds and increase bicycle and pedestrian safety and comfort
- Removal of on-street parking in segments non-adjacent to commercial areas with lowutilization rates
- Reconfiguration of the Mission Road intersection ("the Y intersection")
- Addition of signal control or restriction of left-turn movements, particularly at driveways and unsignalized intersections
- Additional bicycle and pedestrian safety improvements, such as prohibiting right turns on red, adding leading pedestrian intervals, or adding pedestrian refuges and curb extensions
- Mid-block crosswalks with PHBs
- Adding street lighting



The Colma El Camino Real study area serves not only the diverse residents and employees of Colma, but also the neighboring communities who travel through the Town. The Plan should serve the needs of all users of the corridor, including those of disadvantaged communities. Disadvantaged communities for the Plan are defined as the MTC Communities of Concern in Daly City and in South San Francisco, immediately to the north and south of Colma, respectively, and segments of the Colma population particularly vulnerable and/or traditionally less engaged in public processes: low-income residents, minorities (Asian and Hispanic), and those who do not speak English fluently. Over half of Colma employees are in the retail trade industry, jobs that often pay low wages and have shifts that start and end outside typical weekday commute hours when high-frequency transit service is provided. Given that most employees commute from outside Colma, employees in low-wage retail jobs may have limited commute options and flexibility.

There are seven defined goals and values for the Plan, which are informed by Town priorities and aligned with the Grand Boulevard Initiative Guiding Principles and will help frame and guide the plan-development process.

Planning Context

Transportation plans that address the study area include the *Caltrans District 4 Bike Plan for the San Francisco Bay Area*, the *San Mateo Countywide Comprehensive Bicycle and Pedestrian Plan*, and the *Town of Colma General Plan's Circulation Element*. The *Caltrans District 4 Bike Plan* identifies barriers to bicycling in the San Francisco Bay Area and opportunities to enhance bicycle safety and mobility. The *San Mateo Countywide Comprehensive Bicycle and Pedestrian Plan* provides a policy framework to guide and evaluate implementation of the planning and design of bicycle and pedestrian projects of countywide significance. The *Circulation Element* identifies facilities for the safe, efficient, and environmentally responsible movement of people and goods through the Town, ensure these facilities reflect the land uses contemplated by the Land Use Element, and ensure a range of transportation options are available throughout the Town.

Recently completed or ongoing transportation projects along or adjacent to the corridor include Colma's Transportation Safety Action Plan – Final Systemic Safety Analysis Report (SSAR), Serramonte and Collins Master Plan, and Mission Road Bicycle and Pedestrian Improvements plan. The Colma SSAR provides an initial step to identifying main safety issues on El Camino Real that



need to be further evaluated and addressed in the *El Camino Real Bicycle and Pedestrian Improvement Plan* (e.g. high risk intersections and segments). The *Serramonte and Collins Master Plan* presents future bicycle facilities on Collins Avenue and Serramonte Boulevard. The *Mission Road Bicycle and Pedestrian Improvements* plan incorporates safer bicycle and pedestrian facilities on Mission Road, which would directly connect with facilities on El Camino Real.

The **Previous Studies and Planning Documents** graphic presents the information and recommendations from the above planning documents and projects that apply to the Colma El Camino Real study area. Improvements that are identified in those reports include:

- Adding bicycle facilities on El Camino Real
- Adding sidewalks along El Camino Real where missing
- Reconfiguring and potentially signalizing the intersection of Mission Road and El Camino Real to improve safety, including bicycle and pedestrian connectivity, and to permit left turns from Mission Road onto El Camino Real
- Adding signal control or restrict left-turn movements, particularly at driveways and unsignalized intersections
- Implementing bicycle and pedestrian safety improvements, such as prohibiting right turns on red, adding leading pedestrian intervals, or adding pedestrian refuges
- Adding traffic signal on Collins Avenue and El Camino Real intersection
- Installing PHBs at uncontrolled marked crossings
- Adding street lighting

Additionally, the *Land Use and Urban Design Strategy* identifies street typologies for different sections of El Camino Real, as follows:

 "Pedestrian Public Realm Focus" from Albert M Teglia Boulevard to F Street and from Serramonte Boulevard to Cypress Avenue: streetscape should include high-visibility crosswalks, median refuges, corner bulb-outs, and sidewalk widening to encourage pedestrian activity and enhance the public realm at a human scale; include parallel onstreet parking where feasible. Abdulkader Hashem, Town of Colma December 2, 2019 Page 5 of 25

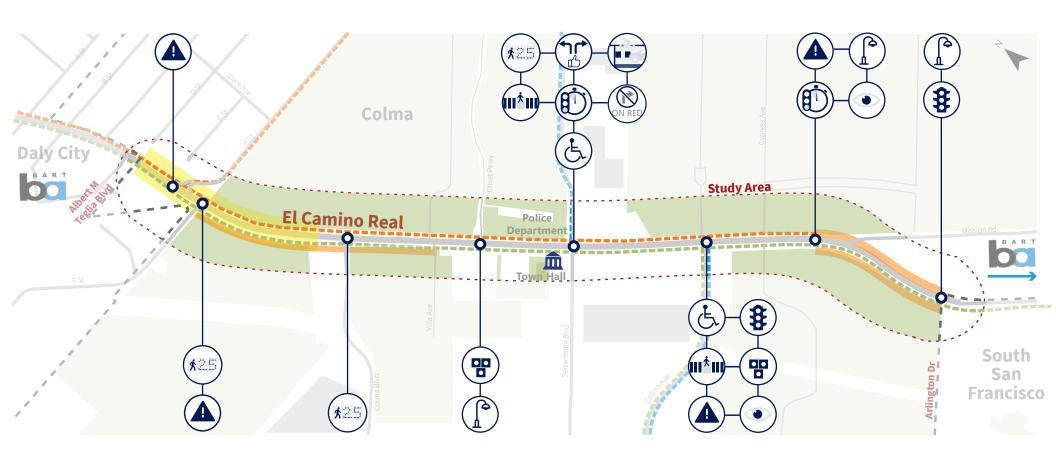


• "Boulevard" from F Street to Serramonte Boulevard and south of Cypress Avenue: prioritize planted areas between sidewalk and roadway (instead of wider sidewalks) to enhance pedestrian safety and comfort; on-street parking is a low priority.

Recommendations Identified in Previous Studies and Planning Documents

The El Camino Real Bicycle and Pedestrian Improvement Plan builds on previous studies and planning documents that assessed existing conditions and proposed potential improvements along the El Camino Real corridor through the Town of Colma.

This map illustrates the streetscape and safety recommendations identified in two recent studies, the Serramonte and Collins Master Plan and the Systemic Safety Analysis Report (SSAR), and the Town of Colma General Plan's Circulation Element, as well as the bicycle facilities proposed in the San Mateo County Comprehensive Bicycle and Pedestrian Plan (adopted September 8, 2011) and Caltrans District 4 Bike Plan (2018).



Legend



Proposed Bike Facilities*



*Caltrans D4 Bike Plan plans for Class IV on El Camino Real north of Collins Avenue, while San Mateo County Comprehensive Bicycle and Pedestrian Plan plans for Class II (as shown on this graphic)

Recommendations



Improve High Risk Intersection (as defined in SSAR)



Consider Leading Pedestrian Intervals



Street Pedestrian Hybrid



Beacon

Consider Pedestrian Refuge







Review ADA Compliance



Pavement

Markings for

Bike - Vehicle

Conflicts

Green







Evaluate Intersection Control

Sight Distance



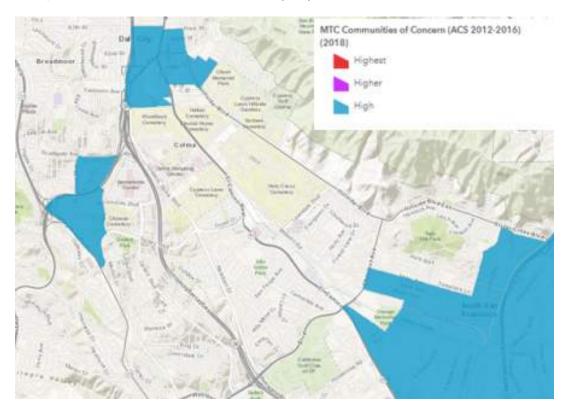
Existing Conditions

Demographics and Disadvantaged Communities

The Town of Colma is the smallest town in San Mateo County, with under 3,000 people. However, Colma employs over 4,000 people, mostly of whom reside outside Colma. The Colma El Camino Real study area serves as a connection to the regional transit system and main corridor for residents, employees, and neighboring communities to travel through the Town.

Disadvantaged Communities

The Plan must include and address the needs of disadvantaged communities. Three areas neighboring the Town are designated as "communities of concern" by the Metropolitan Transportation Commission (MTC): two in Daly City and one in South San Francisco.



Source: MTC; Retrieved on April 30, 2019 at http://opendata.mtc.ca.gov/datasets/mtc-communities-of-concern-in-2018-acs-2012-2016?geometry=-122.557%2C37.664%2C-122.394%2C37.687

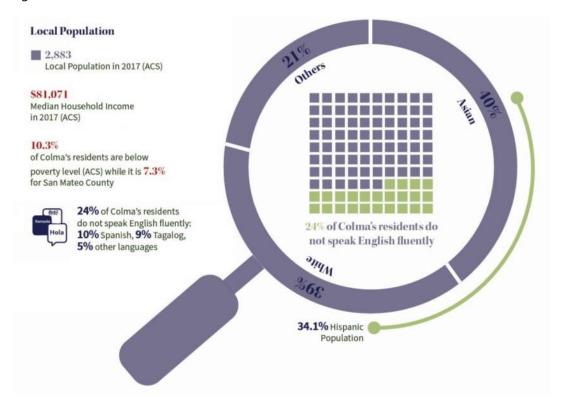


The definition of communities of concern is intended to capture a diverse cross-section of populations and communities that could be considered disadvantaged or vulnerable in terms of both current conditions and potential impacts of future growth. The definition of communities of concern includes all census tracts that have a concentration of both minority and low-income households at specified thresholds of significance, or that have a concentration of three or more of six additional factors if they also have a concentration of low-income households. Among the additional factors is level of English proficiency.

While the Town of Colma is not defined as a Community of Concern itself, certain segments of the population can still be considered disadvantaged or vulnerable based on characteristics that align with the factors considered by MTC. The sections below present overall characteristics of Colma's population and employees, identifying traits that make these specific communities vulnerable.

Who Lives in Colma?

Colma's population is quite diverse, with people from a range of ethnic, racial, and linguistic backgrounds.



Source: American Community Survey (ACS) 2017.



Forty percent of Colma's population is a racial minority, Asian, and 34 percent is Hispanic. Additionally, 24 percent of Colma residents do not speak English fluently and ten percent of the residents are below the federal poverty level, which is approximately three percent more than San Mateo County's. The Town of Colma and the area in Daily City north of Colma are identified as a low-income community per AB 1550, with income levels 45 to 80 percent below the County's median income¹.

Who Works in Colma?

More people work in Colma than live in Colma and only one percent of Colma employees live in the Town. Fifty-seven percent of Colma employees are in the retail trade industry, jobs that often pay low wages and have shifts that start and end outside typical weekday commute hours when

high-frequency transit service is provided. Given that most employees commute from outside Colma, employees in low wage retail jobs may have limited commute options and flexibility. Thus, providing good transportation connections for employees from neighboring communities is crucial for the Town's economic vitality.



Source: Longitudinal Employer-Household Dynamics (LEHD) 2015.

¹ Low-income communities and households are defined as the census tracts and households, respectively, that are either at or below 80 percent of the statewide median income, or at or below the threshold designated as low-income by the California Department of Housing and Community Development's (HCD) 2016 State Income Limits. More information at:

https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm



Seventy-one percent of employees drive alone or carpool to work; nineteen percent of employees take transit; and ten percent choose to walk, bike, taxi, use transportation network company (TNC) or other means of transportation. The existing transportation network does not support different types of transportation modes.

How Do People Commute to Work in Colma?



Transportation Context

El Camino Real is a State Highway (State Highway 82) that bisects the Town of Colma. In Colma, El Camino has three lanes in each direction for much of the study area, narrowing to two lanes in each direction south of Mission Road. It serves as a connection between the Colma BART station at the north end of Town and the South San Francisco BART station at the south end of Town. Land uses along El Camino Real in Colma are mostly cemeteries, with some commercial areas (i.e. car dealerships and shopping centers) and public institutions along Serramonte Boulevard, and residential neighborhoods in the north end of the Town.

Existing Network

This section summarizes the existing transportation infrastructure along the study area, from Albert M Teglia Boulevard to Arlington Drive, as shown in the **Existing Daily Volumes and Intersection Controls** graphic. Signalized intersections along El Camino Real include F Street, Colma Boulevard, Serramonte Boulevard, and Arlington Drive. All other intersections are sidestreet stop-controlled. **Appendix A** includes intersection turning-movement counts for the Colma El Camino Real study area.

