



Town of Colma

LOCAL ROADWAY SAFETY PLAN

DRAFT

MARCH 2024

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GLOSSARY OF TERMS

Countermeasures are engineering infrastructure improvements that can be implemented to reduce the risk of collisions.

Emphasis Areas represent types of roadway users, locations, or collisions with safety issues identified based on local trends that merit special focus in the Town's approach to reducing fatal and severe injury collisions.

Local Roadway Safety Plans, or LRSPs, are documents that provide local-level assessments of roadway safety and identify locations and strategies to improve safety on local roadways.

Crash Severity is defined by the guidelines established by the Model Minimum Uniform Crash Criteria (MMUCC, Fifth Edition) and is a functional measure of the injury severity for any person involved in the crash.

- **Fatal Collision [K]** is death because of an injury sustained in a collision or an injury resulting in death within 30 days of the collision.
- **Severe Injury [A]** is an injury other than a fatal injury which results in broken bones, dislocated or distorted limbs, severe lacerations, or unconsciousness at or when taken from the collision scene. It does not include minor laceration.
- **Other Visible Injury [B]** includes bruises (discolored or swollen); places where the body has received a blow (black eyes and bloody noses); and abrasions (areas of the skin where the surface is roughened or blotchy by scratching or rubbing which includes skinned shins, knuckles, knees, and elbows).
- **Complaint of Pain [C]** classification could contain authentic internal or other non-visible injuries and fraudulent claims of injury. This includes: 1. Persons who seem dazed, confused, or incoherent (unless such behavior can be attributed to intoxication, extreme age, illness, or mental infirmities). 2. Persons who are limping but do not have visible injuries; 3. Any person who is known to have been unconscious because of the collision, although it appears he/she has recovered; 4. People who say they want to be listed as injured do not appear to be so.
- **Property Damage Only [O]** Collision is a noninjury motor vehicle traffic collision which results in property damage.

Highway Safety Improvement Program (HSIP) is one of the nation's core federal-aid programs. Caltrans administers HSIP funds in the state of California and splits the state share of HSIP funds between State HSIP (for state highways) and local HSIP (for local roads). The latter is administered through a call for projects biennially.

Primary Collision Factors (PCFs) convey the violation or underlying causal factor for a collision. Although there are often multiple causal factors, a reporting officer at the scene of a collision indicates a single relevant PCF related to a California Vehicle Code violation.

Safe Streets for All (SS4A) is a federal discretionary grant program created by the 2021 Bipartisan Infrastructure Law with \$5 billion in appropriated funds for 2022 through 2026.

Safe System Approach is a layered method for roadway safety promoted by the FHWA. This approach uses redundancies to anticipate mistakes and minimize injury. For more, visit https://safety.fhwa.dot.gov/zerodeaths/docs/FHWA_SafeSystem_Brochure_V9_508_200717.pdf.

Safety Partners are agencies, government bodies, businesses, and community groups that the Town can work with to plan, promote, and implement safety projects.

Strategies are non-engineering tools that can help address road user behavior, improve emergency services, and build a culture of safety.

Systemic safety defines an analysis and improvement approach based on roadway and environmental factors correlated with crash risk (rather than targeting locations solely on documented crash history). The approach takes a broad view to evaluate risk across an entire roadway system.

INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the Town of Colma. It was developed concurrently with the Countywide LRSP; therefore, some discussion will refer back to the Countywide LRSP to avoid redundancy.

However, because every community has unique safety challenges, this LRSP includes individually tailored emphasis areas, crash trends, prioritized project lists, project scope recommendations, Safe System-aligned recommendations, and implementation/monitoring recommendations. A living document, this LRSP is designed to be flexible and responsive to evolving community needs. The Town will revisit and update this LRSP at least every five years.

The Town of Colma has a 2023 population of 1,359 per California Department of Finance. The town has 8 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 11 reported crashes on surface streets in the Town and 2 fatal/severe injury crashes. In that time period, there were no reported pedestrian crashes and one reported bicyclist crash, which was a fatal/severe injury crash.

This LRSP was informed by technical analysis, as well as from input from key stakeholders and the general public. The following sections describe the plan development and recommendations.

Contents

This LRSP provides the following:

	A vision and associated goals		Policies, plans, guidelines and standards
	Crash data and trends		Safe System – aligned recommendations
	Engagement and coordination activities		Implementation and tracking
	Prioritized projects and social equity considerations		

Upon Council adoption and affirmation of the plan's vision and goals in 2024, this plan will be posted online by the Town for public viewing.

VISION & GOALS

The Town of Colma's vision for roadway safety is:

- Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2040.

To support this vision, the Town has established the following goals:

1. Regularly monitor crashes to respond to safety problems and changing conditions. Prioritize locations with high crash frequency or rates for safety improvements.
2. Review proposed improvement plans to ensure that roadway projects, retrofits, and maintenance projects incorporate complete streets which support multiple modes of travel.
3. Advance the active transportation efforts of the Town and regional agencies to achieve greenhouse gas (GHG) reduction.
4. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
5. Provide opportunities for community engagement in roadway capital improvement projects to identify safety solutions.
6. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.
7. Plan for disadvantaged communities to fully share in the benefits of the safety programs.
8. Monitor implementation of the Colma LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

This LRSP relies on Colma's solid foundation of plans, policies, and programs that support safe, equitable mobility in the town. For a list of the Town of Colma's existing initiatives and ongoing efforts to build a Safe System, see Table 1:

Table 1. Town of Colma Safety Policies, Plans, Guidelines, Standards, and Programs

Program Name	Program Description	Safe System Elements
San Mateo C/CAG Safe Routes to School (SR2S) Program Guide	The SR2S program works to make it easier and safer for students to walk and bike to school. C/CAG partners with the County Office of Education to increase biking and walking and safe travel to school. Annual reports summarize schools' participation.	Safe Roads Safe Speeds Safe Road Users
Town of Colma 2040 General Plan—Mobility Element	The Mobility Element Goal (M-1) is to provide and maintain a safe, efficient, and attractive circulation system that promotes a healthy, safe, and active community throughout Colma. The Town has established a "Vision Zero" to eliminate	Safe Roads, Safe Speeds, Safe Road Users, Post-Crash Care, Safe Vehicles

Program Name	Program Description	Safe System Elements
	traffic fatalities and reduce the number of non-fatal collisions by 50 percent by 2040.	
Town of Colma Systemic Safety Analysis Report (SSAR-2018)	The SSAR identified systemic treatment along roadway segments and intersections to improve safety for all users of the Town's roadway network.	Safe Roads, Safe Speeds, Post-Crash Care
Town of Colma Bicycle and Pedestrian Master Plan (2023)	The Plan focuses on developing a safe network of bikeways and walkways, identifying roadway improvements, and documenting programs and policies that will support the Town's goal of becoming a more bicycle- and pedestrian-friendly community.	Safe Speeds, Safe Road Users, Safe Roads
Town of Colma ADA Transition Plan (2010)	The Town of Colma's ADA Transition Plan outlines its efforts to comply with the Americans with Disabilities Act (ADA) and ensures its programs, services, facilities, and public rights-of-way are accessible to all members of the public.	Safe Roads, Safe Road Users
Town of Colma Complete Streets Policies (2012)	The Town of Colma has adopted a Complete Streets Policy consistent with the California Complete Streets Act of 2008 (AB 1358). The goal of the plan is to create and maintain Complete Streets that provide safe, comfortable, and convenient travel along and across Town's streets through a comprehensive, integrated transportation network that serves all categories of road users, including pedestrians, bicyclists, motorists, and persons with disabilities.	Safe Roads, Safe Speeds, Safe Road Users, Post-Crash Care, Safe Vehicles
Town of Colma Climate Action Plan 2030 Update	The Town of Colma is updating the Climate Action Plan to further expand programs and policies to reduce greenhouse gas emissions (GHG) by 49 percent from the Town's 2005 base-year level by 2030 to meet the new GHG reduction targets established in Senate Bill 32. The Plan outlines a sustainable and integrated transportation system that promotes public health by providing safe paths of travel for those walking, bicycling, and accommodating the needs for individuals with disabilities.	Safe Road Users, Safe Speeds, Safe Roads