The existing cross section of El Camino Real from Albert M Teglia Boulevard to Mission Road has three vehicle travel lanes in each direction, parking on both sides, and a wide concrete median. On this segment of El Camino Real, the average weekday traffic is 25,200 vehicles. According to the 6th Edition HCM Manual, this volume on a 35 mile-per-hour (MPH) facility aligns with Level of Service (LOS) A conditions, which indicates that the corridor currently operates largely under

Abdulkader Hashem, Town of Colma December 2, 2019 Page 11 of 25



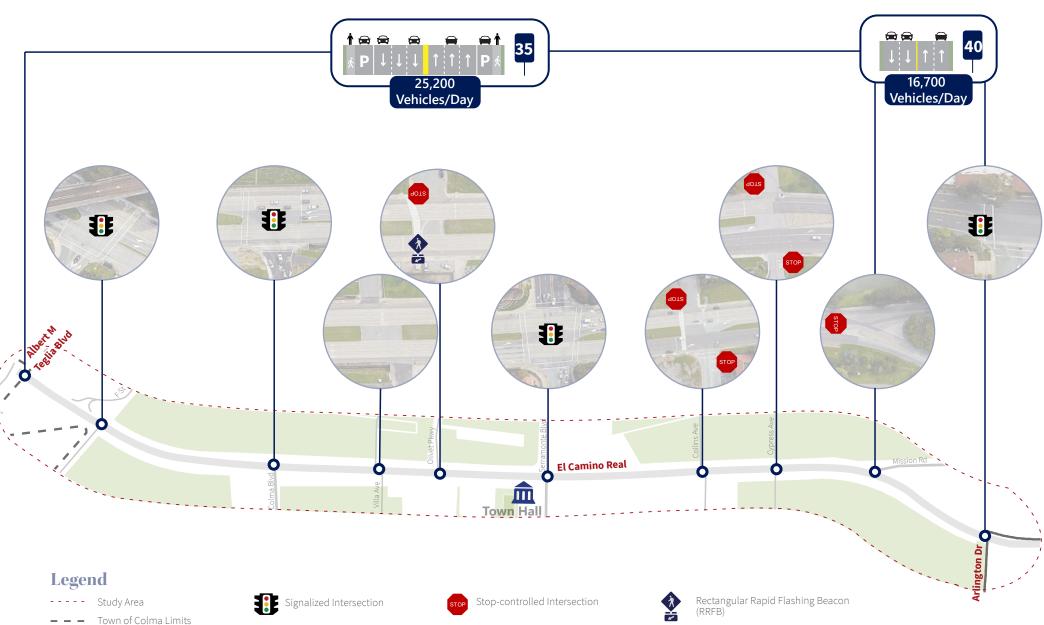
capacity and vehicles travel with free movement and likely at a high speed. This is evidenced by the fact that 15-20 percent of vehicles were recorded traveling above the speed limit. Thus, this segment should be considered for a road diet. Removing one lane in each direction (i.e. narrowing the road to four lanes), would still allow for traffic to flow at LOS B and would provide additional space for sidewalk widening (or addition in segments where it's currently missing), bike lanes, and other safety improvements and traffic calming measures.

The existing cross section of El Camino Real from Mission Road to Arlington Drive has four travel lanes without sidewalks or parking. With an average weekday traffic of 16,700 vehicles and four travel lanes, this segment currently operates largely under capacity and vehicles travel with a high degree of freedom to select speed (LOS B). In fact, speed data shows that over 40 percent of vehicles travel over the 40 MPH speed limit. Additionally, the lack of sidewalks along the segment and the complex configuration of the Mission Road intersection make it extremely uncomfortable and unsafe for pedestrians to cross and/or walk along this segment of El Camino Real. The existing lane configuration and traffic controls from Mission Road to Arlington Drive do not support bike lane connections on Mission Road nor pedestrian connections existing bus stops and residential areas at the Arlington Drive intersection or the South San Francisco BART station. Thus, segment should be considered for a road diet so that the road can better support all modes. Removing one lane in each direction (i.e. narrowing the road to two vehicle lanes), would still allow for traffic to flow at LOS D, which is consistent with the Town's LOS standards (LOS D or better) outlined in the General Plan, and would provide additional space for sidewalks, bike lanes, or other safety improvements and traffic calming measures.

In general, El Camino Real in Colma is a good candidate for a road diet and infrastructure improvements that can enhance bicycle and pedestrian safety throughout the corridor, including sidewalk expansion, bicycle facilities implementation, and traffic calming considerations.

Existing Daily Volumes and Intersection Controls





Abdulkader Hashem, Town of Colma December 2, 2019 Page 13 of 25

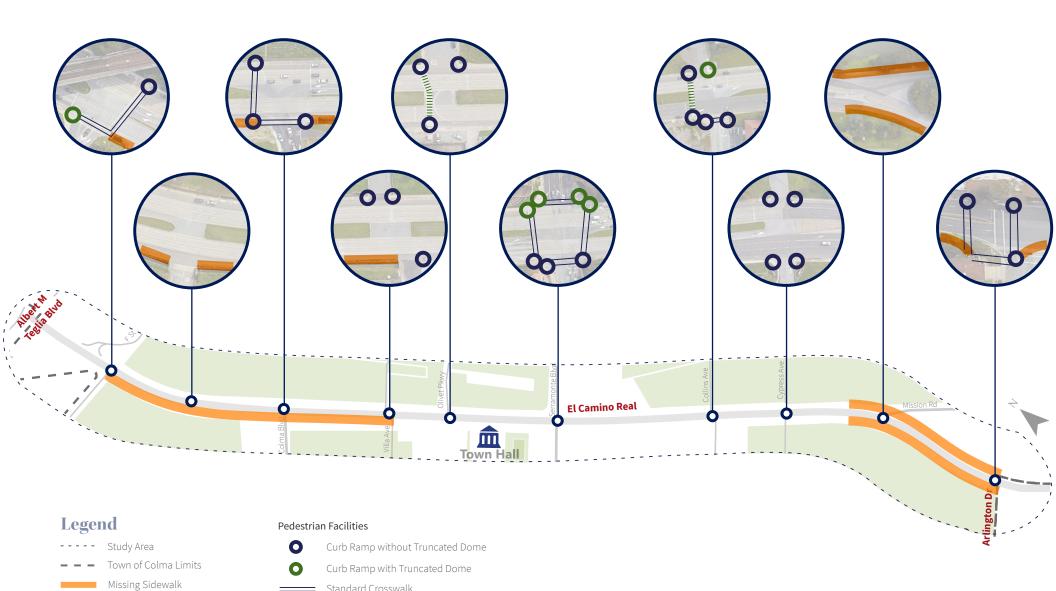


Pedestrian infrastructure along the corridor, as shown in the **Pedestrian Facilities** graphic, includes curb ramps (with and without truncated domes), standard crosswalks, high-visibility crosswalk, pedestrian countdown signals, and rectangular rapid flashing beacon (RRFB). Four of the ten studied intersections are signalized, including F Street, Colma Boulevard, Serramonte Boulevard, and Arlington Drive. A Rectangular Rapid Flashing Beacon (RRFB) is installed at Olivet Parkway. The other five intersections are uncontrolled crossings across El Camino Real. Most street corners include curb ramps. However, only six of these ramps include truncated domes. Marked crosswalks are located at about half of the intersections along the corridor. With the exception of the high-visibility crosswalks with RRFB at Olivet Parkway and Collins Avenue, all crosswalks use a standard, white paint crosswalk design without interior striping. There are significant sidewalk gaps on the west side of El Camino Real from F Street to Villa Avenue and on both sides of El Camino Real from Mission Road to Arlington Drive. Although there are several bus stops and businesses along the corridor, the sidewalk gaps discourage the residents to travel through the Town on foot.

Pedestrian counts are presented in **Appendix A** as part of multimodal intersection turning-movement counts for the Colma El Camino Real study area. Due to the proximity to Colma BART station, there are a lot of pedestrians crossing at F Street and Albert M Teglia Boulevard. At F Street, during midday, the volume was at the highest with 76 pedestrians observed from 12PM to 2PM. At Albert M Teglia Boulevard, the volume was at the highest during the afternoon with 66 pedestrians observed from 4PM to 6PM. In addition, being adjacent to commercial areas put Serramonte Boulevard in high demand for pedestrian crossings, with the highest demand (47) observed during the weekend midday peak (12PM to 2PM). In contrast, due to the lack of marked crossings, lack of sidewalk, presence of high-speed vehicles, and a complex configuration, the pedestrian volumes at Mission Road was the lowest with 2 pedestrians crossing during the weekend midday peak period and 4 pedestrians crossing in the weekday afternoon peak period.

Pedestrian Facilities





Standard Crosswalk
High-Visibility Crosswalk

Abdulkader Hashem, Town of Colma December 2, 2019 Page 15 of 25



There are no existing bicycle facilities on El Camino Real to support cycling along this corridor; therefore, bicycle volumes were low for all studied intersections (see **Appendix A** for counts). There were more bicyclists during the weekend midday peak period (17 bicyclist observed between 12PM and 2PM) than in the weekday morning (13 bicyclists observed between 7AM and 9AM) or the afternoon (4 bicyclist observed between 4PM and 6PM) peak periods. However, as seen in the **Bicycle Facilities** graphic, Town, County, and State transportation plans call for bicycle facilities on El Camino Real as a main active transportation connection through multiple jurisdictions. Bicycle facilities on El Camino Real would connect to the regional transit system at the two BART stations: Colma and South San Francisco. They would act as the main connection to the south with Mission Road's bike lanes and the Centennial Trail to San Bruno. Bicycle facilities on El Camino Real would also connect to proposed facilities along this corridor in South San Francisco and the entire San Francisco Peninsula.

Bicycle Facilities





Legend

Study Area
Town of Colma Limits
City Limits

Existing Bike Facilities

Class I Bike Path
Class II Bike Lane
Class III Bike Route

Proposed Bike Facilities*

Class I Bike Path
Class II Bike Lane
Class III Bike Route

*Caltrans D4 Bike Plan plans for Class IV on El Camino Real north of Collins Avenue, while San Mateo County Comprehensive Bicycle and Pedestrian Plan plans for Class II (as shown on this graphic) Abdulkader Hashem, Town of Colma December 2, 2019 Page 17 of 25



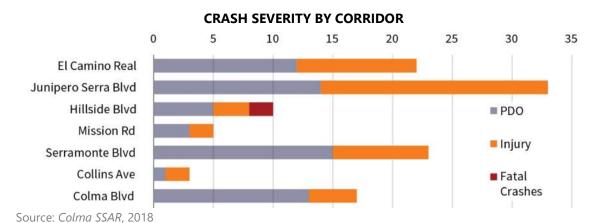
On-street parking is permitted and free on both sides of El Camino Real, with the exception of the west side from F Street to Colma Boulevard, the east side from Cypress Avenue to Mission Road, and both sides from Mission Road to Arlington Drive.

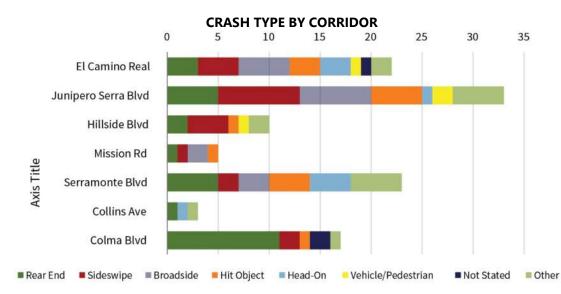
As shown in the **Parking Demand** graphic, on-street parking utilization on El Camino Real is generally low at all times, except for north of F Street, near Colma BART station, and from Serramonte Boulevard to Collins Avenue, near the commercial area. The total on-street parking supply in the study area is 262 parking spaces. On a typical weekday, there were only at 68 parked vehicles (25 percent overall) at noon and 60 parked vehicles at 6 PM. On a typical Saturday, when there are more activities at shopping centers and commercial areas, parking demand was slightly higher with 81 on-street parking spaces occupied (30 percent overall). Most parked vehicles concentrate on both sides of El Camino Real from Albert M Teglia Boulevard to F Street and from Serramonte Boulevard to Collins Avenue. This on-street parking data supports the Town's *Land Use and Urban Design Strategy* for maintaining on-street parking at commercial areas ("Pedestrian Public Realm Focus" areas) and the opportunities for parking removal at lower-utilized segments in exchange for bicycle and pedestrian facilities ("Boulevard" areas). These changes would help the Town encourage bicycle and walking as modes of travel to work, shopping, and to connect to transit



Crash Data

The *Colma SSAR* provides insight into existing collision trends on the corridor available 2011-2016. According to the report, El Camino Real is the third highest collision corridor in the Town with 18 percent of total crashes, as shown in **Crash Severity by Corridor** graph below. Crash types on El Camino Real are varied, with the most common ones being broadside and sideswipe crashes, as presented in the **Crash Type by Corridor** graph below. The four most common violations in the Colma El Camino Real study area are related to improper turning (18%), failure to yield to another motorist who had the right of way (18%), unsafe speed (14%), and driving or bicycling under the influence of alcohol or drugs (14%).



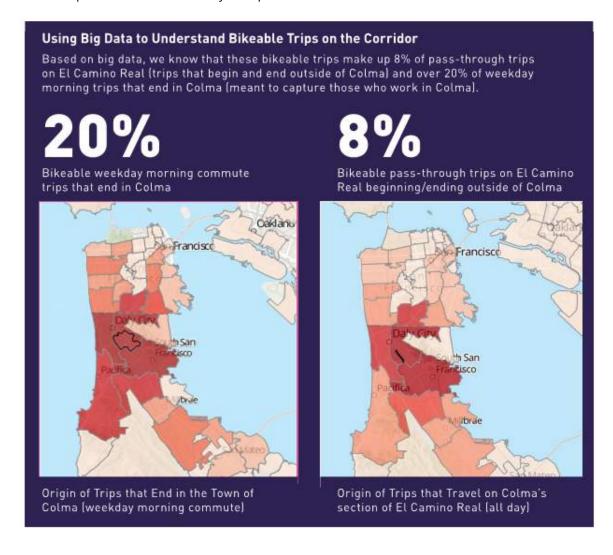


Source: Colma SSAR, 2018



Active Transportation Demand and Opportunities

As discussed in the previous section, bicycle and pedestrian facilities on El Camino Real are insufficient to provide a safe and pleasant environment for everyone to bike or walk on the corridor. However, Colma employees come from nearby communities, with 20 percent of those trips being less than two miles (i.e. a bikeable distance). Similarly, eight percent of trips travelling on the Colma El Camino Real study area are two miles or less. With the implementation of bicycle facilities on El Camino Real, the Town could reduce the vehicle trips by connecting up to twenty percent of Colma's employees to their jobs by bike and converting up to eight percent of all vehicle trips on the corridor to bicycle trips.





Plan Goals & Values

The Grand Boulevard Initiative (GBI) presents a single vision for the El Camino Corridor – that "El Camino Real will achieve its full potential for [people] to work, live, shop, and play, creating links between communities that promote walking and transit and an improved and meaningful quality of life." In support of the vision, GBI established the following ten Guiding Principles, which are intended to be consistent across all GBI projects.