Safety Partners

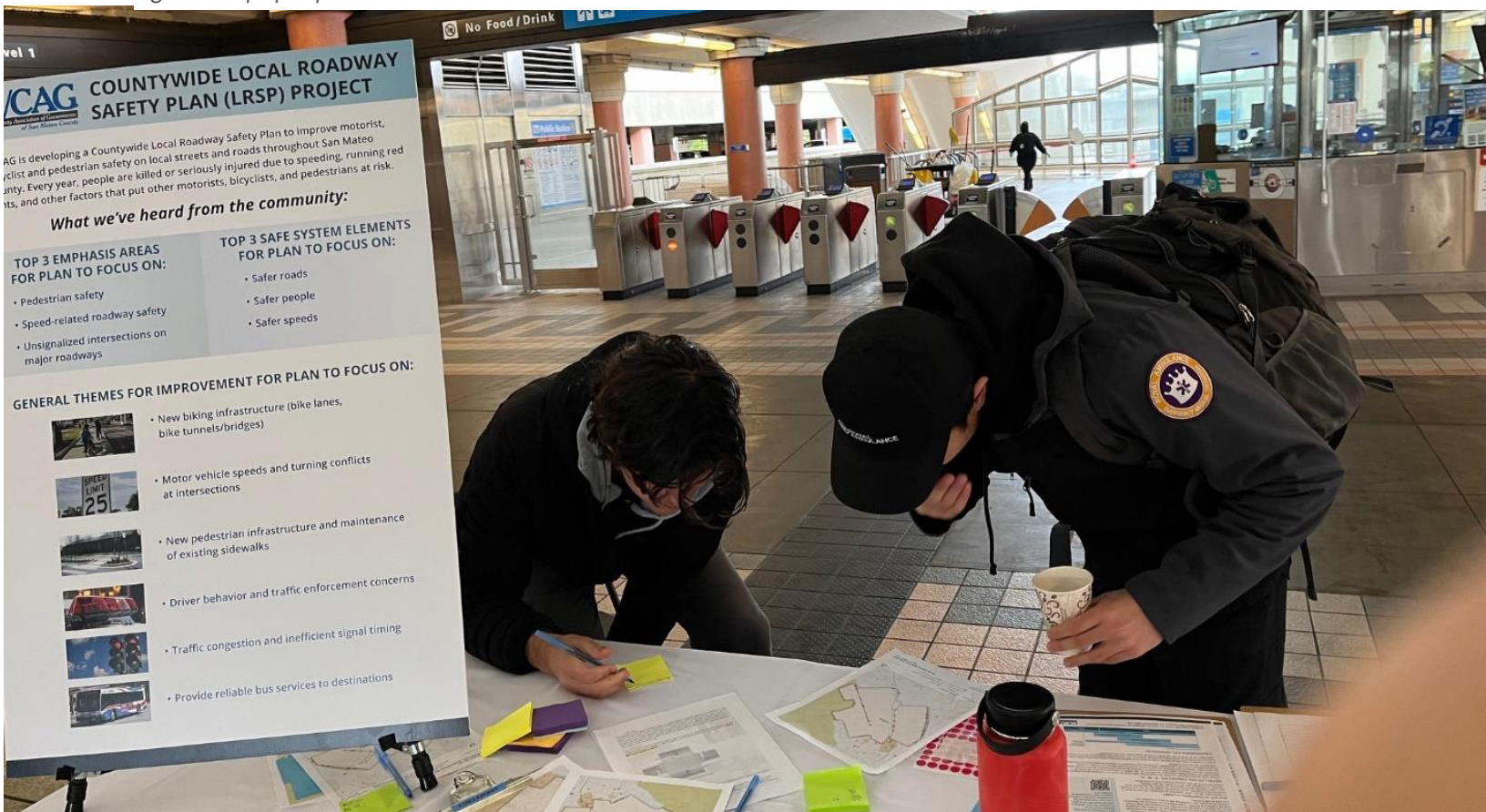
A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination with these partners and their support of Colma's effort to create a culture of roadway safety. While additional partners may be identified in the future, those involved in development of the LRSP include:

- City/County Association of Governments of San Mateo County (C/CAG)
- County Public Health
- Office of Sustainability
- San Mateo County Office of Education (SMCOE)
- San Mateo County Transportation Authority (SMCTA)
- California Highway Patrol
- Metropolitan Transportation Commission (MTC)
- Silicon Valley Bicycle Coalition (SVBC)
- Caltrans
- Town of Colma Police Department
- Colma BART Station

Community Engagement and Input

This LRSP includes community members' experiences and concerns gathered from project team hosted pop-up events and an interactive webmap.

Figure 1. A pop-up event at a BART station in the Town of Colma.



ENGAGEMENT TIMELINE AND EVENTS

The project team hosted a series of public engagement events countywide to support the concurrent development of the Countywide LRSP and of the Town’s plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, organized by themed engagement phases, organized by themed engagement phases, and is followed by the community input themes we heard.

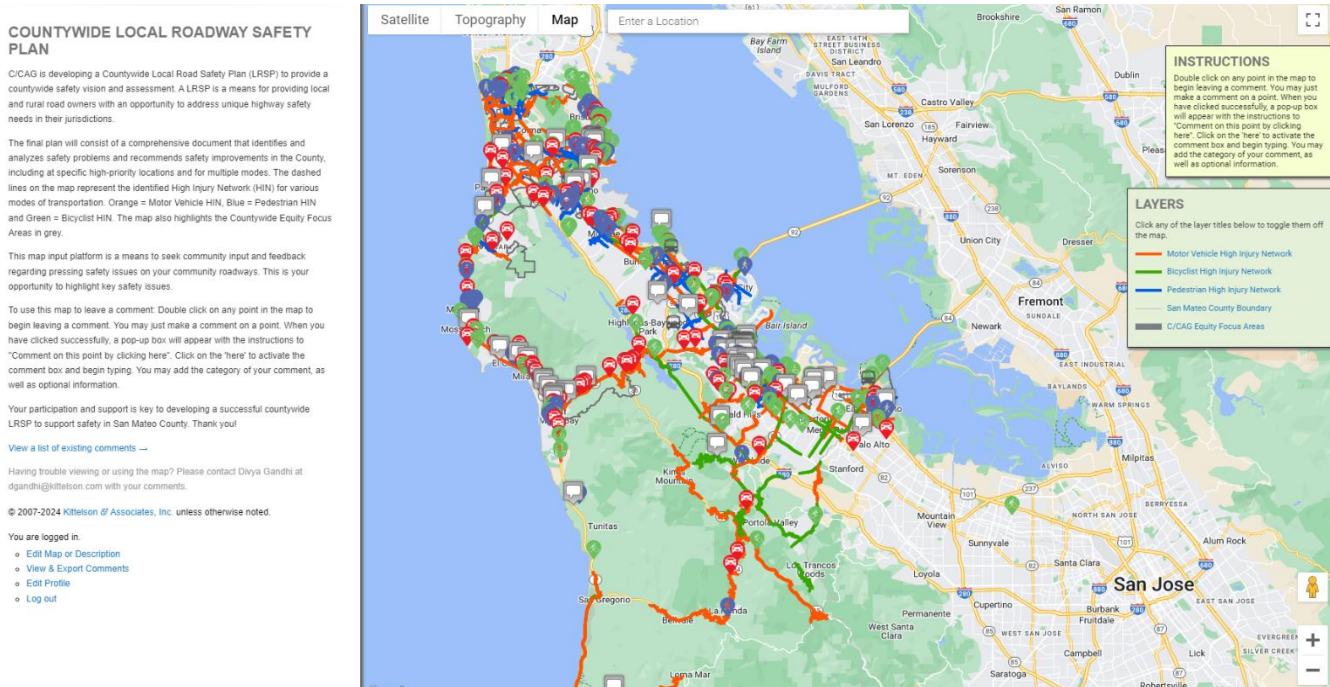
Table 2. C/CAG Public Engagement Events

Date	Event	Location
August 10, 2023	Countywide Virtual Kickoff Meeting: Shared the purpose and timing of the plan	Virtual meeting (recorded and posted to plan website)
August 16, 2023	Phase 1 Pop-up/Tabling Event: Shared crash data analysis; received input on locations and safety concerns	East Palo Alto
August 19, 2023		Half Moon Bay Farmers Market
August 20, 2023		Foster City Summer Days
August 27, 2023		San Carlos Block Party
August – September, 2023	Phase 1 Concurrent Online Input	Online webmap (countywide input)
December 17, 2023	Phase 2 Pop-up/Tabling Event: Shared draft prioritized locations and types of engineering recommendations; received comments on locations and votes/input on types of treatments and desired locations	Belmont Farmers’ Market
December 20, 2023		Woodside Public Library
January 9, 2024		Colma BART Station
January 16, 2024		Atherton Library
January 18, 2024		Brisbane Farmers’ Market
February 7, 2024		Portola Valley Bicycle, Pedestrian, & Traffic Safety Committee
March – April 2024	Phase 3 Draft Plan Share the draft plan publicly on the project website, through electronic distribution channels, and with presentations to C/CAG Committees and the Board.	Various

ONLINE MAP SURVEY

The project team made an online countywide webmap tool and survey available during August and September 2023 for the public to provide comments and respond to questions to guide the plan's development (see Figure 2. Online Map Survey Tool). Respondents were able to record location-specific feedback, associate a travel mode, and leave a detailed comment pertaining to a safety concern.

Figure 2. Online Map Survey Tool



Countywide, there were a total of 528 comments recorded by 352 respondents. There were no comments made within the Town of Colma or by respondents who self-identified as Colma residents. Nonetheless, the project team identified common themes in the responses made countywide which may be relevant to the Town. Those are presented in the Community Engagement section of the Countywide LRSP.

General Comments

- Overall feeling that roadways are generally safe for people traveling

Pedestrian Comments

- Concerns that sidewalks abruptly end in some areas

Motor Vehicle Comments

- Concern that some streets are too narrow to travel on
- Concerns of speeding, specifically on El Camino Real, Lawndale Boulevard, and Hillsdale Road
- Desire for roundabouts, speed bumps, and/or signage to encourage drivers to slow down on roadways

PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Colma BART station as part of Phase 2, which provided the project team with input on specific location concerns, general traffic safety/behavioral concerns, and opinions on specific engineering treatments or strategies. The comments received are provided in Appendix A. The following themes were identified:

General Comments

- Overall feeling that roadways are generally safe for people traveling

Pedestrian Comments

- Concerns that sidewalks abruptly end in some areas

Motor Vehicle Comments

- Concern that some streets are too narrow to travel on
- Concerns of speeding, specifically on El Camino Real, Lawndale Boulevard, and Hillsdale Road
- Desire for roundabouts, speed bumps, and/or signage to encourage drivers to slow down on roadways

CRASH DATA & TRENDS

This section provides an overview of the five years of crash data used for this analysis. The data were downloaded from the Transportation Injury Mapping System¹ (TIMS) Crash database representing the full years 2018 through 2022. TIMS is a commonly used data source for safety plans. This analysis includes only crashes for which some level of injury is reported and excludes property damage only (PDO) crashes. We removed crashes along grade-separated freeways from the dataset, but we retained crashes that occur along at-grade State Highway facilities and those that occurred within the influence area of freeway ramp terminal intersections.

The crash records used provide the best available data for analysis but do not account for crashes that go unreported or for near-miss events. This plan includes recommendations that would improve jurisdictions' ability to capture one or both of those elements and enhance future crash analyses.

The discussion that follows provides a high-level overview of crash trends that informed the plan recommendations.

Emphasis Areas

The project team analyzed crash data in Colma and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the Town can focus on to maximize fatal and severe injury reduction on local roads.

A review of crash data and input led to the development of the following emphasis areas for the Town of Colma:

1. **Pedestrian and bicyclist safety.** Countywide, pedestrians were involved in 13 percent of injury crashes but 23 percent of fatal/severe injury crashes, showing a disproportionate involvement in the most severe outcomes. Similarly, bicyclists were involved in 13 percent of injury crashes but 20 percent of fatal/severe injury crashes. In Colma, there were no recorded pedestrian injury crashes from 2018–2022 and one recorded bicyclist injury crashes (out of 11 total in the period). Providing safe travel for people outside a motor vehicle is an emphasis area countywide and, in the Town, even in the absence of any reported pedestrian crashes in the 5-year period.
2. **Nighttime/low light safety.** Countywide, crashes occurring in dark conditions—especially in dark, unlit conditions—are more severe than those that occur in daylight. Motor vehicle crashes in dark, unlit conditions have about double the average severity when they occur compared to crashes in daylight. In Colma, one of the eleven reported injury crashes occurred in dark conditions.

¹ Transportation Injury Mapping System, <http://tims.berkeley.edu>

3. **Unsignalized intersections on arterials/collectors.** Countywide, crashes for all modes most frequently occurred at the intersection of higher order and lower order roadways – most commonly along arterial and collector roadways. Pedestrian and bicyclist crashes most frequently occur at unsignalized intersections.
4. **Motor vehicle speed related roadway segment crashes.** Countywide, motor vehicle crashes were more severe along roadway segments than at any other location type; unsafe speed was the most commonly cited the primary crash factor (27 percent of injury crashes and 23 percent of fatal/severe injury crashes). In Colma, “Too fast for conditions” was the top-cited violation among injury crashes (36 percent).
5. **High speed roadways (35+mph).** Countywide, crashes on roadways with posted speeds 40mph or higher had an average crash severity per mile 13 times higher than along roadways with posted speeds of 25 mph or less.

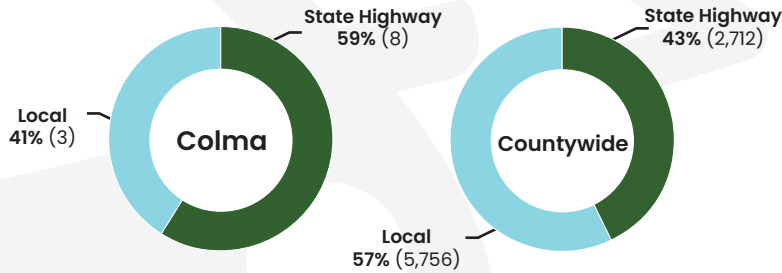
The next section presents summary findings from a crash data review that compares the Town of Colma to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of Town crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported crash types compared to Countywide levels.
- The share of bicyclist and motor vehicle crashes among all injury crashes and among F/SI crashes. Countywide and within the Town, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).

Colma—Crash History

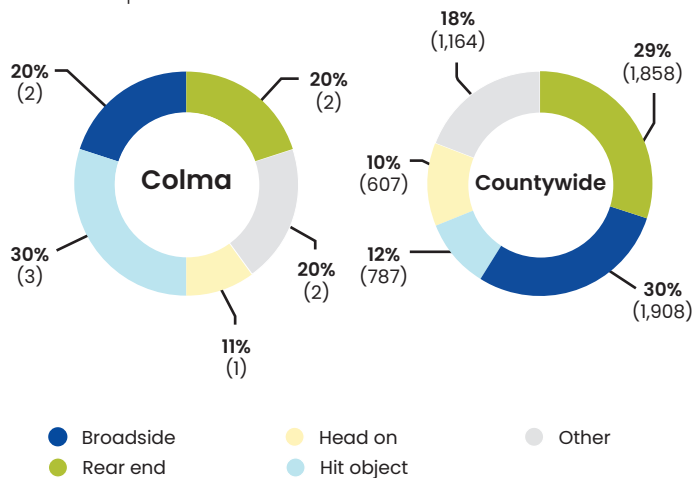
Total Crashes

In Colma, 11 fatal and injury crashes were reported on at-grade facilities between 2018 – 2022, where:



Most Frequent Collision Types

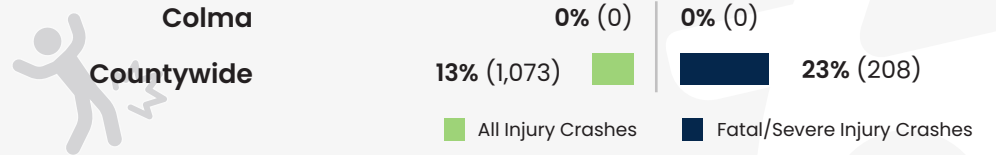
Broadside, rear-end, head-on, and hit-object crashes were the most common crash types in the region. Here is how Colma compares:



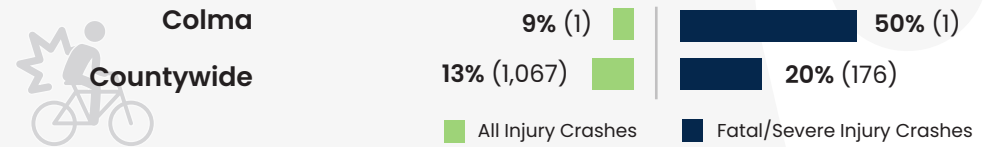
1. Motor crashes include motor vehicles and motorcyclists.