- **GBI-1** Target housing and job growth in strategic areas along the corridor
- **GBI-2** Encourage compact mixed-use development and high-quality urban design and construction
- **GBI-3** Create a pedestrian-oriented environment and improve streetscapes, ensuring full access to and between public areas and private developments
- **GBI-4** Develop a balanced multimodal corridor to maintain and improve mobility of people and vehicles along the corridor
- **GBI-5** Manage Parking Assets
- **GBI-6** Provide vibrant public spaces and gathering places
- **GBI-7** Preserve and accentuate unique and desirable community character and the existing quality of life in adjacent neighborhoods
- GBI-8 Improve safety and public health
- **GBI-9** Strengthen pedestrian and bicycle connections with the corridor
- GBI-10 Pursue environmentally sustainable and economically viable development patterns

While GBI defines a unifying vision and guiding principles for all of El Camino Real, corridor change is implemented through a series of distinct projects completed at the local level by the various communities that line the corridor. Each community brings its own unique values and needs to the planning and design process for El Camino Real, prioritizing different guiding principles and approaching implementation and evaluation in different ways.



Goals & Values for El Camino Real in the Town of Colma

Goals and values were developed for the Town of Colma El Camino Real Bicycle & Pedestrian Improvement Plan. These goals and values are informed by Town priorities and consistent with the Town's grant funding application. They also are aligned with Grand Boulevard Initiative Guiding Principles and reflect street design best practices in California.

The goals and values help set a vision for the El Camino Real corridor in Colma. They allow the Town to communicate the strengths, weaknesses and tradeoffs of the design alternatives and evaluate how the alternatives meet the priorities of the Town of Colma and the Grand Boulevard Initiative more broadly.

The goals and values summarized below present a range of multimodal and multiuse objectives that, consistent with the Town's grant funding application, prioritize safety and health; sustainability; economic development; cost efficiency; connectivity and access; mobility and reliability; and quality of experience for all roadway users.

Safety & Public Health

Create safe conditions that help reduce the severity and frequency of collisions for all modes, as well as promote physical activity by enhancing the desirability of walking and bicycling. [Aligns with GBI-8]

Potential ways to accomplish goal/value:

- Traffic calming measures to reduce speeding
- High-visibility or otherwise enhanced crossings
- High-quality bicycle facilities that minimize Bicycle Level of Traffic Stress (LTS)
- Parallel low-stress bicycle routes
- Minimized number of driveways or intersecting roadways
- Minimized emergency vehicle (EV) response time
- Direct pedestrian and bicycle access to schools



Sustainability

Support the regional goal of reducing vehicle miles traveled by making walking, biking, and riding transit more viable at the local level, as well as by reducing the environmental impact of roadway infrastructure. [Aligns with GBI-10]

Potential ways to accomplish goal/value:

- High mode shift potential
- Green storm-water treatments
- Other green infrastructure

Economic Development

Develop solutions that encourage economic vitality and equitable economic opportunities for all neighborhoods and corridor users. [Aligns with GBI-1, GBI-7]

Potential ways to accomplish goal/value:

- Design alternatives aligned with community and local business owner support
- Enhancements located in neighborhoods or adjacent to destinations serving low-income, minority, or other equity-focused groups

Cost Efficiency

Prioritize cost-effective solutions that align with existing funding sources and minimize implementation complexity. [Aligns with GBI-10]

Potential ways to accomplish goal/value:

- Categorization of cost into low/medium/high
- Minimized construction complexity
- Coordination with other plans or construction projects
- Alignment of costs with available funding sources



Connectivity & Access

Reduce gaps in the transportation network for all modes, including greater provision of pedestrian sidewalks and crossings, bicycle paths, and transit access. [Aligns with GBI-3, GBI-9]

Potential ways to accomplish goal/value:

- Closure of existing gaps in walking and bicycling facilities
- Minimized spacing between El Camino Real pedestrian and bicycle crossings
- Direct pedestrian and bicycle connections between activity centers
- ADA accessibility at crosswalks
- Bicycle parking

Mobility & Reliability

Reduce travel times along the corridor for all modes, increase transit reliability, and right-size parking supply. [Aligns with GBI-4, GBI-5]

Potential ways to accomplish goal/value:

- Reasonable volume to capacity ratio
- Loading and reliability improvements at transit stops and along corridor
- Public parking provided to meet demand

Quality of Experience

Create an integrated environment for pedestrians and bicyclists with enhanced wayfinding, vibrant public spaces and improved landscaping. [Aligned with GBI-2, GBI-3, GBI-6]

Potential ways to accomplish goal/value:

- Wayfinding signage
- Tree or vegetation plantings

Abdulkader Hashem, Town of Colma December 2, 2019 Page 25 of 25



- Street furniture
- Pedestrian-scale lighting
- Small public spaces such as pocket parks or plazas
- Consolidated driveways
- Consistency with Town's Street Design Guidelines

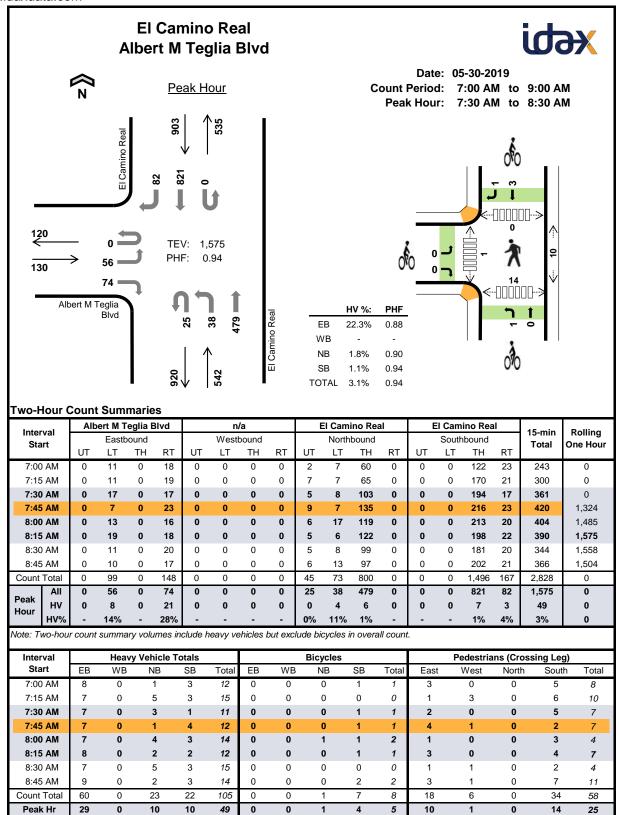
APPENDIX A

MULTIMODAL INTERSECTION TURNING-MOVEMENT COUNTS

WEEKDAY AM

7AM - 9AM

Project Manager: (415) 310-6469



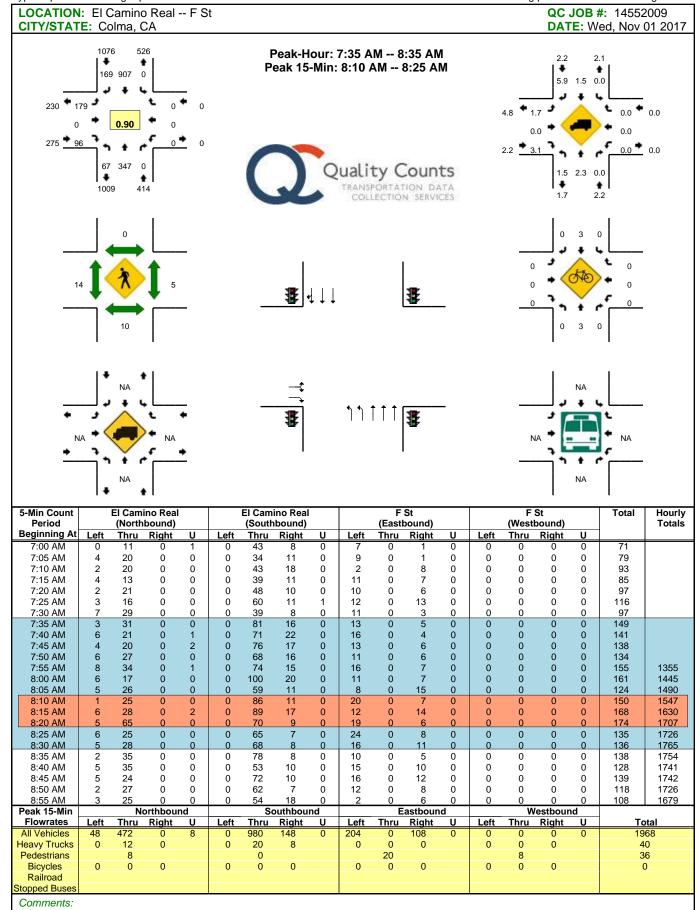
Two-Hour (wo-Hour Count Summaries - Heavy Vehicles																	
Interval	Albert M Teglia Blvd Eastbound				n/a Westbound				El Camino Real Northbound				El Camino Real Southbound				15-min Total	Rolling One Hour
Interval Start																		
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	rotar	Ono nou
7:00 AM	0	2	0	6	0	0	0	0	0	0	1	0	0	0	2	1	12	0
7:15 AM	0	3	0	4	0	0	0	0	1	1	3	0	0	0	2	1	15	0
7:30 AM	0	3	0	4	0	0	0	0	0	2	1	0	0	0	1	0	11	0
7:45 AM	0	1	0	6	0	0	0	0	0	0	1	0	0	0	3	1	12	50
8:00 AM	0	3	0	4	0	0	0	0	0	2	2	0	0	0	2	1	14	52
8:15 AM	0	1	0	7	0	0	0	0	0	0	2	0	0	0	1	1	12	49
8:30 AM	0	3	0	4	0	0	0	0	0	3	2	0	0	0	3	0	15	53
8:45 AM	0	4	0	5	0	0	0	0	0	1	1	0	0	0	2	1	14	55
Count Total	0	20	0	40	0	0	0	0	1	9	13	0	0	0	16	6	105	0
Peak Hour	0	8	0	21	0	0	0	0	0	4	6	0	0	0	7	3	49	0

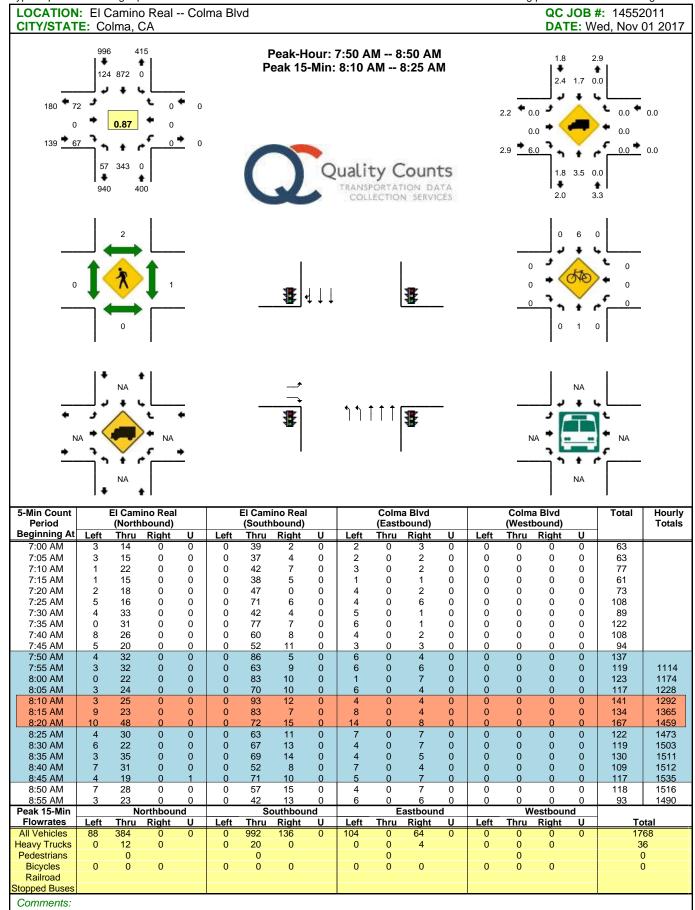
Two-Hour Count Summaries - Bikes

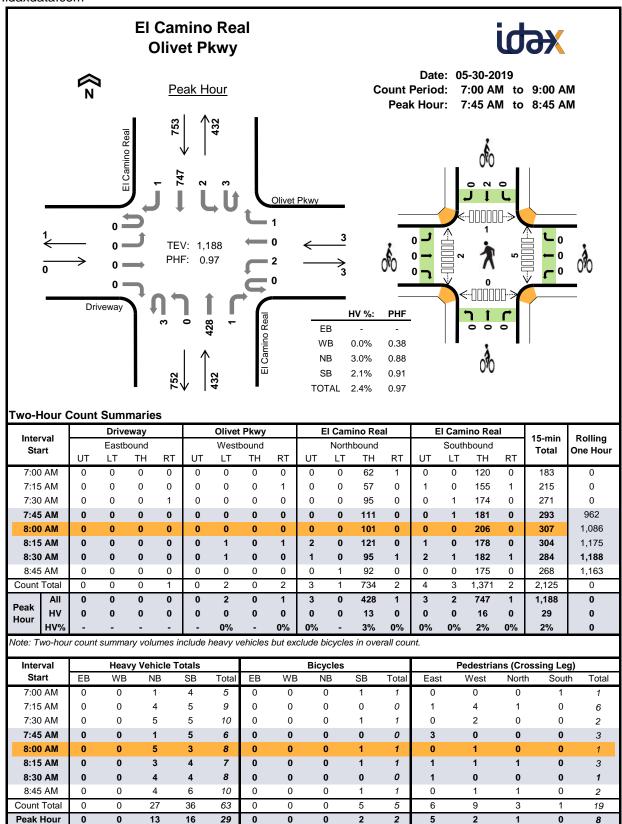
Internal	Alber	t M Tegli	a Blvd		n/a		El (Camino I	Real	EI (Camino F	15-min Total	Rolling One Hour	
Interval Start		Eastboun	d	V	Vestbour	nd	N	lorthbour	nd	S	outhbour			
Gtart	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total	One riou
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	3
8:00 AM	0	0	0	0	0	0	1	0	0	0	1	0	2	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	2	5
Count Total	0	0	0	0	0	0	1	0	0	0	5	2	8	0
Peak Hour	0	0	0	0	0	0	1	0	0	0	3	1	5	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Project Manager: (415) 310-6469