Mode Involvement

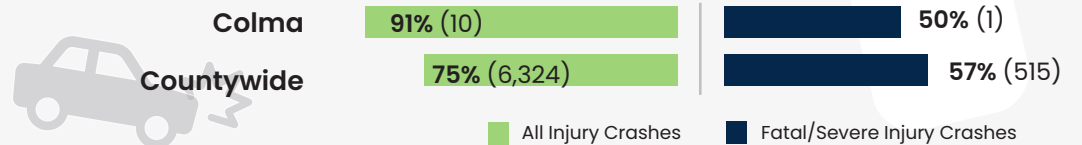
Pedestrian Crashes (0)



Bicycle Crashes (1)



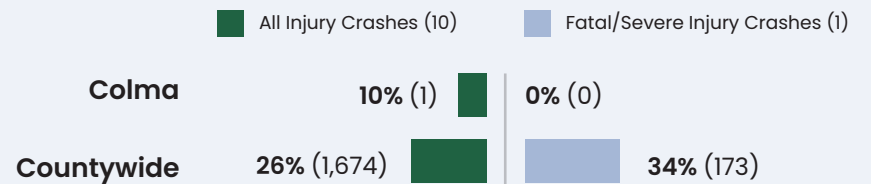
Motor Vehicle¹ Crashes (10)



Dark Conditions

Crashes reported in nighttime conditions were found to be more severe—especially in dark, unlit conditions. Here is how Colma compares to Countywide crashes:

Share of Motor Vehicle Crashes in Dark Conditions (1)



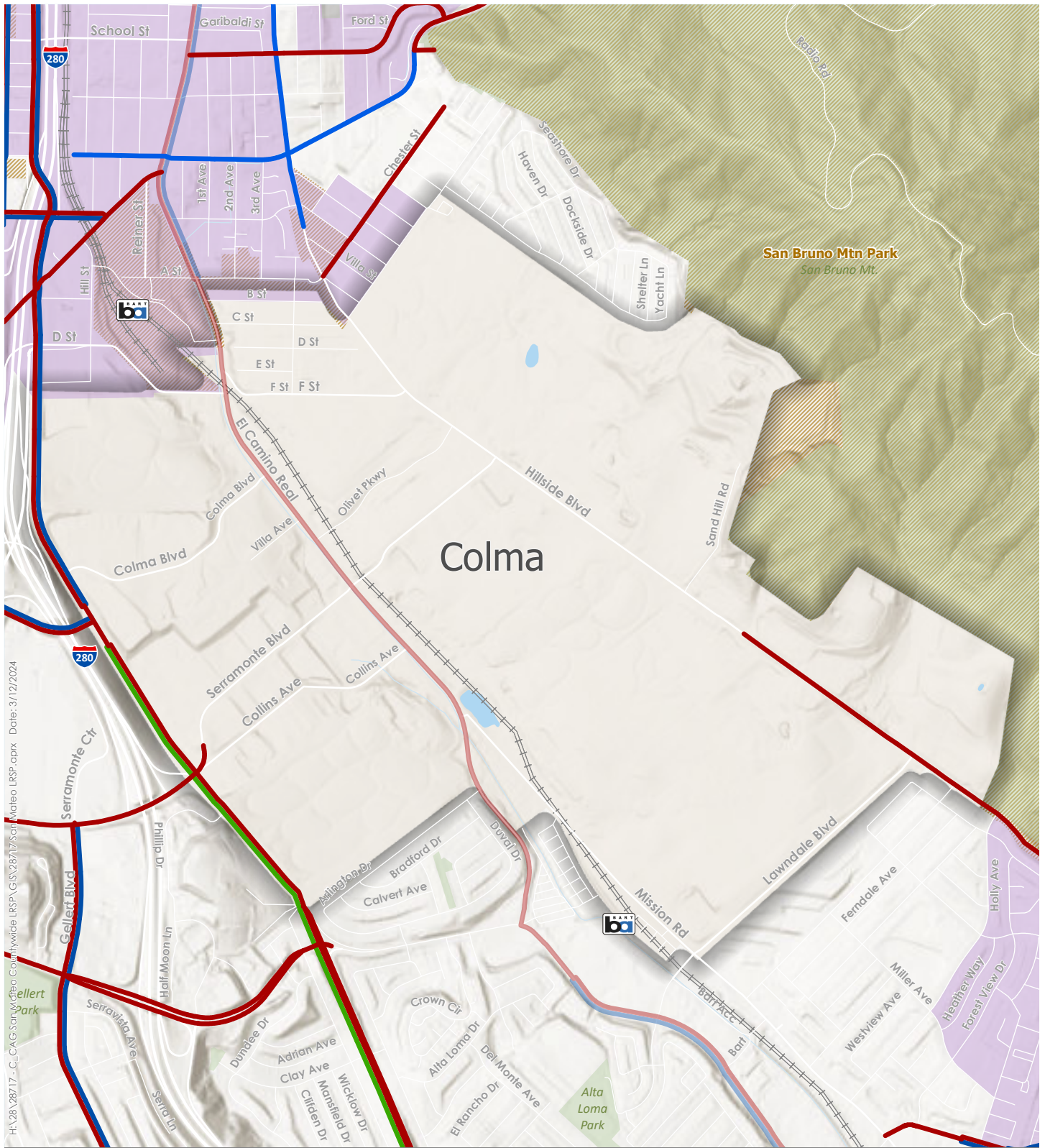


Countywide High Injury Network

In addition to the systemic analysis findings, the analysis included countywide spatial analysis to identify a countywide high injury network for each travel mode (pedestrians, bicyclists, and motor vehicles). The countywide HIN results were folded into the subsequent regional and local prioritization (described in the next section). Additionally, the characteristics of the HIN and crashes along them were identified as risk factors and incorporated into emphasis areas and into a systemic portion of the prioritization process. Table 39 and Figure 31 show the HIN segments identified within the Town.

Table 3. Countywide HIN Segments in Colma

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
El Camino Real	Belmont, Colma, Burlingame, Menlo Park, Millbrae, Redwood City, San Bruno, San Carlos, San Mateo, South San Francisco, Unincorporated	23.5	X	X	X
Hillside Boulevard	Colma, Daly City, South San Francisco, Unincorporated	3.1	X		X
Serramonte Boulevard	Colma, Daly City	1	X		
Southgate Avenue	Colma, Daly City	3.1	X		X



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- Schools
- BART Station
- Caltrain Station
- Unincorporated Places
- Parks

- Local HIN**
- Motor Vehicle
 - Bicycle
 - Pedestrian
 - C/CAG Equity Focus Areas

- Highway HIN**
- Motor Vehicle
 - Bicycle
 - Pedestrian



Figure 3
**Pedestrian + Bicyclist + Motor Vehicle
 Combined High Injury Network (HIN)
 Town of Colma, CA**

PROJECT IDENTIFICATION & PRIORITIZATION

Methodology

Using the results of the crash data analysis and adding a focus on social equity, the project team identified priority locations for the Town to target for future safety improvements. The prioritization used three equally weighted factors to prioritize locations for safety projects:

- **Crash history** – used to identify the locations with the highest reported five-year crash frequency and severity.
- **Social equity** – used to identify locations where projects would benefit disadvantaged populations and align with future grant funding opportunities that emphasize social equity.
- **Systemic factors** – used to identify locations that have roadway and land use characteristics associated with crash frequency and severity. Using systemic factors emphasizes a proactive rather than purely reactive approach. Each factor was weighted relative to the other factors based on the average severity of relevant crashes (for example, if pedestrian crashes on arterials/collectors were overall twice as severe as pedestrian crashes at unsignalized intersections overall, then the former would be weighted twice the latter).