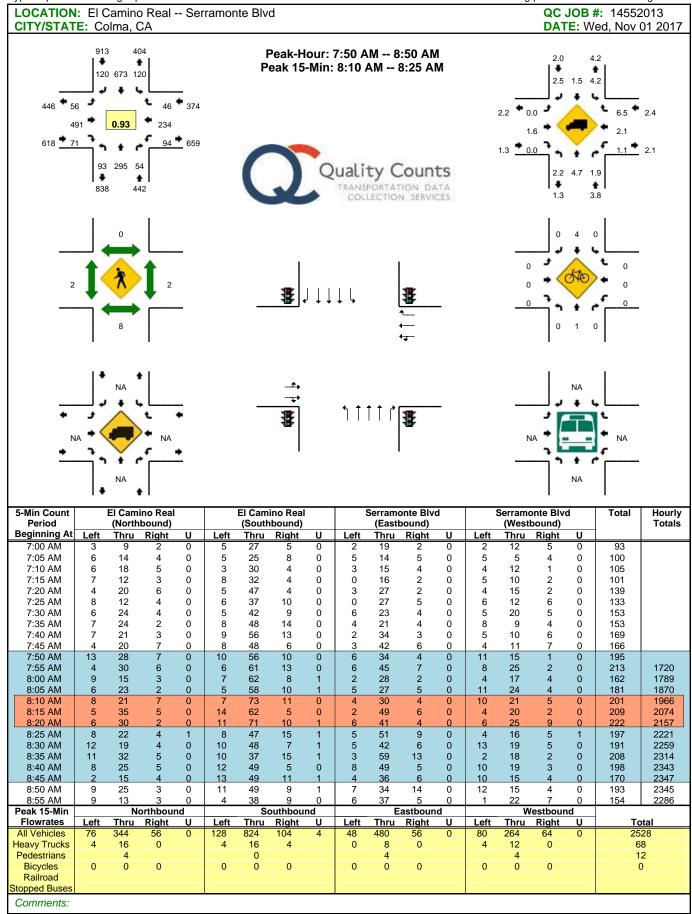
Interval Start		Drive	eway		Olivet Pkwy				El Camino Real				El Camino Real				4	Dallia a
	Eastbound			Westbound				Northbound				Southbound				15-min Total	Rolling One Hour	
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	iotai	Cilo i loui
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	5	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	9	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	10	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	6	30
8:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	8	33
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	7	31
8:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	8	29
8:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	10	33
Count Total	0	0	0	0	0	0	0	0	0	0	27	0	0	0	36	0	63	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	13	0	0	0	16	0	29	0

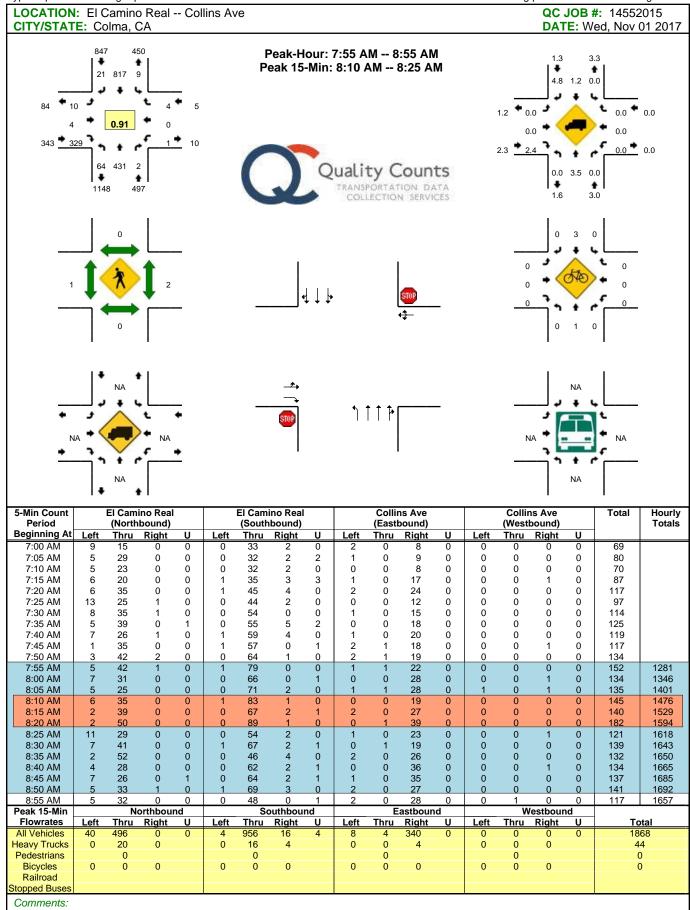
Two-Hour Count Summaries - Bikes

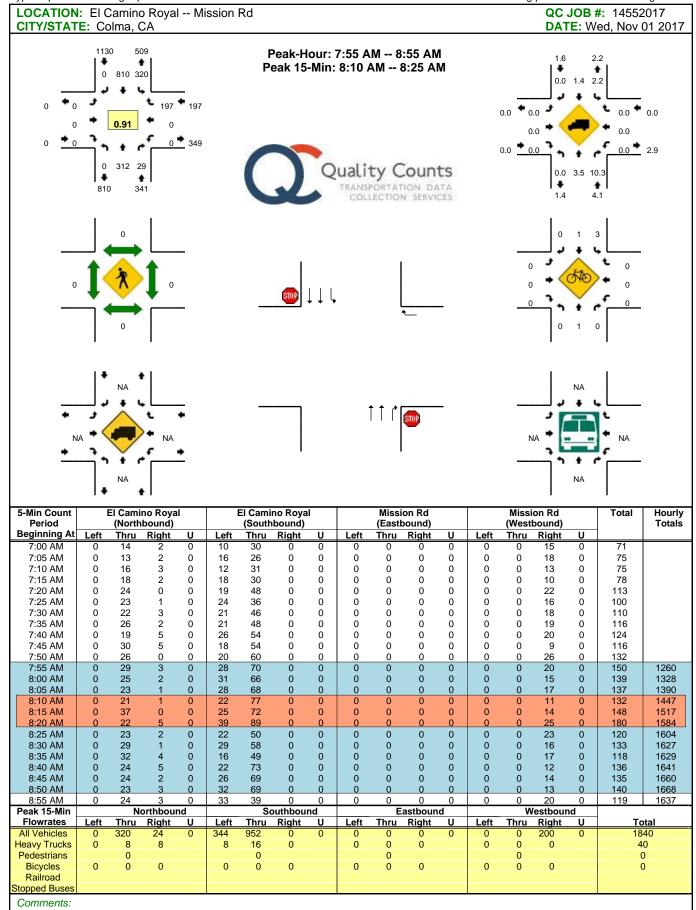
Interval		Driveway Eastbound			livet Pkv	vy	El (Camino I	Real	EI (Camino I	15-min Total	Rolling One Hour	
Start	E				Vestbour	nd	N	lorthbour	nd	S	outhbour			
Otart	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	rotai	One riou
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Count Total	0	0	0	0	0	0	0	0	0	0	5	0	5	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	2	0	2	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Project Manager: (415) 310-6469