Each factor is comprised of multiple criteria and overlaid on jurisdictions’ roadway data to identify locations for future safety projects. The prioritization process was conducted three times, one for each travel mode. The weighting scheme for each mode is presented in the three figures below (Figure 4, Figure 5, and Figure 6).

Figure 4. Pedestrian Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

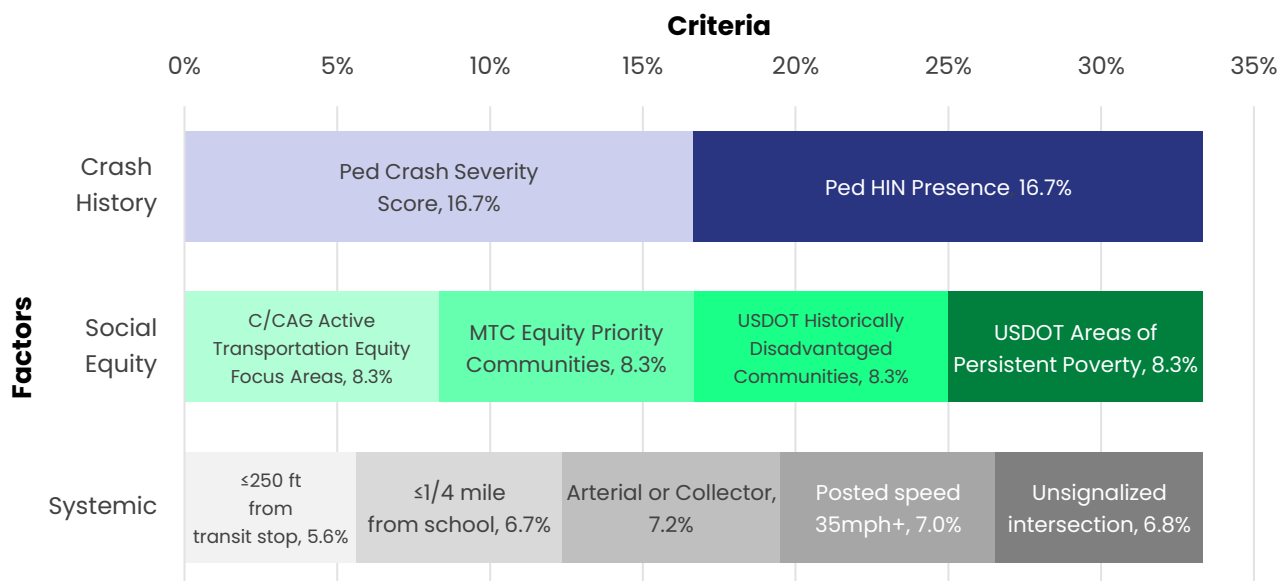


Figure 5. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

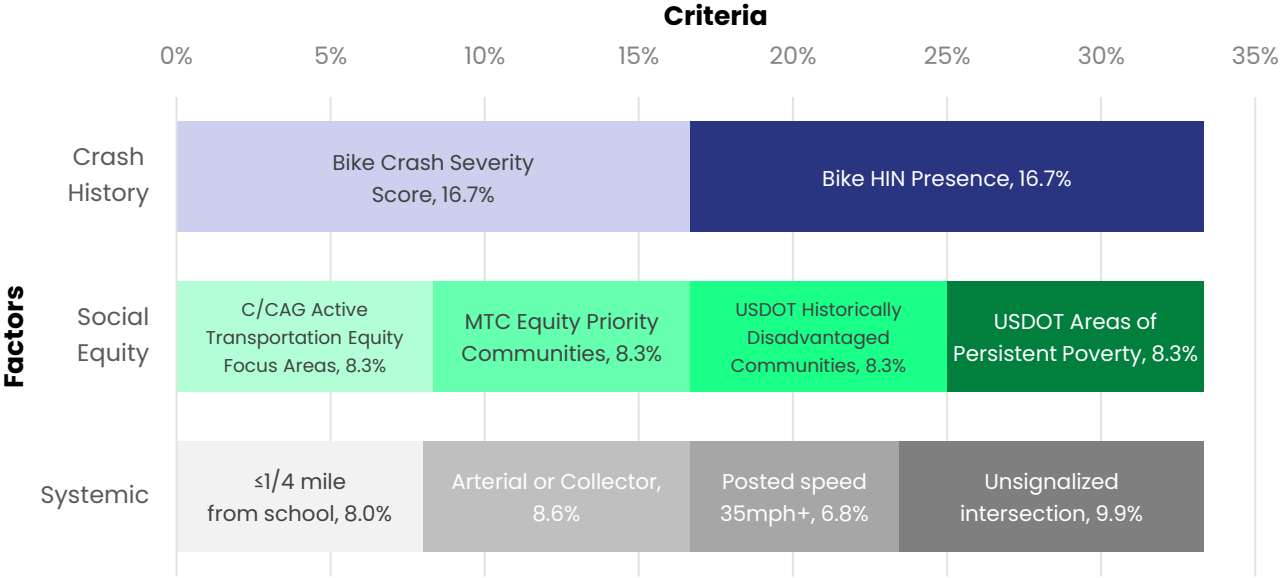
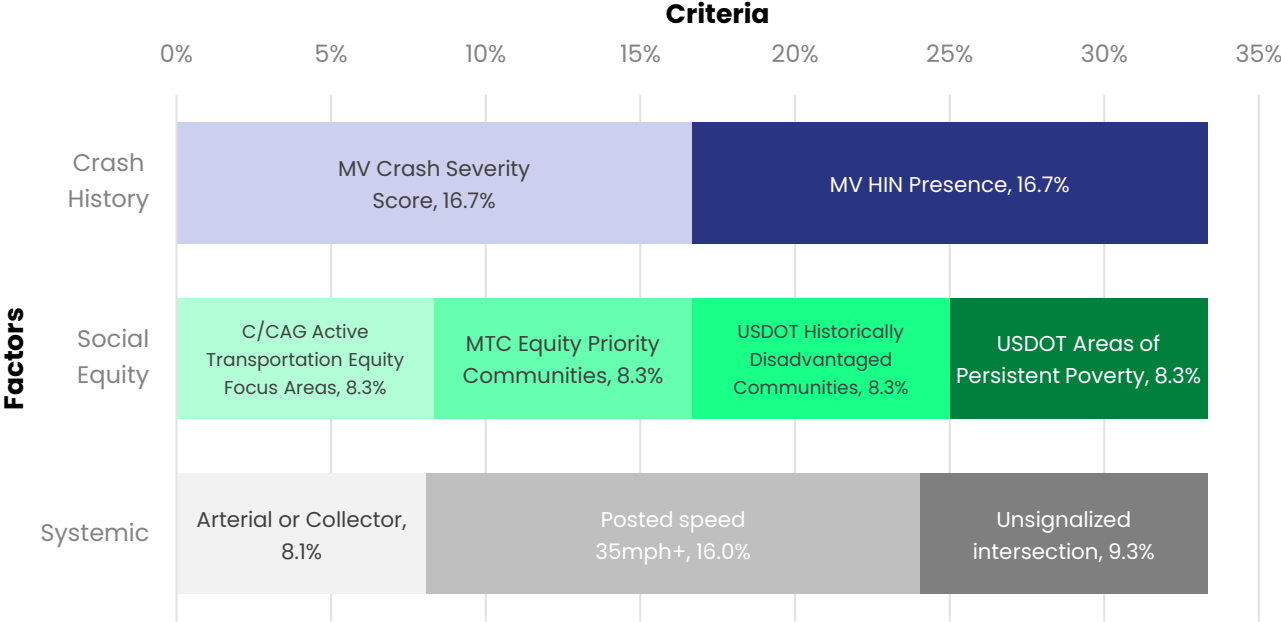


Figure 6. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



Social Equity

Social equity is a critical factor for project prioritization, and emphasizing social equity within a project prioritization process helps to promote infrastructure spending and improvements in disadvantaged and/or disinvested neighborhoods. We considered and included multiple local, regional, and national datasets for social equity prioritization to reflect different measures available and because available funding opportunities use different indicators. The prioritization included measures accounting for all of the following indicators:

- C/CAG Active Transportation Equity Focus Areas
- MTC Equity Priority Communities
- USDOT Historically Disadvantaged Communities
- USDOT Areas of Persistent Poverty

Layering in these four indicators allows the prioritization to identify more locations that may meet the criteria for just one of these indicators while still elevating locations that show up in multiple or all indicators. The raw scoring data also equips the Town to understand which locations meet which measures.