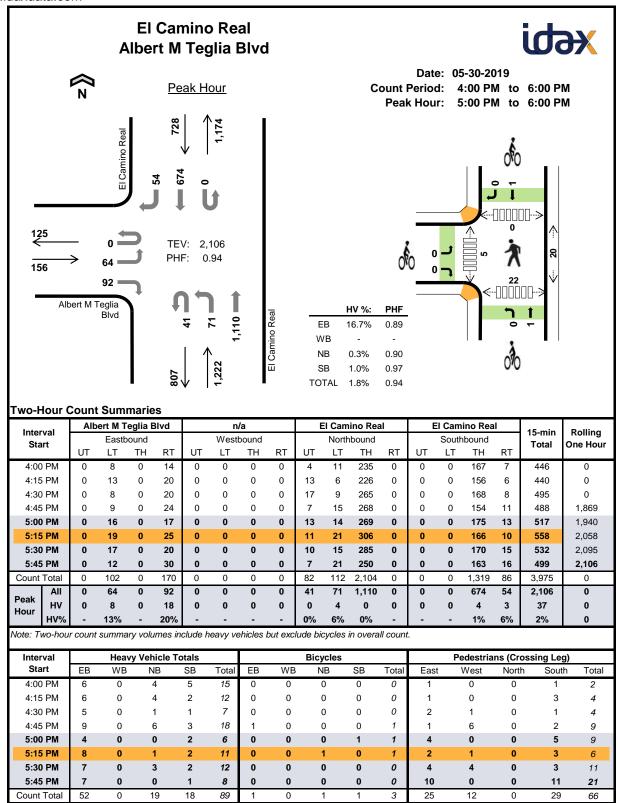


WEEKDAY PM

4PM - 6PM

Peak Hr

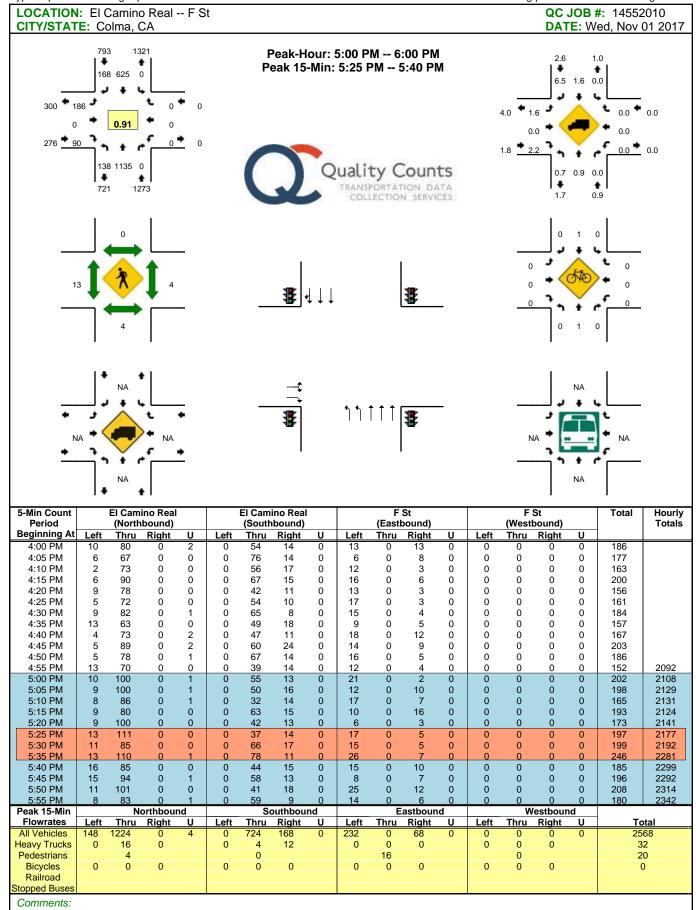
Project Manager: (415) 310-6469

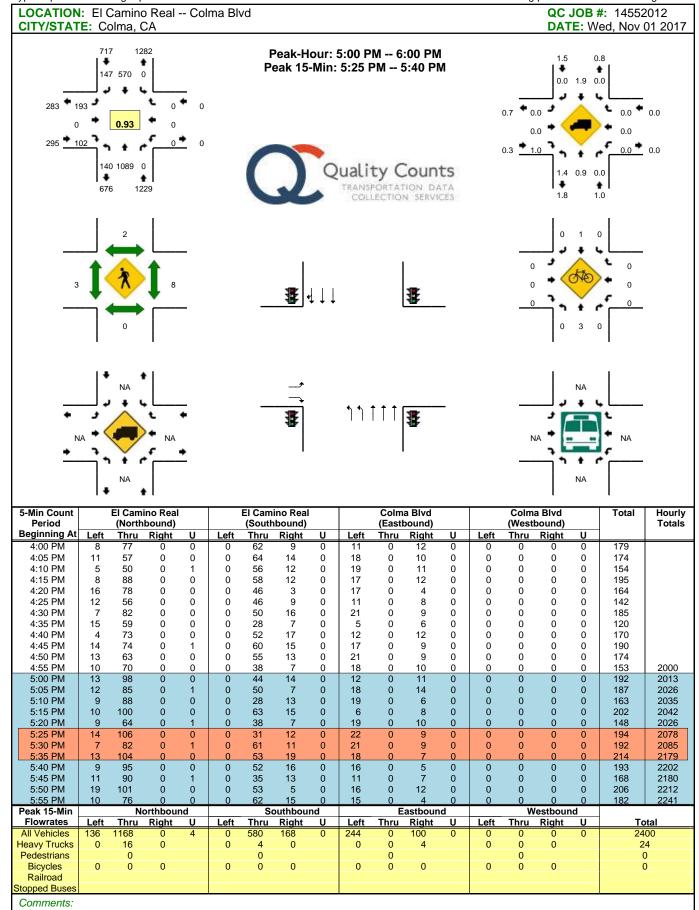


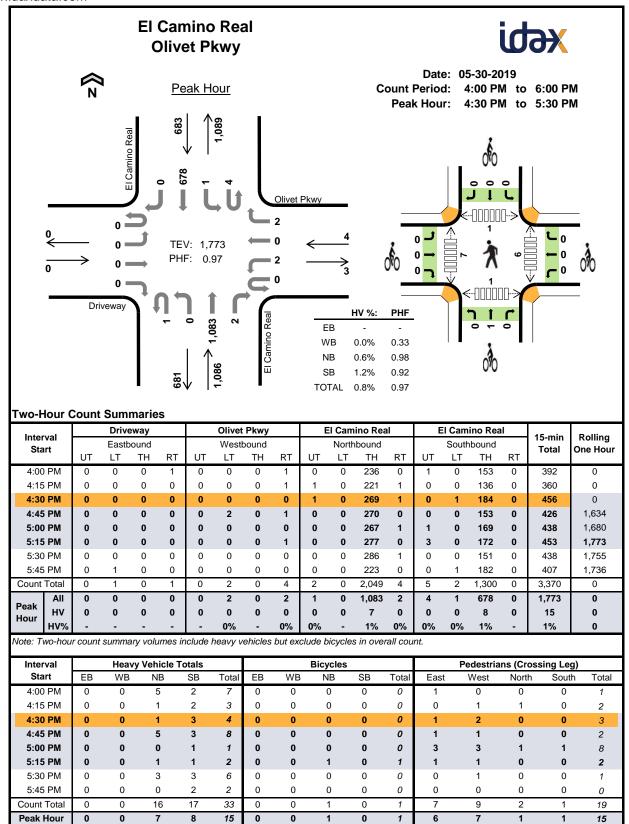
Two-Hour (Count	Sum	marie	s - He	eavy \	/ehic	les											
Interval	Alb	ert M T	eglia E	Blvd		n	/a		E	I Cam	ino Rea	al	ı	El Cam	ino Rea	al	45	Delling
Interval Start		Eastb	oound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	rotar	One riou
4:00 PM	0	1	0	5	0	0	0	0	0	1	3	0	0	0	4	1	15	0
4:15 PM	0	0	0	6	0	0	0	0	0	1	3	0	0	0	1	1	12	0
4:30 PM	0	2	0	3	0	0	0	0	0	1	0	0	0	0	1	0	7	0
4:45 PM	0	3	0	6	0	0	0	0	0	2	4	0	0	0	2	1	18	52
5:00 PM	0	1	0	3	0	0	0	0	0	0	0	0	0	0	1	1	6	43
5:15 PM	0	2	0	6	0	0	0	0	0	1	0	0	0	0	2	0	11	42
5:30 PM	0	3	0	4	0	0	0	0	0	3	0	0	0	0	1	1	12	47
5:45 PM	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	1	8	37
Count Total	0	14	0	38	0	0	0	0	0	9	10	0	0	0	12	6	89	0
Peak Hour	0	8	0	18	0	0	0	0	0	4	0	0	0	0	4	3	37	0

Internal	Albert	t M Tegli	a Blvd		n/a		El (Camino I	Real	El (Camino F	Real	45	D. III
Interval Start	E	Eastboun	d	V	Vestbour	nd	N	lorthbour	nd	S	outhbour	nd	15-min Total	Rolling One Hour
Gtart	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total	One rieu
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	1	0	0	0	0	0	0	1	0	0	1	0	3	0
Peak Hour	0	0	0	0	0	0	0	1	0	0	1	0	2	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



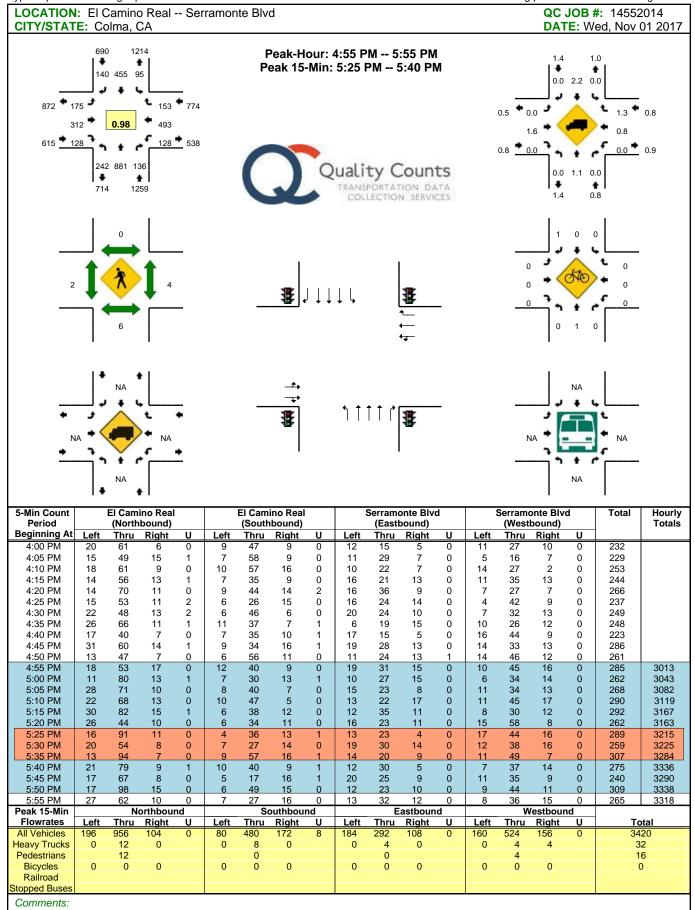


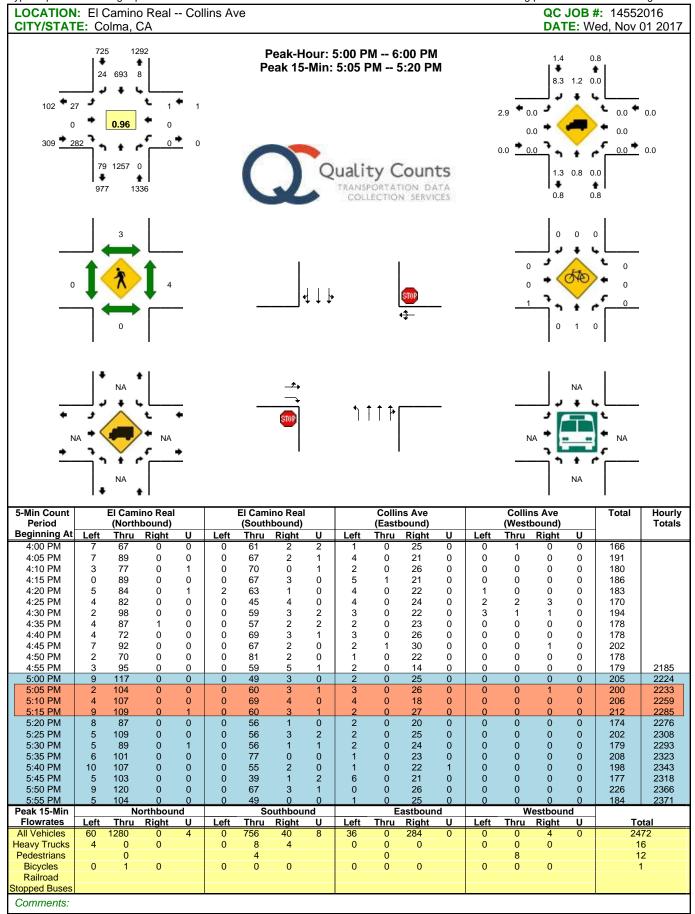


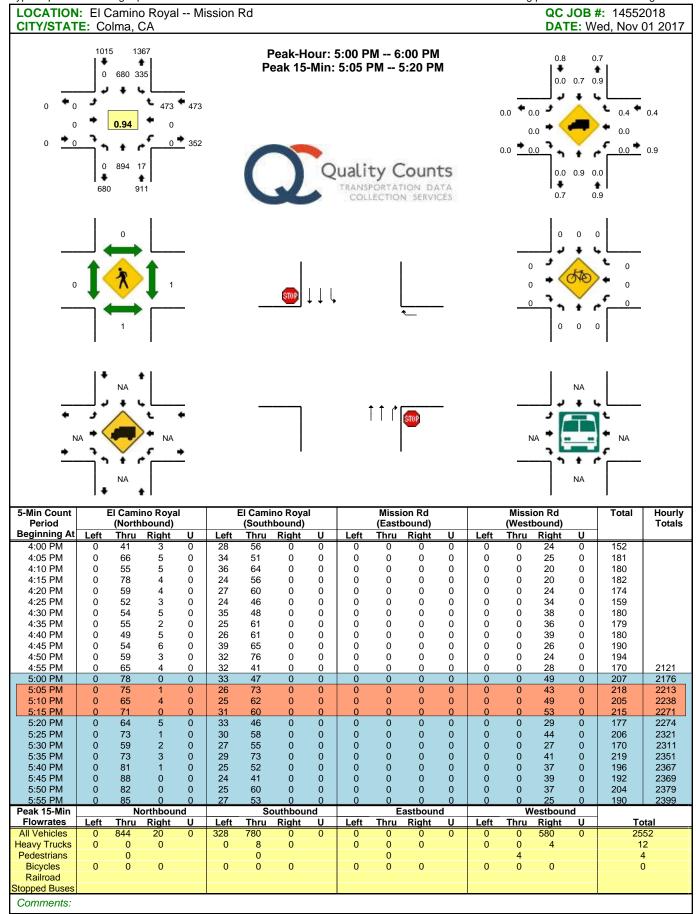
Interval		Drive	eway			Olivet	Pkwy		E	I Cam	ino Rea	al	E	I Cami	ino Rea	al	45	Dalling
Start		Eastb	ound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One mean
4:00 PM	0	0 0 0			0	0	0	0	0	0	5	0	0	0	2	0	7	0
4:15 PM	0	0	0		0	0	0	0	0	0	1	0	0	0	2	0	3	0
4:30 PM	0	0 0			0	0	0	0	0	0	1	0	0	0	3	0	4	0
4:45 PM	0	0 0 0			0	0	0	0	0	0	5	0	0	0	3	0	8	22
5:00 PM	0	0 0 0			0	0	0	0	0	0	0	0	0	0	1	0	1	16
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	15
5:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	17
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	11
Count Total	0	0	0	0	0	0	0	0	0	0	16	0	0	0	17	0	33	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	7	0	0	0	8	0	15	0

Interval		Driveway	y	0	livet Pkv	vy	EI (Camino F	Real	EI (Camino I	Real	15-min	Rolling
Interval Start	E	astboun	d	V	Vestbour	nd	١	lorthbour	nd	S	outhbour	nd	Total	One Hour
J.a	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		0.101.104.1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	0	0	0	0	0	0	0	1	0	0	0	0	1	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.





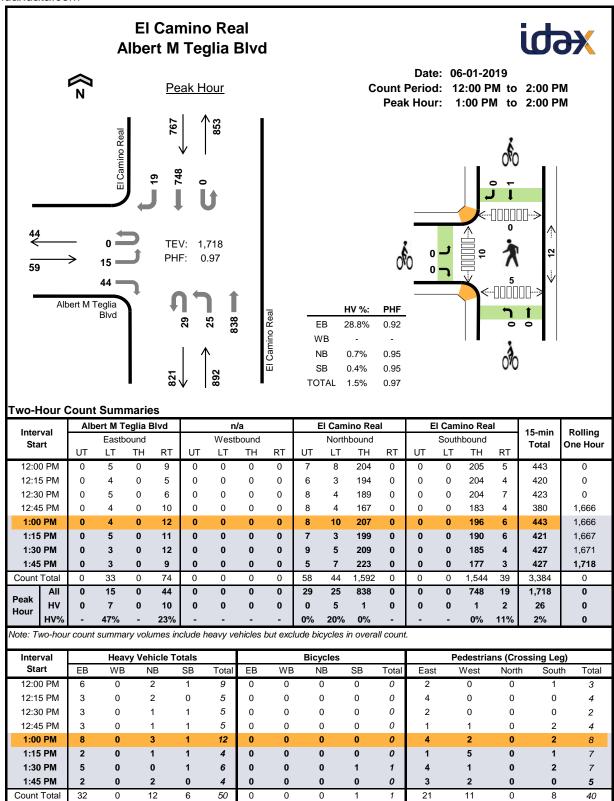


WEEKEND MIDDAY

12PM - 2PM

Peak Hr

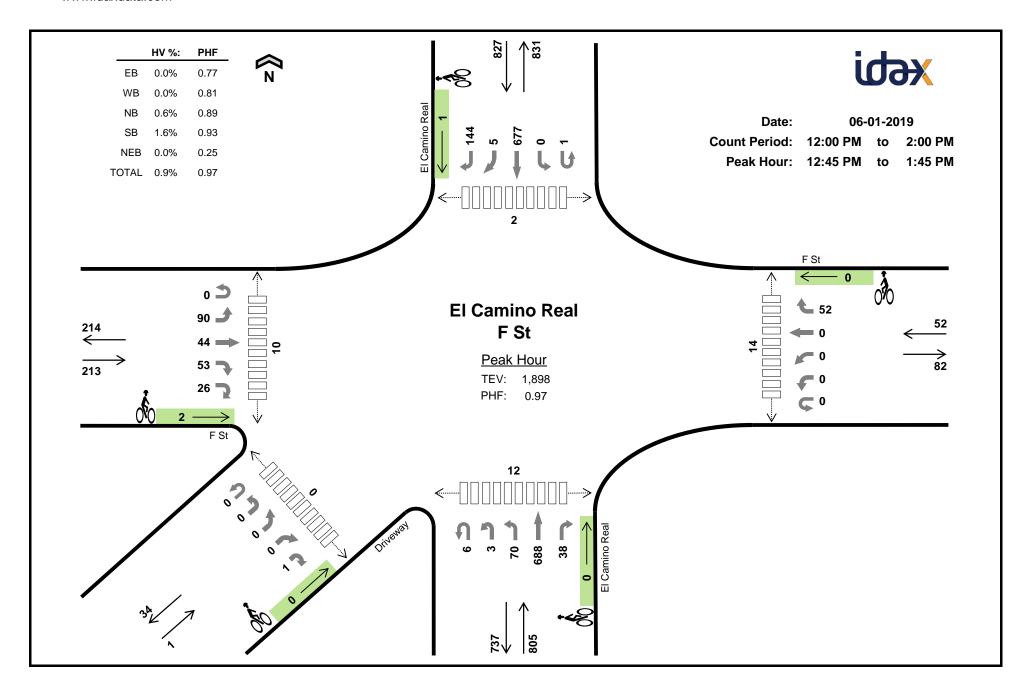
Project Manager: (415) 310-6469



Two-Hour (Count	Sum	marie	s - He	eavy \	/ehic	les											
Interval	Alb	ert M T	eglia E	Blvd		n	/a		E	El Cam	ino Rea	al	ı	El Cam	ino Rea	al	45	Dalling
Interval Start		Easth	oound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	rotar	One riou
12:00 PM	0	3	0	3	0	0. 2			0	1	1	0	0	0	0	1	9	0
12:15 PM	0	1	0	2	0	0	0	0	0	1	1	0	0	0	0	0	5	0
12:30 PM	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	1	5	0
12:45 PM	0	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	5	24
1:00 PM	0	3	0	5	0	0	0	0	0	2	1	0	0	0	0	1	12	27
1:15 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	4	26
1:30 PM	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	1	6	27
1:45 PM	0	1	0	1	0	0	0	0	0	2	0	0	0	0	0	0	4	26
Count Total	0	12	0	20	0	0	0	0	0	8	4	0	0	0	2	4	50	0
Peak Hour	0	7	0	10	0	0	0	0	0	5	1	0	0	0	1	2	26	0

last a moral	Alber	t M Tegli	a Blvd		n/a		El (Camino F	Real	EI (Camino F	Real	45	D. III
Interval Start		Eastboun	d	V	Vestbour	ıd	N	lorthbour	nd	S	outhbour	nd	15-min Total	Rolling One Hour
Otal t	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		0.101.104.1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	0	1	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Project Manager: (415) 310-6469 project.manager.ca@idaxdata.com

www.idaxdata.com

Two-Hour Count Summaries

Two-Hour oo			F St					F St				EI (Camino	Real			EI	Camino F	Real				Driveway	y		15-min	Rolling
Interval Start		Е	astboun	d			1	Nestbound	d			N	lorthbour	nd			S	Southboun	ıd			No	rtheastbo	und		Total	One
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR	Total	Hour
12:00 PM	0	20	5	15	1	0	0	0	0	18	4	1	11	176	5	0	0	181	1	41	0	0	0	0	0	479	0
12:15 PM	0	15	7	13	0	0	0	0	0	18	3	2	8	162	6	0	0	175	7	35	0	0	0	0	0	451	0
12:30 PM	0	22	7	12	0	0	0	0	0	8	2	2	12	159	7	0	0	178	2	31	0	0	0	0	0	442	0
12:45 PM	0	23	8	16	22	0	0	0	0	10	2	2	14	152	12	0	0	163	1	38	0	0	0	0	0	463	1,835
1:00 PM	0	23	6	17	1	0	0	0	0	15	0	0	20	181	5	0	0	182	0	40	0	0	0	0	1	491	1,847
1:15 PM	0	29	19	11	0	0	0	0	0	16	3	0	19	160	9	1	0	167	4	30	0	0	0	0	0	468	1,864
1:30 PM	0	15	11	9	3	0	0	0	0	11	1	1	17	195	12	0	0	165	0	36	0	0	0	0	0	476	1,898
1:45 PM	0	21	4	12	1	0	0	0	0	10	0	0	13	204	5	0	0	152	1	34	0	0	0	0	0	457	1,892
Count Total	0	168	67	105	28	0	0	0	0	106	15	8	114	1,389	61	1	0	1,363	16	285	0	0	0	0	1	3,727	0
Peak All	0	90	44	53	26	0	0	0	0	52	6	3	70	688	38	1	0	677	5	144	0	0	0	0	1	1,898	0
HOUR HV	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	0	0	0	0	0	18	0
HV%	-	0%	0%	0%	0%	-	-	-	-	0%	0%	0%	0%	1%	0%	0%	-	1%	0%	6%	-	-	-	-	0%	1%	0

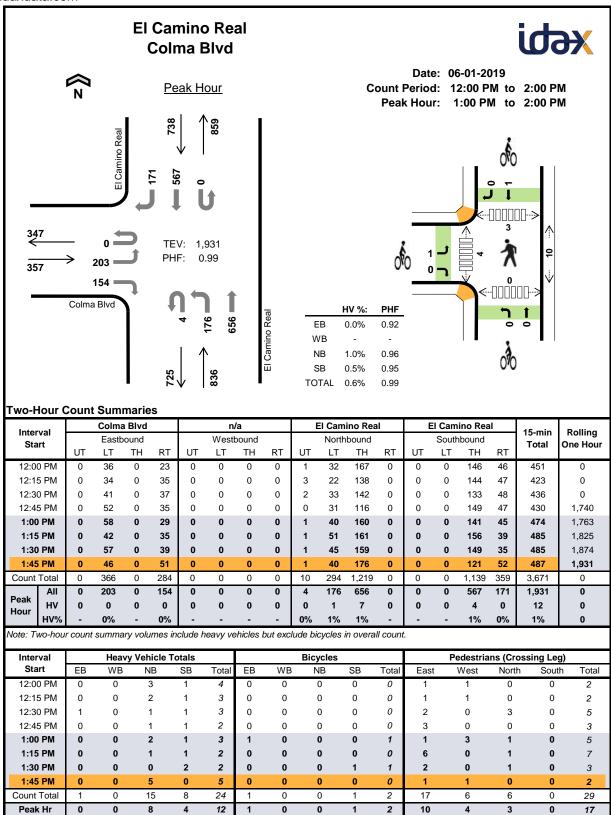
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval			Heavy Ve	nicle Totals	i				Bio	ycles				P	edestrians (Crossing L	₋eg)	
Start	EB	WB	NB	SB	NEB	Total	EB	WB	NB	SB	NEB	Total	East	West	North	South	Southwest	Total
12:00 PM	0	0	2	2	0	4	0	0	0	0	0	0	0	2	0	1	1	4
12:15 PM	0	0	2	3	0	5	0	0	0	0	0	0	1	4	0	3	1	9
12:30 PM	0	0	1	3	0	4	0	0	0	0	0	0	5	2	3	2	0	12
12:45 PM	0	0	1	3	0	4	0	0	0	0	0	0	5	1	0	1	0	7
1:00 PM	0	0	3	5	0	8	2	0	0	0	0	2	1	1	1	3	0	6
1:15 PM	0	0	1	1	0	2	0	0	0	0	0	0	3	6	1	6	0	16
1:30 PM	0	0	0	4	0	4	0	0	0	1	0	1	5	2	0	2	0	9
1:45 PM	0	0	4	1	0	5	0	0	0	0	0	0	3	6	0	4	0	13
Count Total	0	0	14	22	0	36	2	0	0	1	0	3	23	24	5	22	2	76
Peak Hr	0	0	5	13	0	18	2	0	0	1	0	3	14	10	2	12	0	38

Two-Hour Count Summaries - Heavy Vehicles

I WO-HOUL CO			F St					F St				EI (Camino I	ادم9			EI (Camino F	ادم				Drivewa	,			Rolling
Interval Start			Eastbound	d			٧	Vestboun	d				orthbour					Southbour					theastbo			15-min	One
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR	Total	Hour
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	4	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	2	0	0	0	0	0	5	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	1	0	0	0	0	0	4	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	4	17
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	3	0	0	0	0	0	8	21
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	18
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	4	18
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	5	19
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	13	1	0	0	8	0	14	0	0	0	0	0	36	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	0	0	0	0	0	18	0

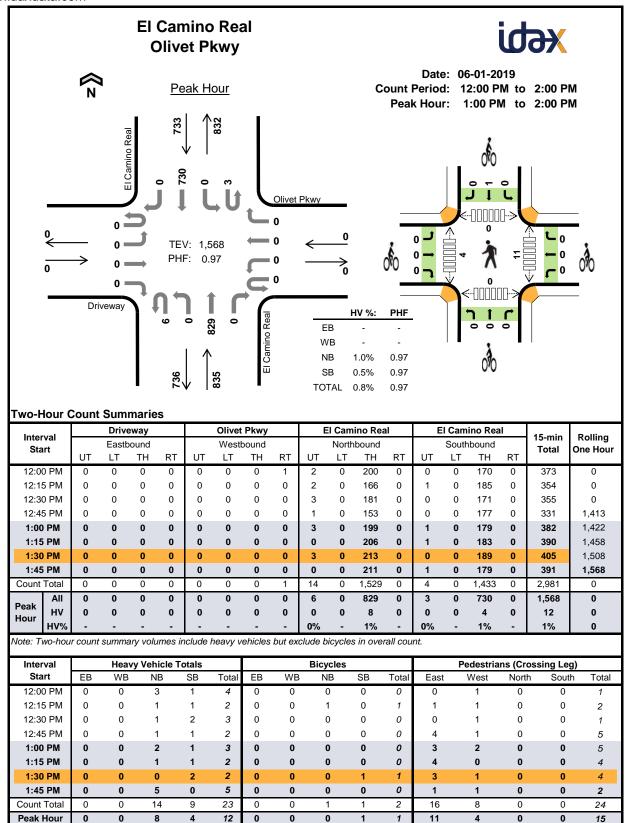
Two-Hour Cou	unt Sun	nmaries	- Bikes																								
			F St					F St				El (Camino I	Real			El (Camino F	Real				Drivewa	y		15-min	Rolling
Interval Start			Eastboun	d			V	Vestboun	d			N	lorthbour	nd			S	outhbour	ıd			Nor	theastbo	und		Total	One
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR	TOLAT	Hour
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	3
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0
Peak Hour	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0



Interval		Colm	a Blvd			n	/a		E	El Cam	ino Rea	al	E	El Cam	ino Rea	ıl	15-min	Rolling
Start		Eastl	oound			West	bound			North	bound			South	bound		Total	One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	rotar	Ono mou
12:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0
12:30 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	3	0
12:45 PM	0	0 0 1 0 0 0			0	0	0	0	0	0	1	0	0	0	1	0	2	12
1:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	11
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	10
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	9
1:45 PM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	5	12
Count Total	0	0	0	1	0	0	0	0	0	1	14	0	0	0	8	0	24	0
Peak Hour	0	0	0	0	0	0	0	0	0	1	7	0	0	0	4	0	12	0

I1	C	olma Blv	/d		n/a		El (Camino I	Real	EI (Camino F	Real	45	D. III.
Interval Start	- 1	Eastboun	d	V	Vestbour	ıd	N	lorthbour	nd	S	outhbour	nd	15-min Total	Rolling One Hour
3. 4	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		0.101.104.1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	1	0	0	0	0	0	0	0	0	0	1	0	2	0
Peak Hour	1	0	0	0	0	0	0	0	0	0	1	0	2	0

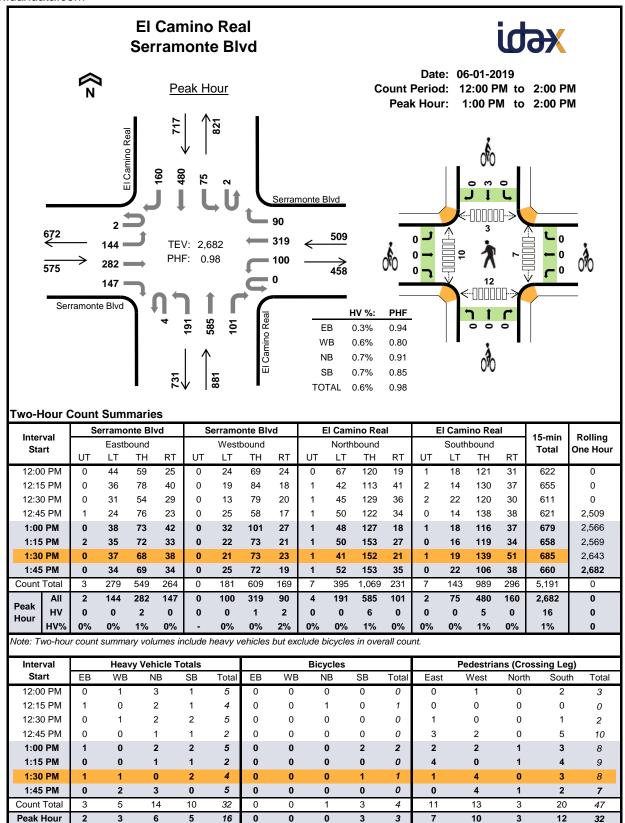
Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Interval		Drive	eway			Olivet	Pkwy		E	I Cam	ino Rea	al	E	I Cami	ino Rea	al	45	Dalling
Start		Eastb	ound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One near
12:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	11
1:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	10
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	10
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	9
1:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	12
Count Total	0	0	0	0	0	0	0	0	0	0	14	0	0	0	9	0	23	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	12	0

Interval		Driveway	У	0	livet Pkv	vy	EI (Camino I	Real	EI (Camino I	Real	15-min	Dalling
Interval Start	E	Eastboun	d	V	Vestbour	nd	١	lorthbour	nd	S	outhbour	nd	Total	Rolling One Hour
Otare	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total	One rieur
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	1	0	1	0	2	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	0	1	0

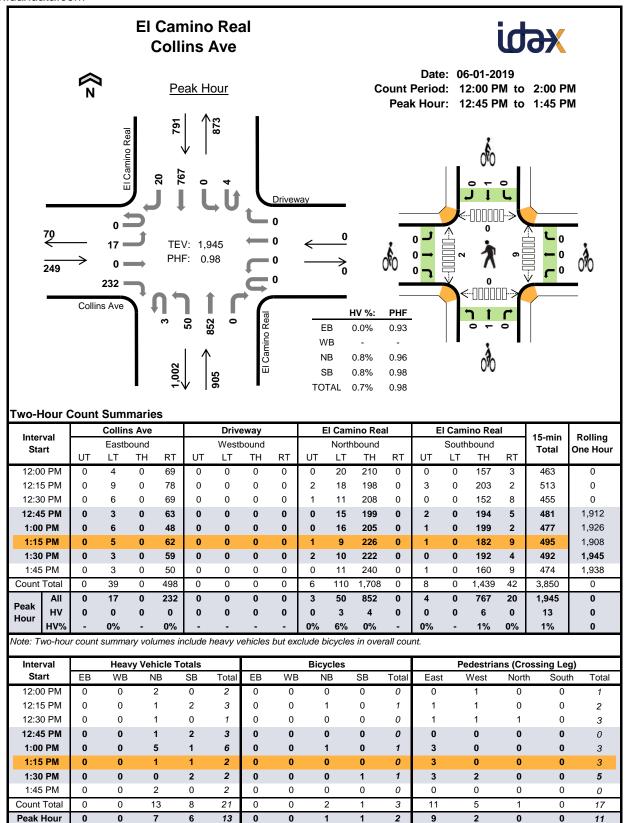
Note: U-Turn volumes for bikes are included in Left-Turn, if any.