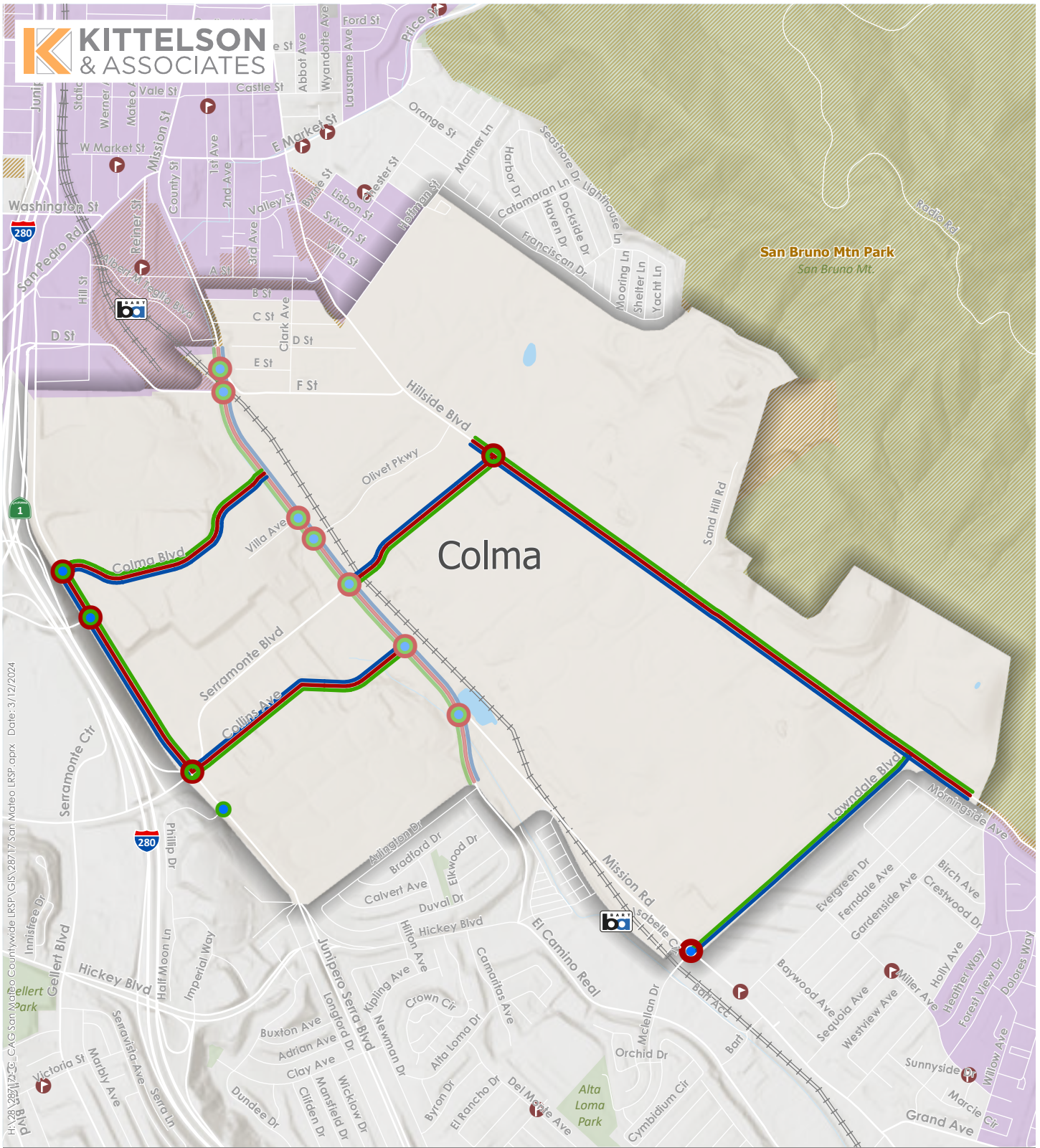
Results

The prioritization resulted in the following top locations. For more details (including the scores of each location), consult Appendix B. Figure 7 also shows the locations.

Table 4. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Hillside Blvd, from Serramonte Blvd to Town limit	Corridor	No	X	X	X
2	Serramonte Blvd & NB Hwy on-ramp	Intersection	No	X	X	
3	Colma Blvd	Corridor	No	X	X	X
4	Serramonte Blvd, from El Camino Real to Hillside Blvd	Corridor	No	X	X	X
5	Collins Ave, from Serramonte Blvd to El Camino Real	Corridor	No	X	X	X
6	Villa Ave & El Camino Real	Intersection	Yes	X	X	X
6	El Camino Real	Corridor	Yes	X	X	X
6	El Camino Real & Collins Ave	Intersection	Yes	X	X	X

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
6	El Camino Real & F St (East)	Intersection	Yes		X	X
6	El Camino Real & F St (West)	Intersection	Yes			
6	El Camino Real & Mission Rd	Intersection	Yes	X	X	X
6	El Camino Real & Olivet Pkwy	Intersection	Yes	X	X	X
6	El Camino & Serramonte Blvd	Intersection	Yes	X	X	X
7	Junipero Serra Blvd & Southgate Ave	Intersection	No		X	X
8	Junipero Serra Blvd & Colma Blvd	Intersection	No	X	X	X
9	Phillip Dr & Junipero Serra Blvd	Intersection	No		X	X
10	Hillside Blvd & Serramonte Blvd	Intersection	No	X	X	
11	Lawndale Blvd	Corridor	No		X	X
12	Junipero Serra Blvd, from Colma Blvd to Collins Ave	Corridor	No	X	X	X



Local Priority Locations

- Pedestrian Intersections
- Bicycle Intersections
- Motor Vehicle Intersections
- Pedestrian Segments
- Bicycle Segments
- Motor Vehicle Segments

Highway Priority Locations

- Pedestrian Intersections
- Bicycle Intersections
- Motor Vehicle Intersections
- Pedestrian Segments
- Bicycle Segments
- Motor Vehicle Segments

- Schools
- C/CAG Equity Focus Areas



Figure 7

**Priority Intersections and Segments
Town of Colma, CA**

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IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

Project Scopes

With the development of this plan the project team worked with the Town to identify two project locations or two groups of project locations to apply safety treatments. We worked from the list of priority project locations and used potential benefit-to-cost ratio to identify a suite of treatments the Town could consider at these locations. The Town can move forward with further project development and community engagement to advance solutions at these locations. They may also consider bundling some of the treatments identified with the same treatments at other, similar locations identified in this plan, for a systemic approach.

The project scopes were developed exclusively from a list of Town-approved engineering countermeasures, which are presented as an engineering toolbox in the next section. The team prepared a suite of treatments to reduce crashes at the project locations. For each treatment, the list presents a planning-level cost of the treatments as recommended and the crash reduction benefit.

The scoped project locations include:

- Serramonte Blvd and I-280 NB on-ramp intersection. Recommended improvements include:
 - Lighting
 - Installation of an advance stop bar for a bicycle box
- Hillside Blvd—Serramonte Blvd to southern town limit
 - Edgeline rumble strips/stripes
 - Separated bike lanes
 - Pedestrian crossings with enhanced safety features (Rectangular Rapid Flashing Beacons, curb extensions, advance “yield” lines)
 - Dynamic/variable speed warning signs
 - Flush median with a pedestrian cut-through at the Lucky Chances Casino Driveway on Hillside Blvd
 - Road diet
 - Installation of street lighting at multiple locations on Hillside Blvd

For more information on the location, cost, and crash diagnostics of these project scopes, see Appendix C.

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the Town of Colma. First is a table of engineering countermeasures proven to reduce fatal and severe injury crashes. The countermeasures align to the crash types as listed in the table. Complementing those countermeasures is a holistic set of policy and programmatic recommendations that will help align Town departments and partners in pursuit of the plan’s vision and goals.

Table 5. Town of Colma Countermeasure Toolbox

Countermeasure Name	Applicable Location(s) ¹	Crash Types Applicable	Crash Reduction Factor (if Available)	Cost (if available) ²	Systemic Opportunity?
Lighting*	All	Nighttime	0.4		Medium
Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number*	SI	Signalized local/arterial intersections	0.15	\$	Very high
Install left-turn lane and add turn phase*	SI	Signalized local/arterial intersections	0.55	\$-\$\$\$	Low
Convert signal to mast arm (from pedestal-mounted)*	SI	Signalized local/arterial intersections	0.3	\$-\$\$\$	Medium
Install raised median on approaches*	SI	Signalized local/arterial intersections	0.25	\$-\$\$\$	Medium
Create directional median openings to allow (and restrict left turns and U-turns (signalized intersection)*)	SI	Signalized local/arterial intersections	0.5	\$-\$\$	Medium
Install flashing beacons as advance warning*	SI	Rear-end, broadside	0.3	\$-\$\$	Medium
No right turn on red	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	\$	Medium
Centerline hardening or continuous raised median	SI	All crashes	0.46	\$	Medium
Install pedestrian countdown signal heads*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	\$	High

Countermeasure Name	Applicable Location(s) ¹	Crash Types Applicable	Crash Reduction Factor (if Available)	Cost (if available) ²	Systemic Opportunity?
Install pedestrian crossing*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	\$	High
Install advance stop bar before crosswalk (bicycle box)*	SI	Pedestrian crashes, signalized local/arterial intersections	0.15	\$	High
Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	SI	Pedestrian crashes, signalized local/arterial intersections	0.6	\$	High
Install Protected Intersection Elements	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	\$-\$\$\$	Low
Convert to all-way STOP control (from two-way or Yield control)*	UI	All crashes	0.5	\$	Low
Install signals*	UI	All crashes	0.3	\$\$\$	Low
Create directional median openings to allow (and restrict) left turns and U-turns (unsignalized intersections)*	UI	All crashes	0.5	\$-\$\$	Medium
Install raised medians (refuge islands)*	UI	Pedestrians and bicycle	0.45	\$	Medium
Install pedestrian crossings (signs and markings only)*	UI	Pedestrians and bicycle	0.25	\$-\$\$\$	High
Install pedestrian crossings (with enhanced safety features)*	UI	Pedestrians and bicycle	0.35	\$-\$\$\$	Medium

Countermeasure Name	Applicable Location(s) ¹	Crash Types Applicable	Crash Reduction Factor (if Available)	Cost (if available) ²	Systemic Opportunity?
Install/upgrade larger or additional STOP signs or other intersection warning or regulatory signs*	UI	Turning crashes related to lack of driver awareness	0.15	\$	High
Upgrade intersection pavement markings*	UI	Turning crashes related to lack of driver awareness	0.25	\$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	\$\$\$	High
Road diet (Reduce travel lanes from four to three, and add a two-way, left-turn lane and bike lanes)*	R	All crashes	0.35	\$	Medium
Corridor access management	R	N/A	0.35	\$	Medium
Install edgeline rumble strips/stripes*	R	All crashes	0.15	\$-\$\$\$	High
Install separated bike lanes*	R	Pedestrian and bicycle	0.45	\$-\$\$	High
Install/upgrade pedestrian crossing (with enhanced safety features)*	R	Pedestrian and bicycle	0.35	\$\$-\$\$\$	Medium
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	\$	High
Install dynamic/variable speed warning signs*	R	Driver behavior	0.3	\$	High
Extend pedestrian crossing time	SI	Pedestrian	N/A	\$	High
Lane narrowing	R	All crashes	N/A	\$-\$\$	Low
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	\$	Medium
Curb extensions	UI	All crashes	N/A	\$-\$\$	Low

Countermeasure Name	Applicable Location(s) ¹	Crash Types Applicable	Crash Reduction Factor (if Available)	Cost (if available) ²	Systemic Opportunity?
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	\$-\$\$	Low
Curb radius reduction	SI, UI	All crashes	N/A	\$\$	Low
Roadside design features	All	All crashes	N/A	\$-\$\$\$	Low

*Indicates countermeasure is eligible for California HSIP funding as of the most recent funding cycle

1: UI = Unsignalized Intersection; SI = Signalized Intersection; R = Roadway segments; All = All of the above

2: \$ = ≤\$50,000; \$\$ = \$50,000 - \$200,000; \$\$\$ = > \$200,000

Proposed Policy, Program, and Guidelines Recommendations

POLICY CATEGORIES

In addition to the engineering countermeasures and projects recommended above, the City aims to promote policies, programs, and standards that foster a culture of safety. The table below defines several policy and program recommendations organized into thematic categories. Implemented in cooperation with partners, these recommendations will deepen the dedication to safety shared throughout the community and round out the City's Safe System Approach.

Table 5. Town of Colma Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)		LCS2: High-Visibility Media Campaign LCS3: Communication Protocol LCS4: Implement Car-Free Zones
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer
Local Funding (LF)		LF2: Equitable Investment LF3: Prioritize Investments
Local Education / Outreach (LEO)		LEO1: Roadway Safety Education in Schools LEO2: Engagement Accessibility LEO3: Educational Materials for New Facilities LEO4: Transportation Safety Campaign LEO5: Safe City Fleets
Local Planning / Evaluation (LPE)		LPE1: Annual Update LPE2: Plan Update LPE3: Safety and Equity Impacts Evaluation LPE4: Safe Routes to School

NEAR-TERM ACTIONS

LCS1: Transportation Safety Advisory Committee Participation

Actively participate in the newly-formed County Transportation Safety Advisory Committee (TSAC). Bring agenda items as relevant, including but not limited to:

- Safety project updates with every step along the project development process (studies initiated / under way / complete, funding identified, design phases initiated / under way / complete)
- Annual updates to the TSAC regarding implementation progress that may be relevant for C/CAG annual monitoring reporting (e.g., projects on identified priority locations and/or the regional High Injury Network, community engagement efforts and summaries, safety funding applied for / received)
- Opportunities for cross-jurisdiction coordination (e.g., roadways or intersections shared with adjacent jurisdictions or Caltrans)
- Requests for trainings / best practices that could be provided through the TSAC

Lead agency: Town of Colma Public Works

LF1: Dedicated Funding

Propose ongoing, dedicated funding and staffing for implementation and monitoring of the safety plan, including presiding over the TSAC. This role may be fulfilled by a partial FTE or through staff augmentation.

Lead agency: Town of Colma Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the Town of Colma Police Department to implement a local high-visibility media campaign pertaining to one or more emphasis areas identified in this plan.

Dedicated law enforcement with media supporting the enforcement activity to ensure public awareness.

Potential communication tools:

- Bus ads
- Social media
- Text messages

Lead agency: County Public Health

Coordinating partners: County Sheriff's Office, California Highway Patrol, Office of Sustainability, SMCOE, Town of Colma Police Department, Town of Colma Public Works

LCS3: Communication Protocol

Adopt and develop safety-related communication protocols in coordination with the TSAC. The protocols will promote consistent public communication regarding language usage and statements related to transportation safety. Encourage language in line with Vision Zero and Safe System principles that acknowledges mistakes are inevitable but death and severe injury are preventable. For example, promote use of the word crash rather than accident.

Lead agency: C/CAG

Coordinating partners: Town of Colma Public Works

LEC1: Law Enforcement Training

Coordinate with the Town's Police Department to identify opportunities for integrating safety into training for new officers (e.g., NHTSA's pedestrian training for law enforcement). Identify through the TSAC if opportunities for efficiency are available in coordination with the County Sheriff's Office or California Highway Patrol.