	S	erramo	nte Bl	/d	S	erramo	nte Bl	vd	E	I Cami	ino Rea	al	Е	I Cami	no Rea	al	45!	D - 111
Interval Start		Easth	oound			Westl	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One nour
12:00 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	1	0	5	0
12:15 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	4	0
12:30 PM	0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	0	5	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	16
1:00 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	0	5	16
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	14
1:30 PM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	0	4	13
1:45 PM	0	0	0	0	0	0	1	1	0	0	3	0	0	0	0	0	5	16
Count Total	0	0	3	0	0	0	3	2	0	1	12	1	0	1	9	0	32	0
Peak Hour	0	0	2	0	0	0	1	2	0	0	6	0	0	0	5	0	16	0

Interval	Serr	amonte	Blvd	Serr	amonte	Blvd	El (Camino I	Real	El (Camino F	Real	15-min	Rolling
Start	Е	Eastboun	d	٧	Vestbour	nd	N	lorthbour	nd	S	outhbour	nd	Total	One Hour
J.a	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		0.10 1.10
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	3
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	0	0	0	0	0	0	0	1	0	0	3	0	4	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	3	0	3	0

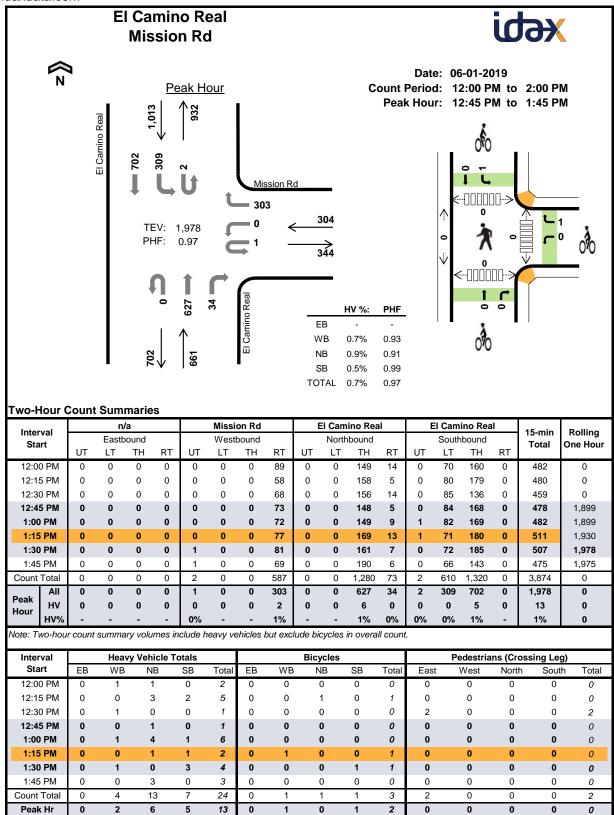
Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Interval		Collin	s Ave			Driv	eway		E	I Cam	ino Rea	al	Е	I Cami	ino Rea	al	15-min	Dalling
Start		Eastb	oound			West	bound			North	bound			South	bound		Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	
12:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	9
1:00 PM	0	0	0	0	0	0	0	0	0	3	2	0	0	0	1	0	6	13
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	12
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	13
1:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	12
Count Total	0	0	0	0	0	0	0	0	0	3	10	0	0	0	8	0	21	0
Peak Hour	0	0	0	0	0	0	0	0	0	3	4	0	0	0	6	0	13	0

Interval	C	ollins A	/e		Drivewa	у	El (Camino I	Real	EIC	Camino F	Real	45	Dalling
Interval Start	E	Eastboun	d	V	Vestbour	nd	N	lorthbour	nd	S	outhbour	nd	15-min Total	Rolling One Hour
3. 5	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		0.101.104.1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	2
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	0	0	2	0	0	1	0	3	0
Peak Hour	0	0	0	0	0	0	0	1	0	0	1	0	2	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Two-Hour (Count	Sum	marie	s - He	eavy \	Vehic	les											
Interval		n	/a			Missi	on Rd		E	El Cam	ino Rea	al		El Cam	ino Rea	al	45	Delling
Interval Start		Easth	ound	•		West	bound			North	bound	•		South	bound		15-min Total	Rolling One Hour
Clart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	· Stai	Ono rioui
12:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	0
12:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	9
1:00 PM	0	0	0	0	0	0	0	1	0	0	4	0	0	0	1	0	6	13
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	10
1:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	4	13
1:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	15
Count Total	0	0	0	0	0	0	0	4	0	0	13	0	0	0	7	0	24	0
Peak Hour	0	0	0	0	0					0	6	0	0	0	5	0	13	0

Intomosi		n/a		N	lission R	ld	El (Camino I	Real	EI (Camino F	Real	45	D. III
Interval Start		Eastboun	d	V	Vestbour	nd	N	lorthbour	nd	S	outhbour	nd	15-min Total	Rolling One Hour
Gtart	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total	One rieu
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	1
1:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	1	0	1	0	1	0	0	3	0
Peak Hour	0	0	0	0	0	1	0	0	0	1	0	0	2	0

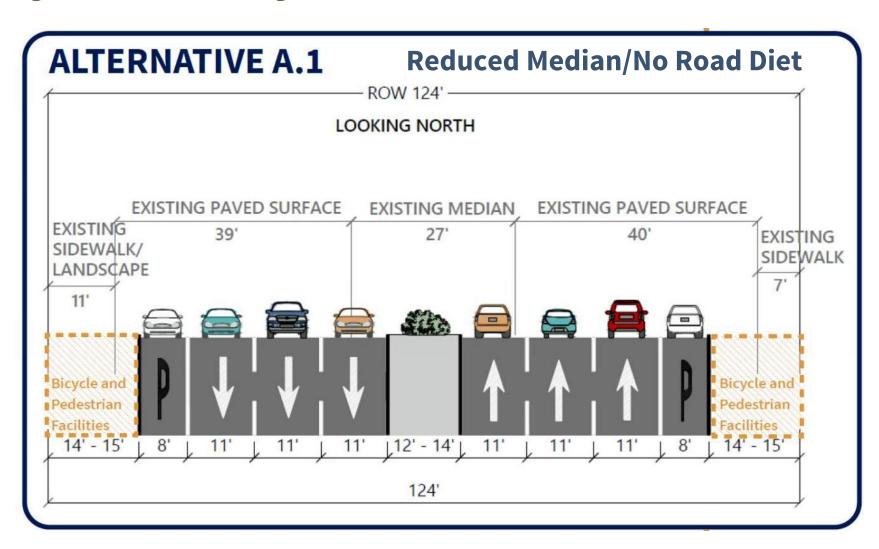
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

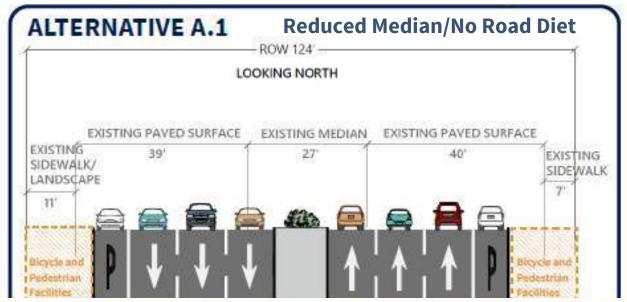


APPENDIX B

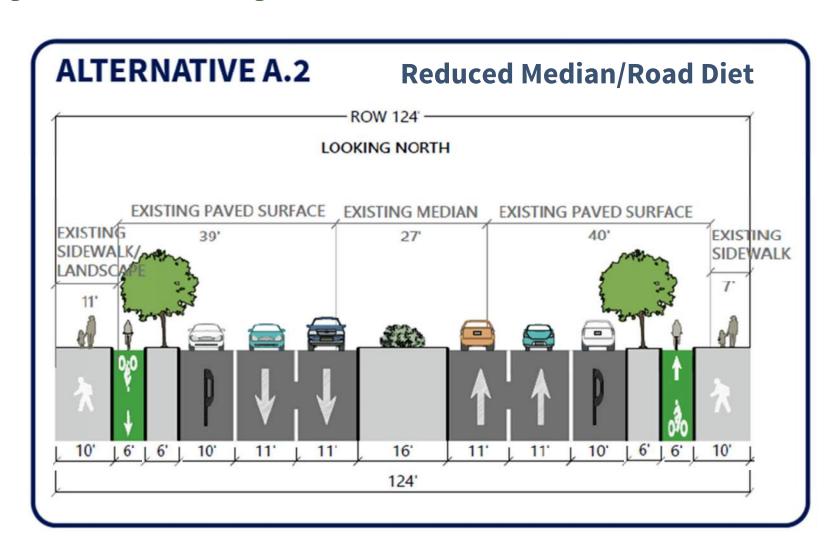
CROSS SECTION ALTERNATIVES

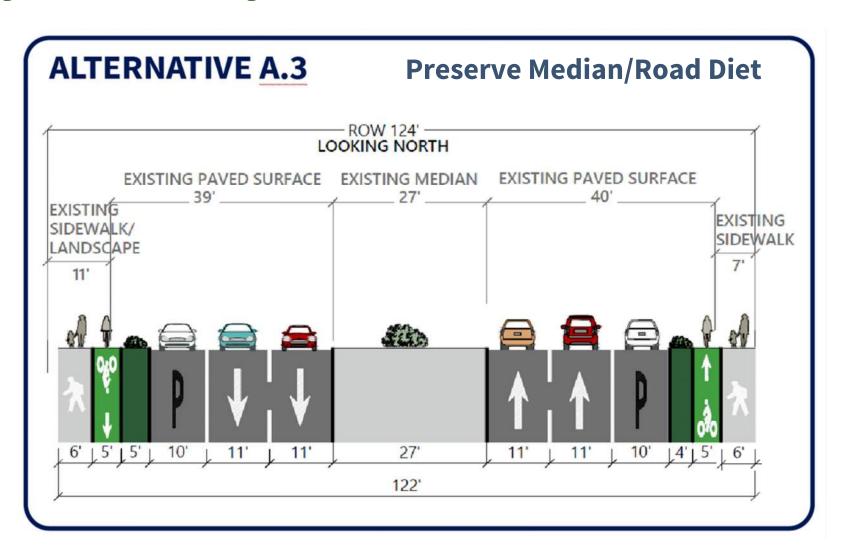




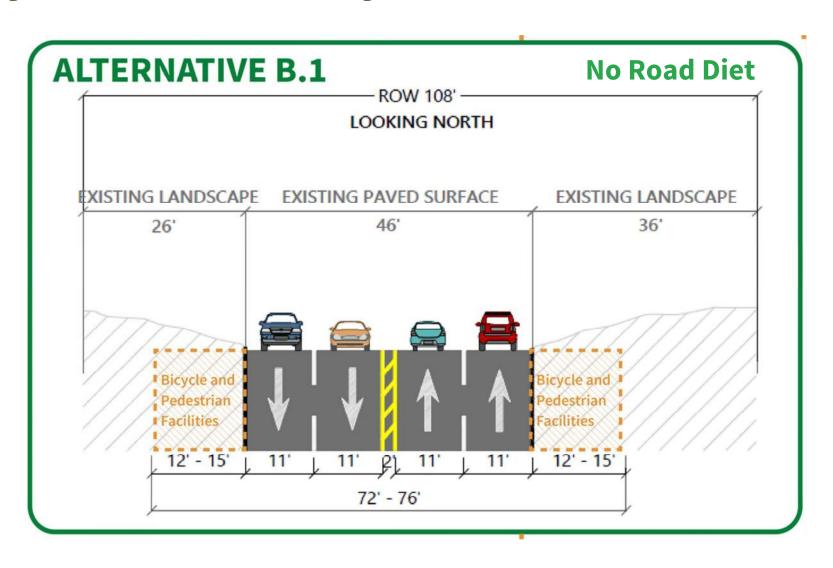




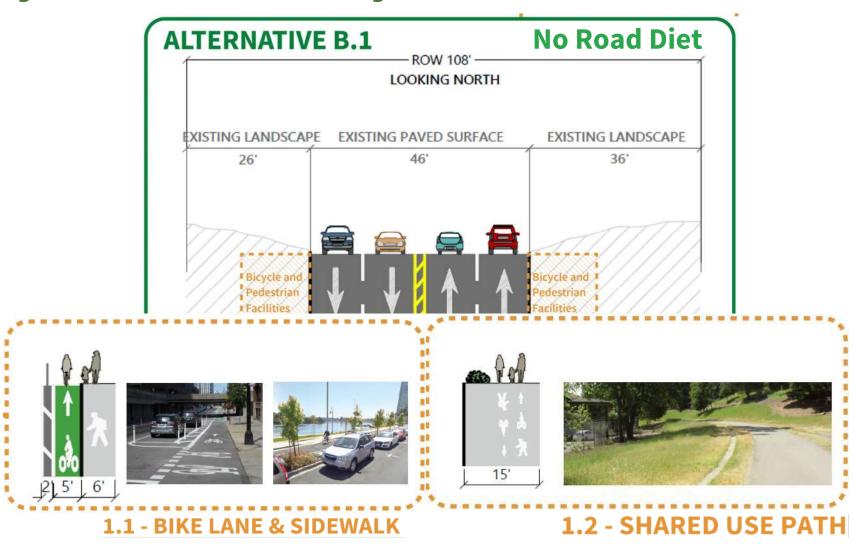




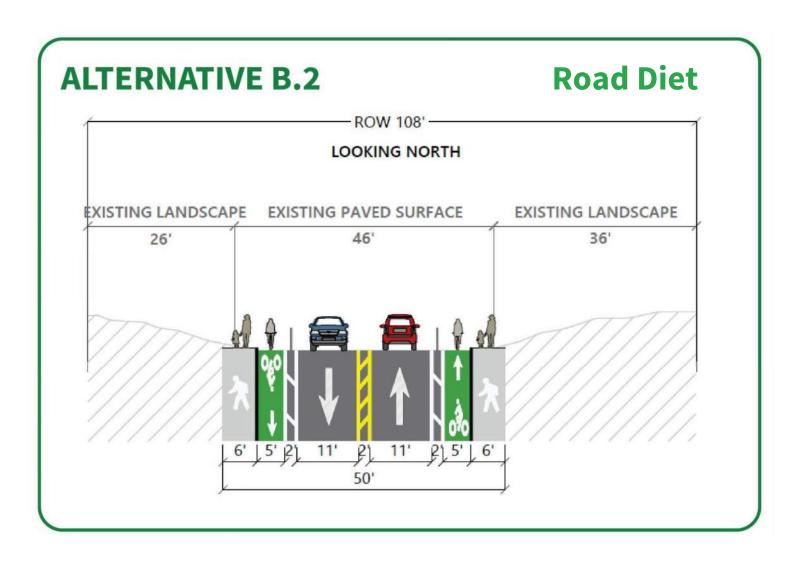
Segment B: Mission Road to Arlington Drive