Lead agency: County Sheriff's Office

Coordinating partners: California Highway Patrol, Town of Colma Public Works

LEC2: Speed Monitoring Awareness Radar Trailer

Coordinate with Colma PD to deploy a trailer to monitor speeds on streets and to raise awareness of speeding. It can be deployed long term along HIN and other arterials, or short term in neighborhoods. Use the priority locations and data in this plan to identify locations and schedule for deployment.

Lead agency: Town of Colma Police Department

Coordinating partners: Town of Colma Public Works

LEC5: Progressive Ticketing

Coordinate with Colma PD to consider implementation of a 3-step model of Educating – Warning – Ticketing to establish awareness, allow time for behavioral change, and use ticketing as the final reserve.

Lead agency: Town of Colma Police Department

Coordinating partners: Town of Colma Public Works

LF2: Equitable Investment

Prioritize townwide safety investments in disadvantaged communities. Use the presence of disadvantaged communities (as identified with C/CAG Equity Focus Areas, MTC Equity Priority Communities, USDOT Historically Disadvantaged Communities, and/or USDOT Areas of Persistent Poverty) as a factor to elevate funding for certain projects or other safety-related programs.

Lead agency: Town of Colma Public Works

LF3: Prioritize Investments

Use the priority locations identified in this plan to determine safety project opportunities to advance for further project development and to identify funding. Identify pathways for improvement for the locations on the list. Continue to engage the community to refine the priorities within the list of identified sites.

Lead agency: Town of Colma Public Works

LEO1: Roadway Safety Education in Schools

Continue School Travel Fellowship Program to provide the following:

- Technical assistance to schools and planners to implement demonstration projects
- ATP Project Specialist to work with educators to provide technical assistance (bike rodeos, parent engagement workshops and resources, walk and bike audits, and additional support for walk/bike to school encouragement events) to schools in EPCs

Lead agency: SMCOE

Coordinating partners: County Public Health, Office of Sustainability, SVBC

LEO2: Engagement Accessibility

Plan community engagement efforts to be tailored for vulnerable road users and all travel modes. Make outreach materials available in accessible formats and multiple languages.

Lead agency: Town of Colma Public Works

LEO3: Educational Materials for New Facilities

Develop and distribute educational materials and/or videos demonstrating how to navigate and interact with newer active transportation facilities (e.g., bike boxes, Pedestrian Hybrid Beacons, separated bike lanes, etc.) Include information about the purpose and goals of this infrastructure.

Lead agency: Town of Colma Public Works

Coordinating partners: C/CAG, TSAC members

LEO4: Transportation Safety Campaign

Run education campaigns and outreach to foster community awareness of a shared responsibility for road safety. Use the emphasis areas highlighted in this plan as focus areas and target groups for a campaign.

Lead agency: Town of Colma Public Works

Coordinating partners: C/CAG, County Public Health

LPE1: Annual Review

Provide an annual review of plan implementation progress. This review includes an update and presentation to Town Council as well as a written update to the TSAC so that C/CAG may compile county plan implementation status.

Lead agency: Town of Colma Public Works

LPE2: Plan Update

Update the plan within five years of publication. The plan update will revise actions to reflect current crash trends and will integrate technological advancements and changes in best practices as needed.

Lead agency: Town of Colma Public Works

LPE3: Safety and Equity Impacts Evaluation

Fund a study to address traffic injury and enforcement inequities to inform policies, projects, programs, and needed data quality improvements. Solicit feedback on the report's equity analysis from groups representing equity priority communities. Topics for the study may include injury related to homelessness, race/ethnicity,

language, income, and immigration status, citations by demographics, citation type, and location. Alternately, coordinate with the TSAC to participate in a countywide version of the same that can include the Town as part of its scope.

Lead agency: C/CAG

LPE4: Safe Routes to School

Continue to participate in school safety assessments at all public and private schools, develop implementation plans for improvements up to one quarter mile from the schools. Develop a plan and timeline to include all schools in the Town.

Lead agency: SMCOE

Coordinating partners: Town of Colma Public Works

LPE5: Data Quality Improvements

Conduct one or more studies to address the following challenges:

- Integrating hospital and police data
- Providing a means to collect and incorporate near-miss data into safety analysis

Alternately, coordinate with C/CAG through the TSAC to participate in and benefit from a regional version of the same, which could include developing a consistent countywide crash database. Such a database would prevent the time lag present in SWITRS, provide accurate and timely monitoring of crashes, and allow monitoring of injury trends over time.

Lead agency: C/CAG

Coordinating partners: County Sheriff's Office, Local Jurisdictions, Local Police Departments, Town of Colma

LPE6: Crash Data Enhancements

Study integrating crash data with Police Department's tracking system for timely, efficient reporting and sharing of injury crashes, including geolocated data. Review current crash data form and study existing best practices. Consider adding select visible disability statuses to the crash data form. If feasible and prudent, add this field to the crash data form.

Lead agency: County Sheriff's Office

Coordinating partners: California Highway Patrol, C/CAG, MTC

LPE7: Big Data

Coordinate with C/CAG through the TSAC to identify a pathway for obtaining and incorporating integrated curb-level activity data including volumes, paths, speeds, and behaviors of pedestrians, bicycles, vehicles, etc. These data are available from a number of big data sources on the market. The goal would be to enable improved data availability for safety planning.

Lead agency: C/CAG

Coordinating partners: MTC, SMCTA, Town of Colma

LPE8: Speed Limits/Speed Management Plan

Per California Assembly Bill 43 (passed in 2021), identify business activity districts, safety corridors, and in areas with high ped/bike activities to implement reduced speeds. To the extent possible, complement the speed reduction with design treatments like those identified in this plan to effect reduced speeds by the desired amount.

Lead agency: Town of Colma Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Colma’s vision is consistently evaluating roadway safety performance and tracking plan progress. The Town of Colma will develop a process to regularly collect data and information around the performance measures that can be used to assess changes townwide and at the top priority locations.

Implementation actions are organized by plan goals and grouped by time: near-term actions, which Colma can initiate immediately, and longer-term actions, which may require coordination and additional staff time.

This section identifies recommendations for Colma and other county-level safety partners to implement the plan. These are aligned with the Safe System Approach as well as a framework to measure plan progress over time.

Table 6. Town of Colma Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
<ol style="list-style-type: none"> 1. Regularly monitor crashes to respond to safety problems and changing conditions. Prioritize locations with high crash rates for safety improvements. 2. Review proposed improvement plans to ensure that roadway projects, retrofits, and maintenance projects incorporate complete streets that support multiple modes of travel. 	<ul style="list-style-type: none"> • Number of LRSP project locations advanced through project development, reported at the agency level • Annual and three-year total reported crashes, fatal/severe injury crashes, crashes by mode, and crashes by emphasis areas identified
<ol style="list-style-type: none"> 3. Advance the active transportation efforts of the Town and regional agencies to achieve the greenhouse gas (GHG) reduction. 	<ul style="list-style-type: none"> • Distribution at the jurisdiction level for safety projects within equity focus areas (C/CAG EFAs or MTC EPCs) versus outside these areas • Report-backs to the Town Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable. • Implementation of a high-visibility media campaign • Expansion of SRTS and Roadway Safety Education in Schools programs to more schools within the Town
<ol style="list-style-type: none"> 4. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities. 5. Provide opportunities for community engagement in roadway capital improvement projects to identify safety solutions. 6. Ensure that disadvantaged communities fully share in the benefits of the safety programs. 	<ul style="list-style-type: none"> • Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and number of community member interactions townwide for safety plans or projects. • Report-backs to the Town Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable

GOAL	MEASURE OF SUCCESS
7. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	<ul style="list-style-type: none">• Percent of school district participation in SRTS and roadway safety education opportunities• Number of trainings Town staff have participated in regarding Safe System elements, available tools, or practices• Improved data availability or maintenance to enhance safety analysis and practice
8. Monitor implementation of the Colma LRSP to track progress towards goals.	<ul style="list-style-type: none">• See above in this table

Town of Colma

San Mateo C/CAG Countywide LRSP