Segment B: Mission Road to Arlington Drive



Segment B: Mission Road to Arlington Drive

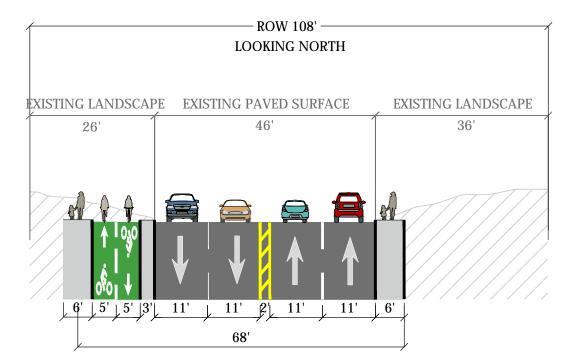




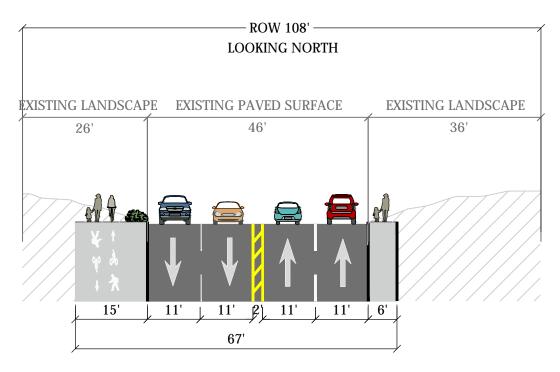
119_Projects\SF19-1035_ColmaEGRBikePedPlan\Graphics\CAD\CrossSection\1035-Street-Section_Options.dwg

SEGMENT B: MISSION ROAD TO ARLINGTON DRIVE

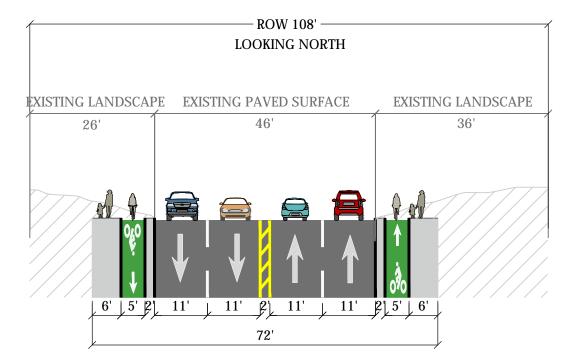
2-WAY CLASS IV ON WEST SIDE



CLASS I ON WEST SIDE



CLASS II/CLASS IV BOTH SIDES





APPENDIX C

COST ESTIMATES TABLE

Town of Colma

DESCRIPTION

ITEM

Colma El Camino Real Bicycle and Pedestrian Improvement Plan Planning-Level Cost Estimate



ESTIMATE

29-Dec-20 Prepared By: Fehr & Peers

\$250,000.0

\$1,080,000.0

\$165,000.0

\$4,650,000.0

\$8,745,000

\$21,021,242 \$5,255,311

\$26,276,553

\$3,941,483

\$30,220,000

MOBILIZATION/ TRAFFIC CONTROL 1 Mobilization/ De-mobilization/ Miscellaneous Conditions LS 5% of Construction 5% \$911,589 5% \$911,589 Traffic Control LS 5% of Construction 0.5% of Construction 3 Develop and Implement Stormwater Pollution Prevention Plan LS 0.5% \$91,159 0.8% of Construction 4 LS 0.8% \$145,854 Construction Survey 4% of Construction 4% \$729,271 5 Utility Protection/ potholing by Contractor LS \$2,789,462 **Subtotal DEMOLITION** Clearing and Grubbing from Mission to Arlington (Segment B) SF \$2.00 12,750 \$25,500.0 6 Remove Existing AC \$3,299,310.0 7 SF \$6.00 549,885 \$10.00 \$128,570.0 8 Remove Existing Curb & Gutter LF 12,857 9 Remove Concrete Sidewalk SF \$6.00 47,788 \$286,725.0 \$3,740,105 Subtotal STREET IMPROVEMENTS Storm Drain Improvements at Bulb-Out EΑ \$30,000.00 \$540,000.0 LF \$45.00 20,000 \$900,000.0 11 Construct Curb \$757,140.0 12 Construct Curb and Gutter LF \$60.00 12,619 \$25.00 70,125 \$1,753,125.0 13 Concrete Sidewalk SF 14 \$4,500.00 64 \$288,000.0 Construct ADA Curb Ramp EΑ \$20.00 4,550 \$91,000.0 15 Median Hardscape SF EΑ \$550.00 118 \$64,900.0 16 Detectable Warning Surface/Truncated Dome 17 Construct Bus Stop Concrete Pad SF \$30.00 800 \$24,000.0 2" Asphalt Overlay \$2.00 \$962,980.0 18 SF 481,490 19 Retaining Wall LF \$250.00 300 \$75,000.0 Unkown at this time. Full survey and additional structural studies required. Culvert/Bridge Work for Segment B 20 21 New Drainage System for Segment B LS \$200,000.00 \$200,000.0 22 Thermoplastic Stripes (6") LF \$1.00 19,990 \$19,990.0 11,982 \$59,910.0 23 Thermoplastic Pavement Marking SF \$5.00 \$630.0 24 Thermoplastic Green Bike Lane (24"x36" Panels) SF \$7.00 90 \$10,000.00 \$10,000.0 25 Miscellaneous Signs (Stop Signs, Yield to Pedestrian, etc.) LS \$5,746,675 Subtotal SIGNALS, LANDSCAPE & LIGHTING \$1,200,000.0 Signal Modification at (1) F Street, (2) Colma Boulevard, (3) Serramonte \$400,000.00 3 26 EΑ EΑ 2 27 New Signal at El Camino Real and (1) Collins and (2) Mission \$700,000.00 \$1,400,000.0

UNIT

UNIT PRICE

\$250,000.00

\$20.00

\$2,500.00

\$15,000.00

54,000

66

310

EΑ

SF

EΑ

EΑ

Subtotal TOTAL **QUANTITY**

Notes:

28

29

30

31

New Pedestrian Hybrid Beacon (PHB) at El Camino Real and Eternal Home Parkway

Median Landscape and Irrigation

New Pedestrian-Scale Light

PA/ED/PS&E/ Soft Costs (15%)

Street Trees

25% Contingency

GRAND TOTAL

Construction Total

^{1.} The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will no vary from its opinions of probable costs.

^{2.} Underground non-pavement utilities such as, but not limited to, water, sanitary sewer, and gas are assumed to be at an adequate depth.

^{3.} Cost shown is based on 2020 dollars.



APPENDIX D

FUNDING SOURCES

APPENDIX D

Additional Funding Sources

The following funding sources, though less fitting than those identified in the report, could be considered by the Town to support follow-on studies to this Plan and/or construction of the identified improvements.

California and Federal Funding Programs

- Affordable Housing and Sustainable Communities (AHSC) program: The AHSC funds land use, housing, transportation, and land preservation projects that support infill and compact development and reduce greenhouse gas (GHG) emissions. Funds are available in the form of loans and/or grants in two kinds of project areas: Transit Oriented Development (TOD) Project Areas and Integrated Connectivity (ICP) Project Areas. This grant program follows an annual competitive funding cycle. The last AHSC grant cycle was February 2020.
- Congestion Mitigation and Air Quality Improvements (CMAQ) Program: The CMAQ program
 provides a flexible funding source to State and local governments for transportation projects
 and programs that help meet the requirements of the Clean Air Act. The program supports
 surface transportation projects and other related efforts that contribute air quality
 improvement and provide congestion relief. Historically, the program is open every fiscal year
 from 2016 to 2020.
- Local Partnership Program (LPP): The LPP provides funding to counties, cities, districts, and regional transportation agencies in which voters have approved fees or taxes dedicated solely to transportation improvements or that have imposed fees, including uniform developer fees, dedicated solely to transportation improvements. Funding includes \$200M/year to improve aging infrastructure, road conditions, active transportation, transit and rail, health and safety benefits. The program application is open approximately every two years, with the last cycle in June 2020.
- Local Streets and Roads (LSR) Program: The LSR provides funding to cities and counties for basic road maintenance, rehabilitation, and critical safety projects on the local streets and roads system. The funding is open every fiscal year.
- Sustainable Transportation Equity Project (STEP): STEP is a new transportation equity pilot that aims to address communities' transportation needs, increase access to key destinations, and reduce greenhouse gas emissions by funding planning, clean transportation, and supporting projects. The Program makes funding available for one to three implementation block grants to fund clean transportation and land use projects in disadvantaged communities. Funded projects will work together to increase access to key destinations so residents can get where they need to go without the use of a personal vehicle. The first STEP round deadline was August 2020.
- Transformative Climate Communities (TCC) Program: TCC funds development and
 infrastructure projects that achieve major environmental, health, and economic benefits in
 California's most disadvantaged communities. TCC is one of many California Climate
 Investments programs. The TTC is awarded every year. The latest TCC deadline was February
 2020.

San Mateo County Funding Programs

• San Mateo County Transportation Authority's Measure W Program: In 2018, San Mateo County passed Measure W, which provides the county with additional resources to improve transit and relieve traffic congestion raised from a half-cent sales tax. Fifty percent of those funds are administered by the San Mateo County Transportation Authority, while the remaining 50% are administered by the SamTrans Board of Directors. The measure, which went into effect in July of 2019, includes funds for highway projects, local street repair, grade separations for Caltrain tracks that intersect local streets, expanded bicycle and pedestrian facilities, and improved transit connections. The cycle for Measure W program is to be determined.



APPENDIX E

QUICK-BUILD OPTIONS

EXCERPT FROM

LESSONS LEARNED & BEST PRACTICES FOR

Grand Boulevard Initiative's Creating Safe and Healthy Corridor Communities Project



Implementation

Quick-Build Options

The implementation of improvements along El Camino Real may look different for different cities. In some cases, portions of the project may be implemented over time, as funds and resources are available. Strategies for phased implementation may include coordinating with future resurfacing projects, development projects, or using cost-effective materials to get the project off the ground sooner. Defined as "quick-build" improvements, the latter are increasingly sophisticated and aesthetically-pleasing treatments that provide flexibility in implementation. Using quick-build treatments can also serve to install a pilot program, a strategy that allows the community to experience the functionality of the project and modify the design before upgrading to more fixed materials such as concrete curb. Four quick-build tools are provided below that can be used in the near-term to put improvements on the ground quickly and costeffectively.

Painted Bulb Outs

In many locations, bulb outs are recommended to reduce crossing distances for pedestrians. Many cities have used painted bulb outs with raised elements such as delineator or landscape planters to define bulb outs without changing drainage patterns and without the added cost of concrete.

Tactical Bus Boarding Islands

Bus stops can also have similar temporary treatments. These can be thought of in the same vein as parklet spaces and can be used to enhance public space and engage local architects and artists. There are also prefabricated bus boarding islands on the market that cities can use to improve bus stops in the near-term. Oakland, Los Angeles, and New York City have experimented with prefabricated bus boarding islands.





Above Top: The City of Fremont has used a combination of painted bulb outs with self-watering landscape planters to achieve this effect. Above: Prefabricated boarding islands or parklet-style boarding islands can be used to extend the sidewalk and allow buses to stop in line to improve transit reliability. Photo credit: www.zicla.com

FEHR PEERS



"Paint and Plastic" Separated Bikeways

Many cities in the Bay Area, including San José, have had success with quick implementation of separated bikeways using painted buffer spaces and delineators or similar raised elements commonly made of plastic. The aesthetics of delineators have improved recently, and there are newer products on the market the City of San José could consider such as shorter, sturdier posts, and armadillos, which are recycled plastic dividers with a lower profile than posts.





Left: "Paint and plastic" separated bikeways can include various products to provide separation between the bicycle lane and traffic, including planters and small plastic lumps (sometimes known as "zebras" or "armadillos").

FEHR PEERS 15



Pavement to Parks Intersection Reconfigurations

Many cities have successful programs that improve safety by repurposing excess roadway space at skewed intersections with public spaces. These are often successful where foot traffic supports the creation of public space, such as in business districts. They can provide a distinctive look and feel congruent with the local neighborhood character, and are an opportunity to engage with local community-based organizations and artist groups. Maintenance of these spaces is an important consideration and could be an opportunity for a public-private partnership.



Above: An example of repurposing to remove a skewed intersection (and a redundant link in the roadway network) on Sunset Boulevard in Los Angeles. The resulting space now supports the Silver Lake Farmers Market and increases foot traffic in front of small businesses.

FEHR PEERS 16